

# The Ethics of Ice Sheet Research: The Relationships Between Ice Sheet Scientists and Indigenous Greenlanders as an Opportunity for Change

Anna Boyar

## **Part 1. Introduction**

Greenland (officially called Kalaallit Nunaat) is a unique country, with a thriving majority Inuit population. Over the last few millennia, several waves of people have arrived. The current population of Inuit Greenlanders is descended from the Thule people. They brought with them sled dogs, which have been and continue to be an important part of Greenlandic culture and life. Greenland also happens to be an interesting and unique place to do research. Research on the ice sheet is important for predicting future ice flow and ice melting, and for knowing more about the past climate.

As climate scientists we know intimately the impact climate change is having and will have on our world. We may also know that most climate movements are currently being led worldwide by indigenous people. In the modern environmental movement, environmental degradation is seen as a contemporary form of oppression toward indigenous peoples. Indigenous people are people who have never left the land they came from. Or, even if in the modern era they live somewhere else, they have knowledge about and a strong connection to a particular place. This gives indigenous people a strong foundation to build environmental activism from. If you are deeply connected to a place, it becomes very important to save that place from environmental degradation. Settlers often have an idea that if things get hard in a particular place, you can leave. Indigenous people have no such belief. Because of this, there are many amazing climate movements being led by indigenous people.

One is led by Sheila Watt-Cloutier, an Inuit woman from the Canadian territory Nunavut. Watt-Cloutier has worked to bring the issues of climate change and the environmental degradation of the Arctic to policy makers and the rest of the world. She describes her work in her memoir “The Right to be Cold.” Another example is Idle No More. Idle No More is an environmental movement founded by three native women and one non-native woman. The movement was founded in Canada but has now spread throughout North America (Moe). Another example, one that I would be remiss to exclude, is the historic protests against the Dakota Access Pipeline. Led by the Standing Rock Sioux tribe, this protest spanned almost a year and involved thousands of people. The protest was in response to the fact that the pipeline would endanger water sources and the construction of the pipeline would destroy many important burial sites for the Standing Rock Sioux tribe. These protests inspired many with the strong integrity that the activists showed. Given that environmental activism is currently being led by indigenous activists, it makes sense for climate scientists to build relationships with them and be their allies.

In this paper, I will discuss the history of colonization in Greenland and how roadblocks researchers working in Greenland may run into when trying to work with Inuit Greenlanders reflect that history and give suggestions for how researchers doing work in Greenland can make their work more ethical. I will finish by giving examples of when the relationships between researchers and indigenous people incorporated some of these concepts and were mutually fulfilling.

There are many indigenous scientists, but in this paper I will be focusing on the dominantly white climate science communities in America and Europe. However, the terms

“scientist” and “indigenous” are certainly not mutually exclusive. In fact, some of the examples I give involve indigenous scientists.

## **Part 2. Problems**

Greenland has a long history of colonization. There were several waves of Europeans visiting Greenland, but the most damaging was when Hans Egede, a Danish missionary, came to Greenland in 1721 (Rasmussen). During WWII, the United States had military bases on Greenland, one of which is now the location of the international airport, Kangerlussuaq. In 1953, Greenland became a province of Denmark, and in 1979 Greenland obtained home rule. Under home rule, the Greenlandic government has control over most political affairs except for international relations. (Lambert)

Greenland shows the scars of past and present colonization. The dominant modern way of life in Greenland is very different from the traditional way of life. Inuit were forced to resettle in towns, and now live in Scandinavian style houses and eat Danish food. Sled dogs, which were once an important part of life, have been decreasing in number as they become no longer necessary for a “modern” western way of life.

In Western society, racism and the oppression of indigenous peoples dictate how our society is set up. It is in the air we breathe. As people raised in that world, we have no choice but to internalize the messages we are taught about ourselves and other people. For those of us who are white people descended from Europe, it is important that we do not fall into the same traps as our ancestors. Despite our good intentions, going into a country to extract resources (data) with

very little regard to the people living in that country has unfortunate parallels with the ongoing colonization of Greenland.

In a talk called “Scientists Need To Do More” Aqqaluk Lyngø, the former president of the Inuit Circumpolar Council (ICC), stated:

Prior to the 1970s, Inuit were always overlooked by governments and industry when it came to decision making about our territories. We did not have a say. Time and time again, political and development decisions were taken without consulting us. And these decisions had often unwanted and sometimes disastrous effects on us. This applied equally to matters of education, economic development, cultural expression, you name it. The lack of respect for Inuit culture, Inuit knowledge and Inuit rights goes back centuries to the earliest contacts between Inuit and Europeans. And I am sorry to say that many of the scientists who come to the Arctic, conducting research for their own purposes, still do not view the people of the Arctic as partners in their enterprises, or as worthy collaborators or participants in the study of the Arctic. Many come to collect anthropological data or to drill ice cores or to take air samples above our land for mercury vapour or other tests, but most don't tell us what they're doing. Many of them do not communicate with us or share their knowledge with us or ask us to share our knowledge with them (Poppel and Csonka).

There is a clear connection with the way that science is currently being conducted in Greenland and the history of colonization in Greenland. The people living in Greenland are seen either as a means to an end or are simply not considered.

For all the good intentions of scientists coming to