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**IN THE SUPREME COURT OF THE STATE OF ALASKA**

ESAU SINNOK, et al., )  
)  
Appellants, )  
)  
v. )  
)  
STATE OF ALASKA, et al., )  
)  
Appellees. ) Supreme Court No. S-17297  
)  
\_\_\_\_\_  
Superior Court Case No. 3AN-17-09910 CI

**BRIEF OF *AMICI CURIAE* ALASKA INTER-TRIBAL COUNCIL, EYAK  
PRESERVATION COUNCIL, AND NATIVE CONSERVANCY LAND  
TRUST IN SUPPORT OF APPELLANTS**

APPEAL FROM THE SUPERIOR COURT,  
THIRD JUDICIAL DISTRICT AT ANCHORAGE,  
THE HONORABLE GREGORY MILLER, PRESIDING

LAW OFFICE OF ROBERT JOHN

Filed in the Supreme Court of  
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Marine Mammal Protection Act, 16 U.S.C. § 1371(b).....	6
Migratory Bird Treaty Act, 16 U.S.C. § 712(1).....	6

### OTHER AUTHORITIES

ACIA Overview Report, <i>Impacts of a Warming Arctic: Arctic Climate Impact Assessment</i> (2004).....	passim
Alaska Dep't of Health and Social Services, <i>Assessment of the Potential Health Impacts of Climate Change in Alaska</i> (2018) .....	25
Alaska Energy Wiki, <i>History of Energy Policy in Alaska</i> .....	5
Alaska Regional Assessment Group, <i>Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change</i> 7 (Dec. 1999).....	12
Arctic Monitoring and Assessment Programme, <i>Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers</i> (2017) .....	13, 15, 16, 23

Boris Biskaborn <i>et al.</i> , <i>Permafrost is Warming at a Global Scale</i> , <i>Nature Communications</i> 10.1 (2019).....	23
Conservation of Arctic Flora and Fauna, <i>Arctic Biodiversity Assessment: Report for Policy Makers</i> (2013) .....	11
D. A. Rothrock <i>et al.</i> , <i>Thinning of the Arctic Sea-Ice Cover</i> , 26 <i>Geophysical Research Letters</i> (1999).....	19
Denali Commission, <i>Village Infrastructure Protection Program</i> (2017) .....	26
Dieter Lüthi <i>et al.</i> , <i>High-Resolution Carbon Dioxide Concentration Record 650,000-800,000 Years Before Present</i> 453 <i>Nature</i> (May 2008) .....	10
Evon Peter, <i>The People and the Caribou Are One</i> , <i>Voices from the Earth</i> (Spring 2005)14	
Inuit Circumpolar Council-Alaska, <i>Alaskan Inuit Food Security Conceptual Framework</i> (2015).....	14
IPCC, Polar Regions. In: <i>Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects</i> (2014).....	17
James E. Hansen <i>et al.</i> , <i>Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?</i> 2 <i>Open Atmos. Sci.</i> 217 (2008).....	8
Jerzy Shedlock, <i>Coast Guard Rescues Walrus Hunters Stranded in Sea Ice off Western Alaska</i> , <i>Anchorage Daily News</i> (July 18, 2016).....	20
Jim Motavalli, <i>Feeling the Heat: Dispatches from the Frontlines of Climate Change</i> (Routledge 2004).....	18
Johanna Eurich, <i>Newtok is on the move</i> , <i>Alaska Public Media</i> (Dec. 28, 2018).....	29
Joseph B. Verrengia, <i>In Alaska, an Ancestral Island Home Falls Victim to Global Warming</i> , <i>Associated Press</i> (Sept. 10, 2002).....	20
Larry D. Hinzman <i>et al.</i> , <i>Evidence and Implications of Recent Climate Change in Northern Alaska and Other Arctic Regions</i> , 72 <i>Climatic Change</i> 252 (2005).....	11
Margaret Bauman, <i>Conference Attendees Receive an Account of Arctic Warming, Peninsula Clarion</i> (Nov. 30, 2005).....	5
Margie Ann Gibson & Sallie B. Schullinger, <i>Answers from the Ice Edge: The Consequences of Climate Change on Life in the Bering and Chukchi Seas</i> (Greenpeace U.S.A. 1998).....	18

Margot Roosevelt, <i>Vanishing Alaska: Global Warming is Flooding Villages Along the Coast. Should They Surrender and Move?</i> Time Magazine (Sept. 27, 2004).....	11
Michael Brubaker <i>et al.</i> , Alaska Native Tribal Health Consortium, Center for Climate and Health, <i>Source Drinking Water Challenges Changes to an Arctic Tundra Lake</i> , CCH Bulletin No. 2 (Oct. 19, 2009) .....	28
Nancy G. Maynard, <i>Final Report: Native Peoples-Native Homelands Climate Change Workshop</i> (1998) .....	19
Naomi Klouda, <i>Federal fund injection boosts effort to relocate Newtok</i> , Alaska Journal of Commerce (May 23, 2018).....	28
Nat’l Aeronautics and Space Admin., Global Climate Change, <i>Arctic Sea Ice Minimum</i>	16
Nat’l Assessment Synthesis Team, USGCRP, <i>Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change</i> (2000).....	19
Nat’l Oceanic and Atmospheric Admin., <i>2018 Arctic Report Card: Reindeer and Caribou Populations Continue to Decline</i> (Dec. 11, 2018) .....	21
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Nat’l Oceanic and Atmospheric Admin., <i>How Does Sea Ice Affect Global Climate?</i> .....	15
Nat’l Oceanic and Atmospheric Admin., <i>Trends in Atmospheric CO<sub>2</sub></i> .....	9
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Omar Abdul-Aziz <i>et al.</i> , <i>Potential Climate Change Impacts on Thermal Habitats of Pacific Salmon (Oncorhynchus spp.) in the North Pacific Ocean and Adjacent Seas</i> , Canadian Journal of Fisheries and Aquatic Sciences (2011) .....	15
Rebecca Lindsey, <i>Climate Change: Atmospheric Carbon Dioxide</i> (Aug. 1, 2018) .....	10
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The White House, <i>National Strategy for the Arctic Region</i> (2013).....	7
<i>Threat to North’s Cultural Survival</i> , ECO 2 (Dec. 2003). .....	10

U.S. Arctic Research Comm’n, <i>Climate Change, Permafrost, and Impacts on Civil Infrastructure</i> (2003) .....	22
U.S. Climate Resilience Toolkit, <i>Relocating Kivalina</i> (2017).....	27
U.S. Env’tl. Prot. Agency, <i>What Climate Change Means for Alaska</i> (2016).....	23
U.S. Fish and Wildlife Service, <i>Visiting and Listening Meaningful Participation for Alaska Native Peoples in Conservation Projects</i> (2012) .....	6
U.S. General Accounting Office, <i>Alaska Native Villages: Most Are Affected by Flooding and Erosion, But Few Qualify for Federal Assistance</i> (December 2003) .....	28
U.S. Geological Service, <i>Status and Trends of the Nation’s Biological Resources: Alaska, Volume 2</i> (1998) .....	21
U.S. Global Change Research Program, <i>Climate Change Impacts in the United States</i> (2014).....	passim
U.S. Global Change Research Program, <i>Climate Science Special Report: Fourth National Climate Assessment, Volume I</i> (2017) .....	8, 9, 13
U.S. Global Change Research Program, <i>Impacts of Climate Change on Human Health in the United States</i> (2016) .....	25
U.S. Global Change Research Program, <i>Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II</i> (2018).....	passim
U.S. Government Accountability Office, <i>Alaska Native Villages: Limited Progress Has Been Made on Relocating Villages Threatened by Flooding and Erosion</i> (2009).....	26
UN Environment Program. <i>Global Linkages – A Graphic Look at the Changing Arctic</i> (2019).....	23, 29
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## **JURISDICTIONAL STATEMENT**

*Amici Curiae* Alaska Inter-Tribal Council, Eyak Preservation Council, and the Native Conservancy Land Trust concur with the jurisdictional statement by the Appellants (“Plaintiffs”).

## **STATEMENT OF ISSUES PRESENTED**

*Amici Curiae* Alaska Inter-Tribal Council, et al., concur with the statement of issues presented by Plaintiffs.

## **STATEMENT OF THE CASE**

*Amici Curiae* Alaska Inter-Tribal Council, et al., concur with the statement of the case presented by Plaintiffs.

## **STANDARD OF REVIEW**

*Amici Curiae* Alaska Inter-Tribal Council, et al., concur with the standard of review presented by Plaintiffs.

## **INTEREST AND IDENTITY OF *AMICI CURIAE***

The Alaska Inter-Tribal Council (AITC) is a statewide, tribally governed, non-profit organization that advocates on behalf of tribal governments throughout the state. AITC promotes indigenous self-determination by providing technical assistance to tribal governments, facilitating inter-governmental and inter-agency communication and collaboration, offering public education regarding Alaska Native cultures and tribal governments, and advocating on behalf of tribal initiatives and self-governance.

AITC is greatly concerned about the impacts of climate change on their members. Living in the Arctic and sub-Arctic regions of Alaska, their members experience daily the

effects of climate change, including thinning sea ice, increased coastal erosion, melting permafrost, and changes in plant and animal distributions. Climate change is depleting the subsistence resources of the members of AITC and threatening their health, safety, and way of life. As a result, the members of AITC have an interest in ensuring that the State of Alaska takes the urgent action needed to reduce carbon dioxide (CO<sub>2</sub>) emissions to the greatest degree possible.

The Eyak Preservation Council (EPC) is a 501(c)(3) nonprofit organization, based in Cordova, Alaska, with a mission to honor Eyak Heritage and conserve wild salmon culture and habitat through education, awareness, and the promotion of sustainable lifeways for all peoples. EPC works to link wild salmon habitat preservation, environmental justice, and cultural preservation with sustainable economic solutions. EPC works to foster its vision of sustainable communities in which society, economics, and education all reinforce the wild salmon way of life. EPC represents an Indigenous voice to deflect unsustainable development, regardless of the promoter of the project.

EPC's work is centered around preserving wild salmon's pristine habitat and ecosystems to ensure the survival of returning salmon, and also to preserve the traditional heritage and economies that depend upon wild salmon in Alaska. EPC understands that preserving wild salmon habitat cannot be accomplished without addressing the causes of climate change, and thus the organization has a strong interest in ensuring that young Alaskans, the future stewards of the wild salmon ecosystems in Alaska, can get their climate change injuries considered and remedied in a court of law. Working with a broad array of constituents, EPC provides value-focused programs to achieve the ultimate goal

of securing permanent protection for wild salmon habitat. Part of EPC’s work includes creating a platform to teach, preserve, and revitalize the Eyak language, so that it can be carried on by future generations. There are currently seven key Eyak Native Learners.

The Native Conservancy Land Trust (Native Conservancy) has as its mission supporting Indigenous people’s efforts to preserve, repatriate, and restore ancestral lands through the establishment of Indigenous land conservation trusts on sacred lands and waters that are inherent to the protection and perseverance of sovereignty, subsistence, spirituality, and Native culture. Its founding Native board formed the organization in 2003 with the Bering River Coal Fields in mind as their first conservation and stewardship goal. The Native Conservancy has helped permanently protect 62,000 acres (85%) of the Bering River Coal Field in December 2016. The Native Conservancy was the first Native-led land trust in Alaska. The Native Conservancy directly assists and empowers Indigenous people in Alaska to protect, preserve, restore, and enhance their intrinsic bond and inherent responsibility protect and preserve the sacred air, water, ancestral lands, wild food resources, and traditional way of life. Climate change poses a threat to the sacred Indigenous lands and waters that the Native Conservancy seeks to protect for all future generations.

**SUMMARY OF ARGUMENT**

This case involves the State of Alaska’s constitutional duty to cease activities associated with its energy policy that cause and contribute to climate change, a phenomenon that is harming the youth plaintiffs in personal ways as described in the amended complaint. *See, e.g.*, First Amended Complaint at ¶¶ 14-91. Nowhere are the

effects of the high levels of greenhouse gas (GHG) emissions that cause climate change more severe than in the Arctic. Alaska has been characterized as the “canary in the coalmine” for climate change — polar sea ice is melting, glaciers are receding, permafrost is melting, and villages are being washed into the sea. The Trump Administration recently stated that “Alaska is on the front lines of climate change and is among the fastest warming regions on Earth.”<sup>1</sup>

*Amici* submit this brief to describe the urgency of the situation and to emphasize what is at stake in this litigation: the physical and cultural survival of Alaska’s Native people and communities. As alleged in the amended complaint, the Appellees (“Defendants”) in this case have constitutional responsibilities to develop and implement energy policy in a way that does not result in harms to its youngest citizens. First Amended Complaint ¶¶ 7, 235, 237-239 (describing the Alaska Energy Policy that is causing the constitutional harm).<sup>2</sup> The discontinuation of energy policies and planning

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<sup>1</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1190 (2018), <https://nca2018.globalchange.gov> (last visited Mar. 19, 2019).

<sup>2</sup> The trial court found that no Alaska energy policy exists, but that finding erroneously contradicts the well-pleaded allegations in the Amended Complaint. *Kanuk v. State, Department of Natural Resources*, 335 P.3d 1088, 1091 (Alaska 2014) (all well pleaded facts in the complaint must be deemed as true for purposes of a motion to dismiss). Plaintiffs allegations that the State's energy policy is reflected in AS § 44.99.115(2)(A) and Defendants' clear pattern and practice of systemic actions with respect to fossil fuels and GHG emissions are undoubtedly sufficient at this stage of litigation. Plaintiffs should have an opportunity to present specific factual evidence consistent with their allegations to show the contours of Alaska’s energy policy and that the policy, as alleged, results in substantial amounts of GHG emissions that are causing and contributing to the youth’s injuries. *Lujan v. National Wildlife Federation*, 497 U.S. 871, 889 (1990) (on a motion to dismiss “general allegations embrace those specific facts that are necessary to support the claim.”); *see also, e.g.*, Alaska Energy

that contribute to the devastating impacts of climate change in Alaska is a critical step to ensure the survival of Alaska’s Native communities. Judicial review of legislative and executive actions that threaten the existence and way of life of Alaskan children is not a political question, but one that must be heard and decided by the courts. *State, Dep’t of Health & Soc. Services. v. Planned Parenthood of Alaska, Inc.*, 28 P.3d 904, 914 (Alaska 2001). Thus, we join Plaintiffs in urging this Court to reverse the dismissal of this case and to remand it to the trial court so that Plaintiffs’ important constitutional claims can be heard and resolved.

## ARGUMENT

### I. INTRODUCTION & SCIENTIFIC BACKGROUND

*“We are experiencing things in one lifetime that should take five or six generations. . . . We are making do with less (subsistence food) and trying to make the most of it.”*

— Ronald Brower Sr. speaking on behalf of the Inuit Circumpolar Conference (ICC).<sup>3</sup>

Alaska’s Native people comprise eleven distinct cultures. As recognized by the Alaska Native Heritage Center, these cultures are generally organized into five cultural

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Wiki, *History of Energy Policy in Alaska*, <http://energy-alaska.wikidot.com/history-of-energy-policy-in-alaska> (“Alaska has a history of energy planning and policy development dating from statehood in 1959.”); *id.* (“In 1979, under Governor Jay Hammond, the state articulated its first energy policy . . . .”); *id.* (“For example, the 1981 State Long Term Energy Plan (the first of six such plans . . . .”); *id.* (“State energy policy early in this decade is reflected in the 2003 Statewide Energy Issues Overview, a product of the Alaska Energy Policy Task Force.”).

<sup>3</sup> Margaret Bauman, *Conference Attendees Receive an Account of Arctic Warming, Peninsula Clarion* (Nov. 30, 2005). The ICC is an international organization representing about 155,000 Inuit living in the Arctic regions of Alaska, Canada, Greenland and Chukotka, Russia.

groupings that draw upon cultural similarities or geographic proximity: the Athabascan of the Interior and Eastern Alaska; the Yup'ik and Cup'ik of Western Alaska; the Inupiaq and St. Lawrence Island Yupik of the Northern and Northwestern Arctic; the Aleut and Alutiiq of Southcentral Alaska and the Aleutian Islands; and the Eyak, Tlingit, Haida, and Tsimshian of the Southeastern archipelago.<sup>4</sup> The people of these cultures have occupied the land we know as Alaska for thousands of years.<sup>5</sup> They rely upon, are connected with, and have a sophisticated knowledge of, the natural Arctic environment. This physical and spiritual relationship can be encapsulated by the term “subsistence.” The U.S. Congress has defined subsistence as “the customary and traditional uses . . . of wild, renewable resources” for food, clothing, sharing, or other customary uses.<sup>6</sup> Congress also has recognized the importance of Alaska Native subsistence by exempting subsistence activities from the general application of some federal environmental statutes that impair the exercise of subsistence rights.<sup>7</sup> Alaska Natives also use traditional knowledge that is helpful to the Court in considering the issues in the case.<sup>8</sup>

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<sup>4</sup> U.S. Fish and Wildlife Service, *Visiting and Listening Meaningful Participation for Alaska Native Peoples in Conservation Projects* 4 (2012).

<sup>5</sup> *Id.*; Norman A. Chance, *The Inupiat and Arctic Alaska: An Ethnography of Development*, 17-18 (Harcourt 1990).

<sup>6</sup> Alaska National Interest Lands Conservation Act (ANILCA), 16 U.S.C. § 3113.

<sup>7</sup> *See, e.g.*, Endangered Species Act, 16 U.S.C. §1539(e) (exempting Alaska Natives from take provisions “if such taking is primarily for subsistence purposes”); Marine Mammal Protection Act, 16 U.S.C. § 1371(b) (exempting Alaska Natives from Act’s take provisions if take “is for subsistence purposes”); Migratory Bird Treaty Act, 16 U.S.C. § 712(1) (enabling Secretary of Interior to permit Alaska Natives to take migratory birds and collect their eggs for seasonal subsistence use); Alaska National Interest Lands Conservation Act, 16 U.S.C. § 3114 (establishing subsistence preference for fish and wildlife uses on public lands). The term “take” generally means to harass, hunt, capture,

After surviving and thriving in a difficult environment for many millennia, Alaska Native cultures face a daunting challenge as anthropogenic climate change is drastically changing the Arctic and sub-Arctic ecosystems in a way that threatens Alaska Natives' very existence.<sup>9</sup> According to the United States Global Change Research Program,<sup>10</sup> climate change is unequivocally human-induced,<sup>11</sup> is occurring now, and is projected to accelerate if GHG emissions continue increasing.<sup>12</sup> Climate change is damaging both

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or kill, or attempt to harass, hunt, capture, or kill the species protected under the various statutes. *See, e.g.*, Marine Mammal Protection Act, 16 U.S.C. § 1361 (13).

<sup>8</sup> *See, e.g.*, The White House, *National Strategy for the Arctic Region* 3 (2013), [https://arctic-council.org/images/PDF\\_attachments/09\\_13\\_2018\\_nat\\_arctic\\_strategy.pdf](https://arctic-council.org/images/PDF_attachments/09_13_2018_nat_arctic_strategy.pdf) (“Traditional knowledge refers to a body of evolving practical knowledge based on observations and personal experience of indigenous communities over an extensive, multigenerational time period.”).

<sup>9</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 5 (2004) (This report is an overview of the full ACIA Scientific Report published in 2005).

<sup>10</sup> “The U.S. Global Change Research Program (USGCRP) is a Federal program mandated by Congress to coordinate Federal research and investments in understanding the forces shaping the global environment, both human and natural, and their impacts on society.” The organization is comprised of “13 Federal agencies that conduct or use research on global change and its impacts on society, in support of the Nation's response to global change.” U.S. Global Change Research Program, <http://www.globalchange.gov/about> (last visited Mar. 14, 2019).

<sup>11</sup> U.S. Global Change Research Program, *Climate Change Impacts in the United States* 7 (2014), <https://nca2014.globalchange.gov/> (“Multiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years.”); U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 78 (2018) (“Greenhouse gas emissions from human activities are the only factors that can account for the observed warming over the last century; there are no credible alternative human or natural explanations supported by the observational evidence.”).

<sup>12</sup> U.S. Global Change Research Program, *Climate Change Impacts in the United States* 15 (2014) (“Human-induced climate change is projected to continue, and it will accelerate significantly if global emissions of heat-trapping gases continue to increase.”);

natural and human systems, and if GHG emissions continue as they are today, will alter the planet's habitability.<sup>13</sup>

Human beings have significantly altered the chemical composition of the Earth's atmosphere and its climate system,<sup>14</sup> by engaging in activities that produce or release GHGs into the atmosphere. For example, through its energy policy, Alaska has approved and undertaken activities that result in significant GHG emissions. *See, e.g.*, First Amended Complaint ¶¶ 219-233 (describing Alaska's share of GHG emissions that result from actions of the Defendants). Carbon dioxide (CO<sub>2</sub>) is the primary GHG, and there is unequivocal scientific evidence that emissions of CO<sub>2</sub> from burning fossil fuels are largely responsible for global warming and climate change.<sup>15</sup> The increase of GHG concentrations resulting, in part, from activities that Defendants authorize through their energy policy, has altered the delicate balance of Earth's energy between the energy

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U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 35 (2017) (“Global climate is projected to continue to change over this century and beyond. The magnitude of climate change beyond the next few decades will depend primarily on the amount of greenhouse (heat-trapping) gases emitted . . .”).

<sup>13</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 36 (2018) (“Climate change is transforming where and how we live and presents growing challenges to human health and quality of life, the economy, and the natural systems that support us.”).

<sup>14</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* (2017).

<sup>15</sup> *See* James E. Hansen *et al.*, *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 *Open Atmos. Sci.* 217, 217-231 (2008).

coming in through the atmosphere from the sun and that which radiates back out into space.<sup>16</sup>

The current CO<sub>2</sub> concentration in our atmosphere is over 410 ppm (compared to the pre-industrial concentration of 280 ppm).<sup>17</sup> Current atmospheric CO<sub>2</sub> concentrations are the highest they have been in at least 800,000 years.<sup>18</sup> Concentrations of other GHGs in the atmosphere have also increased from human activities. Atmospheric concentrations of methane, for example, have increased by a factor of about 2.5 since the pre-industrial period.<sup>19</sup> Concentrations of nitrous oxide have also increased.<sup>20</sup> Humans not only continue to add GHGs into the atmosphere at a rate that outpaces their removal through natural processes,<sup>21</sup> but the observed CO<sub>2</sub> increase over the past 60 years is about 100 times faster than has occurred over the past 800,000 years.<sup>22</sup>

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<sup>16</sup> First Amended Complaint ¶¶ 136, 141.

<sup>17</sup> Nat'l Oceanic and Atmospheric Admin., *Trends in Atmospheric CO<sub>2</sub>*, <https://www.esrl.noaa.gov/gmd/ccgg/trends/global.html>; Nat'l Oceanic and Atmospheric Admin., *Carbon Dioxide Levels Breach Another Threshold at Mauna Loa* (June 7, 2018), <https://www.noaa.gov/news/carbon-dioxide-levels-breach-another-threshold-at-mauna-loa> (last visited Mar. 21, 2019).

<sup>18</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 87 (2017); U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 100 (2018) (“Atmospheric carbon dioxide concentrations are now higher than at any time in the last 3 million years. . .”).

<sup>19</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 83 (2017).

<sup>20</sup> *Id.*

<sup>21</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 40 (2018) (“Humans are adding carbon dioxide to the atmosphere at a rate far greater than it is removed by natural processes, creating a long-lived reservoir of the gas in the atmosphere and oceans that is

The effects of this planetary warming are being seen in changes in Earth’s climate, weather, plants, animals, and every aspect of the natural environment. All of these changes are impairing the ability of Alaska Natives, who are connected to this natural environment and rely upon it, to maintain their cultural identity and way of life. The Trump Administration has recognized that “[t]he impacts of climate change will likely affect *all aspects* of Alaska Native societies, from nutrition, infrastructure, economics, and health consequences to language, education, and the communities themselves.”<sup>23</sup>

## II. GLOBAL WARMING THREATENS THE PHYSICAL AND CULTURAL SURVIVAL OF ALASKA NATIVES

*“Time is running out for the Arctic. We need far-reaching, long-term global commitments to reduce emissions of greenhouse gases if the Arctic is to be protected and if our human rights, particularly our human rights to subsistence, are to be respected.”*

— Sheila Watt-Cloutier, ICC Chair.<sup>24</sup>

For millennia, Alaska Natives have used their sophisticated knowledge and experience of the sea, ice, land, and animals to thrive in a harsh environment. The living resources of the Arctic and sub-Arctic regions of Alaska not only sustain the economic

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driving the climate to a warmer and warmer state.”).

<sup>22</sup> Rebecca Lindsey, *Climate Change: Atmospheric Carbon Dioxide* (Aug. 1, 2018), <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide>; Dieter Lüthi *et al.*, *High-resolution Carbon Dioxide Concentration Record 650,000-800,000 Years Before Present* 453 *Nature* 379, 379-382 (May 2008).

<sup>23</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1188 (2018) (emphasis added); *see also* U.S. Global Change Research Program, *Climate Change Impacts in the United States* 17 (2014) (“Climate change poses particular threats to Indigenous Peoples’ health, well-being, and ways of life.”).

<sup>24</sup> *Threat to North’s Cultural Survival*, *ECO* 2 (Dec. 2003).

and nutritional viability of Alaska Native communities, they also provide a basis for social identity, spiritual life, and cultural survival.<sup>25</sup> As these communities have observed, the Arctic and sub-Arctic is an environment at risk, threatening their existence and way of life.<sup>26</sup> The sea ice is declining, anomalous weather patterns are becoming more frequent, vegetation cover is changing, and particular animals are no longer found in traditional hunting areas during the expected seasons.<sup>27</sup>

Since the 1970s, Alaska Natives also have noticed and reported environmental changes outside the bounds of “normal” variability.<sup>28</sup> They have reported sightings of species like American robins, whose normal range does not include the Arctic.<sup>29</sup> Several communities have observed changes in the health and behavior of caribou, a key subsistence species.<sup>30</sup> In the Pribilof Islands, villagers have witnessed the decline of 20 species, ranging from kelp to sea lions.<sup>31</sup> The presence of 20 new ocean fish species, not part of traditional subsistence harvests have been confirmed in the Chukchi and Beaufort

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<sup>25</sup> Conservation of Arctic Flora and Fauna, *Arctic Biodiversity Assessment: Report for Policy Makers* 4 (2013).

<sup>26</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 94 (2004).

<sup>27</sup> *Id.*

<sup>28</sup> Sheila Watt-Cloutier *et al.*, *Responding to Global Climate Change: The Perspective of the Inuit Circumpolar Conference on the Arctic Climate Impact Assessment*, 2<sup>o</sup> *Is Too Much! Evidence and Implications of Dangerous Climate Change in the Arctic* 57, 59 (World Wildlife Fund 2005).

<sup>29</sup> Larry D. Hinzman *et al.*, *Evidence and Implications of Recent Climate Change in Northern Alaska and Other Arctic Regions*, 72 *Climatic Change* 252, 286 (2005).

<sup>30</sup> *Id.*

<sup>31</sup> Margot Roosevelt, *Vanishing Alaska: Global Warming is Flooding Villages Along the Coast. Should They Surrender and Move?* *Time Magazine* (Sept. 27, 2004).

Seas in the last 15 years.<sup>32</sup>

In short, climate change is drastically altering the natural environment on which Alaska Natives depend.<sup>33</sup>

Experienced hunters and elders who could predict the weather using traditional techniques are now frequently unable to do so. Storms often occur without warning. Wind direction changes suddenly. In many places it is increasingly cloudy. Storms bringing high winds and lightning occur with increasing frequency in some locations. As noted by several elders, “the weather is harder to know.” This presents problems for many activities, from hunting to drying fish, on which Indigenous Peoples depend.<sup>34</sup>

These observations are supported by scientific research. The 2004 *Arctic Climate Impact Assessment* (ACIA), the last full assessment prepared by the Arctic Council with the input of hundreds of scientists and the knowledge of elders from Arctic indigenous communities,<sup>35</sup> comprehensively assessed Arctic global warming trends, causes, and effects. Since then, assessment reports by the U.S. Global Change Research Program (USGCRP), Intergovernmental Panel on Climate Change (IPCC), Arctic Monitoring and Assessment Programme (AMAP), and others have confirmed the rapid rate of Arctic change.

Among key findings of these reports is that annual average Arctic temperature has

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<sup>32</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1195 (2018).

<sup>33</sup> Alaska Regional Assessment Group, *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change* 7 (Dec. 1999).

<sup>34</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 96 (2004).

<sup>35</sup> *Id.* at Preface.

increased at more than twice the rate of the rest of the world.<sup>36</sup> Over the past 60 years, average annual Alaska temperatures have risen by 1.6°C (3°F) and in the winter by 3.3°C (6°F).<sup>37</sup> Temperatures have increased even faster on Alaska’s North Slope, for example, Utqiagvik’s autumn temperatures have increased by 3.8 to 6.6°C (7 to 12°F) since 1979.<sup>38</sup> Over the next 30 years, continuation of Alaska’s energy policy that causes dangerous levels of CO<sub>2</sub> and other greenhouse gases is projected to contribute to additional Arctic autumn and winter warming of about 4 degrees Celsius, which would drastically alter the traditions and lives of Alaska Natives and threaten the lives and liberties of the children who have brought this case.<sup>39</sup> The Arctic is also expected to experience increased Arctic Ocean acidification, increased wildfire activity in boreal forests and arctic tundra, decreased snow cover extent, and mass loss from ice sheets and glaciers.<sup>40</sup>

#### **A. Global Warming Threatens the Subsistence of Alaska Natives**

*“The practice of coming out here and being on the land and hunting caribou is not only about feeding our families, because it is all we have to*

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<sup>36</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 29 (2017).

<sup>37</sup> U.S. Global Change Research Program, *Climate Change Impacts in the United States* 516 (2014); *see also* Arctic Monitoring and Assessment Programme, *Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers* 3 (2017) (“January 2016 in the Arctic was 5°C warmer than the 1981-2010 average for the region. . .”).

<sup>38</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 305 (2017).

<sup>39</sup> Arctic Monitoring and Assessment Programme, *Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers* 10 (2017).

<sup>40</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 304-311 (2017).

*survive from. We don't have Safeways and Wal-Mart's and stuff like that in our tribes. But it's also about maintaining our culture and our spiritual relationship with these animals that we've had for time immemorial."*

— Evon Peter, Arctic Village, Alaska<sup>41</sup>

The continuation of the opportunity for subsistence uses by rural residents of Alaska is essential to Native physical, economic, traditional, and cultural existence.<sup>42</sup> The situation in Alaska is unique in that, in most cases, no practical alternative means exist to replace the food supplies and other items gathered from the fish and wildlife that supply rural residents dependent on subsistence uses.<sup>43</sup> “[Fifty] percent of the food for three-quarters of the Native families in Alaska's small and medium villages is acquired through subsistence uses, and 40 percent of such families spend an average of six to seven months of the year in subsistence activities.”<sup>44</sup> Traditional foods are seen by the Inuit as “a lifeline throughout our culture and reflect the health of the entire Arctic ecosystem.”<sup>45</sup>

Alaska's salmon populations play critical roles for Native communities' subsistence and culture, but face an uncertain future. Increasing ocean acidity is causing shell dissolution, impaired growth, and reduced survival of shelled pteropods, a key food

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<sup>41</sup> Evon Peter, *The People and the Caribou Are One, Voices from the Earth* (Spring 2005), available at <http://www.sric.org/voices/2005/v6n1/caribou.php>.

<sup>42</sup> ANILCA § 801(1), 16 U.S.C. § 3111.

<sup>43</sup> ANILCA § 801(2), 16 U.S.C. § 3111.

<sup>44</sup> *Native Village of Quinhagak v. Lujan*, 35 F.3d 388, 389-90 (9th Cir. 1994) (citing H.R. Rep. No. 1045, 95th Cong., 2d Sess., at 181 (1978)).

<sup>45</sup> Inuit Circumpolar Council-Alaska, *Alaskan Inuit Food Security Conceptual Framework* 8 (2015). Inuit food security depends on availability, Inuit culture, decision-making power and management, health and wellness, stability, and accessibility, and would not exist without food sovereignty. *Id.* at 13.

source for Pacific salmon.<sup>46</sup> Changes in spring river melting, increased riverbank erosion, and warmer winters may also impact salmon populations. By 2100, summer habitats are predicted to decrease 86% for Chinook, 45% for sockeye, and 30% for coho, pink and chum salmon, with the greatest habitat losses projected for the Gulf of Alaska, western and central subarctic North Pacific.<sup>47</sup>

### **1. Thinning and Receding Sea Ice Reduces Subsistence Resources on Arctic Coasts**

*“It looks like winter out there, but if you’ve really been around a long time like me, it’s not winter. . . . If you travel that ice, it’s not the ice that we traveled 40 years ago.”*

— Orville Huntington, vice chairman of the Alaska Native Science Commission.<sup>48</sup>

Sea ice is one of the most important climatic variables influencing Alaska, Arctic, and global climates.<sup>49</sup> Changes in sea ice have enormous environmental, economic, and societal implications.<sup>50</sup> The Arctic is rapidly losing its permanent ice, and is expected to

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<sup>46</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1194 (2018).

<sup>47</sup> Omar Abdul-Aziz *et al.*, *Potential Climate Change Impacts on Thermal Habitats of Pacific Salmon (*Oncorhynchus spp.*) in the North Pacific Ocean and Adjacent Seas*, *Canadian Journal of Fisheries and Aquatic Sciences* 1660 (2011). “Further, the high-seas Gulf of Alaska habitat for Chinook salmon (in summer) and sockeye salmon (in summer and winter) could be completely lost by the end of 21st century.” *Id.* at 1676.

<sup>48</sup> Yereth Rosen, *Warming Climate Disrupts Alaska Natives’ Lives*, Reuters (April 16, 2004).

<sup>49</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I* 305 (2017); Nat’l Oceanic and Atmospheric Admin., *How Does Sea Ice Affect Global Climate?*, <https://oceanservice.noaa.gov/facts/sea-ice-climate.html> (last visited Mar. 16, 2019).

<sup>50</sup> Arctic Monitoring and Assessment Programme, *Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers* (2017); U.S. Global Change Research Program,

have nearly sea ice-free late summers as early as the late 2030s.<sup>51</sup> In the central Arctic Ocean, sea ice thickness declined by 65% from 1975 to 2012.<sup>52</sup> As the Arctic sea ice melts and shrinks, it reflects less sunlight, radiating less energy back to space and absorbing more solar energy at the surface.<sup>53</sup> Changing the reflectivity of the surface creates a positive feedback that increases Arctic air temperatures.

In the Arctic, changes in sea ice are already “affecting marine ecosystems and biodiversity; changing the ranges of Arctic species; increasing the occurrence of oceanic algal blooms; leading to changes in diet among marine mammals; and altering predator-prey relationships, habitat uses, and migration patterns.”<sup>54</sup> September sea ice is now declining at a rate of 12.8% per decade, relative to the 1981-2010 average. The graph below shows the average monthly Arctic sea ice extent each September since 1979, derived from satellite observations.<sup>55</sup>

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*Climate Change Impacts in the United States* 298 (2014) (“Declining sea ice in Alaska is causing significant impacts to Native communities, including increasingly risky travel and hunting conditions, damage and loss to settlements, food insecurity, and socioeconomic and health impacts from loss of cultures, traditional knowledge, and homelands.”).

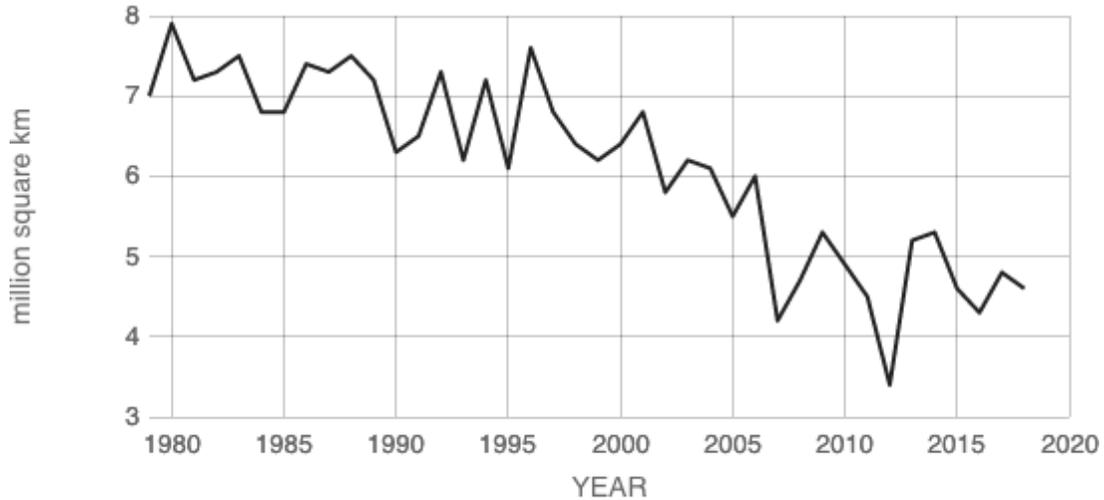
<sup>51</sup> Arctic Monitoring and Assessment Programme, *Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers* 5 (2017).

<sup>52</sup> *Id.* at 4.

<sup>53</sup> *Id.* at 9.

<sup>54</sup> *Id.* at 5.

<sup>55</sup> Nat’l Aeronautics and Space Admin., Global Climate Change, *Arctic Sea Ice Minimum*, <https://climate.nasa.gov/vital-signs/arctic-sea-ice/> (last visited Mar. 19, 2019).



Source: [climate.nasa.gov](http://climate.nasa.gov)

This melting of Arctic sea ice is having devastating consequences for polar bears, ice-dependent seals, and in some areas, walruses, and the Alaska Natives for whom these animals are a primary food source.<sup>56</sup> Sea ice supports an important food web of fish, seabirds, and marine mammals.<sup>57</sup> Polar bears, walruses, and ringed seals use the ice for transportation and as a “floating platform for resting, feeding, and producing their

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<sup>56</sup> Arctic Monitoring and Assessment Programme, *Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers 5* (2017); IPCC, Polar Regions. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects* 1575 (2014); ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 8 (2004).

<sup>57</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1193 (2018).

young.”<sup>58</sup> Sea ice declines have been associated with smaller polar bears, most likely due to hunting declines of seals who are also ice-dependent.<sup>59</sup>

The Alaska Native communities know and rely on this sea ice environment, traveling on the ice extensively in search of walrus, bowhead whales, and seals. Caleb Pungowiyi of Nome recounted the importance of stable ice conditions:

Ice is a supporter of life. It brings the sea animals from the North into our area and in the fall it also becomes an extension of our land. When it freezes along the shore, we go out on the ice to fish, to hunt marine mammals and to travel . . . . When it starts disintegrating and disappearing faster it affects our lives dramatically.<sup>60</sup>

Many Arctic communities depend on hunting polar bears, walruses, seals, whales, seabirds, and other marine animals for subsistence purposes.<sup>61</sup> Changes in the species’ ranges and availability and the decreased ability to travel safely in changing and unpredictable ice conditions are making people feel like strangers in their own land.<sup>62</sup> The thinning and retreating sea ice also makes it dangerous to hunt walruses, seals, and whales.<sup>63</sup> Tragically, returning from a hunting trip, Plaintiff Esau’s uncle passed away

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<sup>58</sup> Margie Ann Gibson & Sallie B. Schullinger, *Answers from the Ice Edge: The Consequences of Climate Change on Life in the Bering and Chukchi Seas* (Greenpeace U.S.A. 1998).

<sup>59</sup> U.S. Global Change Research Program, *Climate Change Impacts in the United States* 518 (2014).

<sup>60</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 24 (2004).

<sup>61</sup> *Id.* at 61.

<sup>62</sup> *Id.*

<sup>63</sup> Jim Motavalli, *Feeling the Heat: Dispatches from the Frontlines of Climate Change*, 108 (Routledge 2004).

after falling through thin sea ice in an area where the ice was historically thick and safe for travel at that time of year.<sup>64</sup>

The thinning and receding of sea ice is also decimating other subsistence resources:

Gathering food directly from the land and the sea makes the Yupiks very careful observers of their surroundings. In recent years, they have noticed that the walrus are thinner, their blubber less nutritious and oil from walrus fat does not burn as brightly in their lamps as in times of old. At the same time, they have noticed that there are fewer and weaker seals. The Yupik hunters have had to go farther and farther from shore to reach the ice pack to find the newborn seals that are being fed fish from nearby waters by their parents. Concurrently, scientists have observed that the sea ice over much of the Arctic is thinner and melting back, with the changes encompassing a broader area than that observed by the Yupiks earlier.<sup>65</sup>

As large-scale warming has reduced the ice platforms upon which seals and walrus depend for giving birth, nursing, and resting between searches for fish and mussels, they become weakened and less productive and thus provide less sustenance for local Native communities,<sup>66</sup> affecting communities' ability to meet their walrus harvest needs.<sup>67</sup> Ice-dependent seals, including the ringed seal, ribbon seal, and bearded seal, are particularly vulnerable to reductions in sea ice because they give birth and nurse their

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<sup>64</sup> First Amended Complaint ¶ 16.

<sup>65</sup> Nat'l Assessment Synthesis Team, USGCRP, *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change*, 366 (2000) (citing D. A. Rothrock *et al.*, *Thinning of the Arctic Sea-Ice Cover*, 26 *Geophysical Research Letters* 3469 (1999)).

<sup>66</sup> Nancy G. Maynard, *Final Report: Native Peoples-Native Homelands Climate Change Workshop*, 62 (1998).

<sup>67</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1193 (2018).

pups on the ice.<sup>68</sup> They also forage near the ice edge, which is an extremely productive area and especially sensitive to climate change.<sup>69</sup> As the ice melts, the seal and walrus populations will continue to decline.<sup>70</sup>

Thinning and receding sea ice is making subsistence hunts more dangerous, threatening the personal security and safety of Alaska Natives. People are forced to travel farther across rough, open seas to reach the ice where the animals are found. These trips are more dangerous and costly.<sup>71</sup> The ice is not as reliable once it is reached, as pieces often break off and float away in the midst of a hunt. For instance, in 2016, a group of stranded walrus hunters near Plaintiff Esau's Inupiat community of Shishmaref had to be rescued by air when they became stuck in sea ice.<sup>72</sup>

## **2. Warming Threatens the Health of the Caribou, a Key Food Source**

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<sup>68</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 59 (2004).

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

<sup>71</sup> Joseph B. Verrengia, *In Alaska, an Ancestral Island Home Falls Victim to Global Warming*, Associated Press (Sept. 10, 2002).

<sup>72</sup> Jerzy Shedlock, *Coast Guard Rescues Walrus Hunters Stranded in Sea Ice off Western Alaska*, Anchorage Daily News (July 18, 2016), <https://www.adn.com/alaska-news/rural-alaska/2016/06/08/coast-guard-rescues-hunters-stranded-in-sea-ice-near-shishmaref/> (last visited Mar. 21, 2019).

*“Sometimes when they’re supposed to show up, they don’t show up. Sometimes they show up when they’re not supposed to show up. . . . We’ve got 15 villages in Northeast Alaska and North Yukon Territory, and some in Northwest Territory, where the same people are depending on one caribou herd. We’re caribou people . . . and we all depend on that same herd that migrates through our villages.”*

— Sarah James, Arctic Village, Alaska<sup>73</sup>

Native peoples in more than 25 villages — more than 5,000 households — in northwestern Alaska depend on the Western Arctic caribou herd for subsistence.<sup>74</sup> Caribou are also a feature of Alaska Native mythology, spirituality, and cultural identity.<sup>75</sup>

Climate change, however, is reducing the traditional forage for caribou herds, which in turn is reducing the size of caribou herds.<sup>76</sup> The 2018 Arctic Report Card prepared by NOAA reports that “the abundance of migratory reindeer and caribou has continuously declined since the mid-1990s” and “[o]nly 1 of the more than 20 monitored [caribou] herds is confirmed to have populations near their historic high numbers . . . .”<sup>77</sup> Caribou depend on the availability of abundant tundra vegetation and good foraging

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<sup>73</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 73 (2004).

<sup>74</sup> U.S. Geological Service, *Status and Trends of the Nation’s Biological Resources: Alaska, Volume 2* (1998), <http://www.nwrc.usgs.gov/sandt/Alaska.pdf>.

<sup>75</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 71 (2004).

<sup>76</sup> *Id.*

<sup>77</sup> Nat’l Oceanic and Atmospheric Admin., *2018 Arctic Report Card: Reindeer and Caribou Populations Continue to Decline* (Dec. 11, 2018), <https://www.climate.gov/news-features/featured-images/2018-arctic-report-card-reindeer-and-caribou-populations-continue>.

conditions, especially during the calving season.<sup>78</sup> Vegetation changes caused by climate change, along with rising sea levels, are shrinking the tundra area to its lowest extent in the past 21,000 years, greatly reducing the breeding area for many birds and the grazing areas for many land animals.<sup>79</sup>

Freeze-thaw cycles and freezing rain are also projected to increase.<sup>80</sup> Ice crust formation from freeze-thaw events affects most Arctic land animals by encapsulating their food plants in ice, severely limiting forage availability and sometimes killing the plants.<sup>81</sup> This freeze-thaw effect has caused caribou populations to crash dramatically, and these crashes are happening more frequently.<sup>82</sup> As the caribou herds face increasing trouble, the communities that rely on them for subsistence are forced to reduce their harvest to ensure the sustainability of the herds.

### **3. Melting Permafrost Diminishes Subsistence Resources**

Permafrost is subsurface material that remains continuously frozen for at least two consecutive years.<sup>83</sup> The permafrost regions occupy approximately 22 percent of the

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<sup>78</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 70 (2004).

<sup>79</sup> *Id.* at 46.

<sup>80</sup> *Id.* at 70.

<sup>81</sup> *Id.* at 68.

<sup>82</sup> *Id.* at 69.

<sup>83</sup> U.S. Arctic Research Comm'n, *Climate Change, Permafrost, and Impacts on Civil Infrastructure*, 3 (2003), [http://www.arctic.gov/publications/climate\\_change\\_permafrost.html](http://www.arctic.gov/publications/climate_change_permafrost.html).

Earth's surface and contain an estimated 1,500 billion tons of carbon.<sup>84</sup> Permafrost underlies 80 percent of Alaska, with more than 70 percent of the permafrost vulnerable to subsidence after thawing.<sup>85</sup> By 2017, Arctic permafrost had already warmed by more than 0.5°C since 2007-2009, with a 20 percent decline in Northern Hemisphere permafrost area projected by 2040.<sup>86</sup> The Trump Administration recently acknowledged that “[t]hawing permafrost has negatively affected important infrastructure, which is costly to repair, and these costs are projected to increase.”<sup>87</sup> Thawing permafrost also threatens Alaska Native communities' cultural heritage (e.g., archaeological sites, structures, objects, and traditional cultural properties), affecting ancestral connections.<sup>88</sup>

Other food security and safety problems arise from the land warming, which threatens traditional underground ice cellars kept cold by permafrost that have provided food storage for thousands of years.<sup>89</sup> Cellars thaw and flood during the summer in Kivalina, Point Hope, and now even in Utqiagvik, the northernmost community in

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<sup>84</sup> UN Environment Program. *Global Linkages – A Graphic Look at the Changing Arctic* 17 (2019).

<sup>85</sup> U.S. Global Change Research Program, *Climate Change Impacts in the United States* 520 (2014); U.S. Env'tl. Prot. Agency, *What Climate Change Means for Alaska* (2016).

<sup>86</sup> Arctic Monitoring and Assessment Programme, *Snow, Water, Ice and Permafrost in the Arctic Summary for Policy-makers* 4, 12 (2017); see e.g., Boris Biskaborn *et al.*, *Permafrost is Warming at a Global Scale*, *Nature Communications* 10.1 (2019).

<sup>87</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1190 (2018).

<sup>88</sup> *Id.* at 1197, 1202, 1205.

<sup>89</sup> *Id.* at 1198 (“With warming climate conditions, many of these ice cellars are beginning to thaw, increasing the risks for foodborne illness, food spoilage, and even injury from structural failure.”).

Alaska.<sup>90</sup> The traditional diet relies upon adequate storage for large quantities of food, and warming raises concerns about foodborne illnesses and food spoilage.<sup>91</sup>

Melting permafrost also threatens the security and safety of Arctic communities. Permafrost stabilizes the ground, buttressing shorelines against fierce Arctic storms.<sup>92</sup> As the permafrost warms and thaws that buffer dissolves and shorelines erode.<sup>93</sup> This effect is compounded by the retreat of the sea ice, which has a calming influence on the often rough seas.<sup>94</sup> Over 87% of Alaska Native communities are affected by flooding and erosion, which is expected to worsen with longer sea ice-free seasons, higher ground temperatures, and sea level rise, resulting in the need for communities to relocate.<sup>95</sup>

#### **B. Global Warming Is Endangering the Health and Safety of Alaska Natives**

*“The storms are getting more frequent, the winds are getting stronger, the water is getting higher and it’s noticeable to everyone in town. If we get 12 to 14 foot waves, this place is going to get wiped out in a matter of hours. We’re in panic mode because of how much ground we’re losing. If our airport gets flooded out, there goes our evacuation by plane.”*

— Robert Iyatunguk, erosion coordinator for Shishmaref<sup>96</sup>

The effects of climate change are also posing health, safety, and security problems

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<sup>90</sup> *Id.* at 1197, 1202, 1205.

<sup>91</sup> *Id.*

<sup>92</sup> *Id.* at 1202.

<sup>93</sup> *Id.*

<sup>94</sup> *Id.* at 1190.

<sup>95</sup> *Id.* at 1198.

<sup>96</sup> *Id.* at 80.

for Alaska Native communities.<sup>97</sup> The reality is that if sovereign polities like Alaska continue to pursue energy policies that result in dangerous levels of GHG emissions, many Alaska Native communities will cease to exist within the lifetime of the children who have brought this case. That is not a result that should be condoned by this court. Individuals particularly vulnerable to climate-related health effects include indigenous groups and children.<sup>98</sup> Concern among Alaskans about climate change has been associated with depression and uncertainty about potential changes to communities, food, culture, and traditional knowledge.<sup>99</sup> “Communities that rely on the natural environment for sustenance and livelihoods are at increased risk for adverse mental health outcomes related to climate change.”<sup>100</sup> Other climate-associated health impacts include accidents and injuries due to extreme weather events, exposure to hazardous conditions from wildfire smoke, diminished food quality and quantity, increased waterborne and vector-borne diseases, increased rates of allergic rhinitis and asthma, and damage to sanitation and health services infrastructure.<sup>101</sup> Existing health issues among Alaska Native

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<sup>97</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1200 (2018) (“A warming climate brings a wide range of human health threats to Alaskans, including increased injuries, smoke inhalation, damage to vital water and sanitation systems, decreased food and water security, and new infectious diseases (*very likely, high confidence*).”).

<sup>98</sup> U.S. Global Change Research Program, *Impacts of Climate Change on Human Health in the United States 2* (2016).

<sup>99</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 1203 (2018).

<sup>100</sup> *Id.* at 582.

<sup>101</sup> Alaska Dep’t of Health and Social Services, *Assessment of the Potential Health Impacts of Climate Change in Alaska* (2018).

communities are being exacerbated by climate change “in part due to the loss of traditional foods and practices, the mental stress from permanent community displacement, increased injuries from lack of permafrost, storm damage and flooding, smoke inhalation, damage to water and sanitation systems, decreased food security, and new infectious diseases.”<sup>102</sup> Native communities’ disproportionately higher rates of asthma, cardiovascular disease, Alzheimer’s, diabetes, and obesity also increase vulnerability to climate change impacts.<sup>103</sup>

Thirty-one Alaska Native communities have been identified as facing erosion threats requiring partial or complete relocation, with the four most vulnerable communities being Newtok, Kivalina, Shaktoolik, and Plaintiff Esau’s village of Shishmaref.<sup>104</sup> With river bank erosion of 70 feet per year, Newtok’s critical infrastructure (water source, school, airport) is predicted to be destroyed or unsustainable by 2020.<sup>105</sup> Kivalina, Shishmaref, and Shaktoolik currently face imminent threats due to winter storm surges, exacerbated by the reduction in sea ice.<sup>106</sup> Russel Adams Sr., a lifelong resident of Kivalina, explains that “[w]hen people start talking about climate

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<sup>102</sup> U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* 547 (2018).

<sup>103</sup> *Id.* at 582.

<sup>104</sup> U.S. Government Accountability Office, *Alaska Native Villages: Limited Progress Has Been Made on Relocating Villages Threatened by Flooding and Erosion* 12-13, 16 (2009).

<sup>105</sup> Denali Commission, *Village Infrastructure Protection Program* (2017), <https://www.denali.gov/wp-content/uploads/2018/10/VIP-Program-August-2017.pdf>; <https://www.denali.gov/programs/village-infrastructure-protection/>.

<sup>106</sup> *Id.*

change, it really scares me. The sea ice used to be twelve feet thick, and there was just one lead. Now it is four feet thick and there are many leads.”<sup>107</sup>

Plaintiff Esau’s home of Shishmaref, which sits on a narrow barrier island on the Chukchi Sea, has already seen several homes collapse over a bluff and others teeter on its edge. The village’s 600 residents watched as one end of their village has been eaten away, losing as much as 15 meters of land overnight in one storm.<sup>108</sup> In the past 30 years, 100 to 300 feet of coastline has washed away, half of it since 1997.<sup>109</sup> The absence of sea ice also deprives the residents of their coastal protection from strong winter storms and their means of traveling to the mainland to hunt moose and caribou as they normally would do by early November, with the inlet now open water in autumn.<sup>110</sup>

At Point Hope, a bowhead-whaling village that dates from 600 B.C., flooding seawater threatens the airport runway and a seven-mile evacuation road.<sup>111</sup> “During storms, people begin to panic,” town official Rex Rock told *Time Magazine*.<sup>112</sup> Point

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<sup>107</sup> U.S. Climate Resilience Toolkit, *Relocating Kivalina* (2017), <https://toolkit.climate.gov/case-studies/relocating-kivalina>.

<sup>108</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 80 (2004).

<sup>109</sup> Margot Roosevelt, *Vanishing Alaska: Global Warming is Flooding Villages Along the Coast. Should They Surrender and Move?* *Time Magazine* (Sept. 27, 2004).

<sup>110</sup> ACIA Overview Report, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* 80 (2004).

<sup>111</sup> Margot Roosevelt, *Vanishing Alaska: Global Warming is Flooding Villages Along the Coast. Should They Surrender and Move?* *Time Magazine* (Sept. 27, 2004).

<sup>112</sup> *Id.*

Hope is also facing disruption of safe drinking water from a temperature-driven increase in organic material in an Arctic tundra lake.<sup>113</sup>

An investigation by the General Accounting Office, an investigative arm of Congress, found that 184 out of 213 (86.4 percent) Alaska Native villages experience some level of flooding and erosion.<sup>114</sup> The GAO report stated that:

Native villages on the coast or along rivers are subject to both annual and episodic flooding and erosion. Various studies and reports indicate that coastal villages in Alaska are becoming more susceptible to flooding and erosion in part because rising temperatures cause protective shore ice to form later in the year, leaving the villages vulnerable to fall storms . . . In addition, villages in low-lying areas along riverbanks or in river deltas are susceptible to flooding and erosion caused by ice jams, snow and glacial melts, rising sea levels, and heavy rainfall.<sup>115</sup>

The cost of relocating these villages is expected to be high. Relocating Newtok nine miles to Mertarvik is estimated at \$100-120 million, while relocating Kivalina is estimated at \$100-400 million.<sup>116</sup>

As these and other Alaska Native communities try to protect themselves and determine their future through relocation plans or protect-in-place projects,<sup>117</sup> they remain

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<sup>113</sup> Michael Brubaker *et al.*, Alaska Native Tribal Health Consortium, Center for Climate and Health, *Source Drinking Water Challenges Changes to an Arctic Tundra Lake*, CCH Bulletin No. 2 (Oct. 19, 2009), <https://anthc.org/wp-content/uploads/2016/01/CCH-Bulletin-No-2-Source-Drinking-Water-Challenges-Changes-Arctic-Tundra-Lake.pdf>.

<sup>114</sup> U.S. General Accounting Office, *Alaska Native Villages: Most Are Affected by Flooding and Erosion, But Few Qualify for Federal Assistance*, 2-3 (December 2003).

<sup>115</sup> *Id.* at 3.

<sup>116</sup> Naomi Klouda, *Federal fund injection boosts effort to relocate Newtok*, Alaska Journal of Commerce (May 23, 2018), <http://www.alaskajournal.com/2018-05-23/federal-fund-injection-boosts-effort-relocate-newtok>; U.S. Climate Resilience Toolkit, *Relocating Kivalina*, <https://toolkit.climate.gov/case-studies/relocating-kivalina> (last visited Mar. 16, 2019).

exposed to the consequences of Alaska's decision to pursue an energy policy that is contributing to climate change.

*Change is clearly accelerating in the Arctic, and it has global implications for us all. We all have a stake in this future, but none more than the young people who are coming of age, living in the midst of this change.*  
-United Nations Environment Program<sup>118</sup>

## CONCLUSION

The climate change impacts taking place in Alaska that the Alaskan government is contributing to through its energy policy and implementing actions are among the most dramatic on Earth. The devastating and knowing destruction of the Arctic is happening right now and must be stopped. Ceasing the government's unconstitutional actions in pursuing an energy policy that is affirmatively harming the youth plaintiffs is an essential step in ensuring the survival of Alaska's Native communities. Thus, we urge this Court to overturn the dismissal of the case brought by Alaska youth, including Alaska Native youth, and to remand it to the trial court so that these youth can have their day in court.

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<sup>117</sup> See e.g., Johanna Eurich, *Newtok is on the move*, Alaska Public Media (Dec. 28, 2018), <https://www.alaskapublic.org/2018/12/28/newtok-is-on-the-move/>; Denali Commission, *Village Infrastructure Protection Program* (2017).

<sup>118</sup> UN Environment Program. *Global Linkages – A Graphic Look at the Changing Arctic* 6 (2019).

RESPECTFULLY SUBMITTED this 26th day of March, 2019.

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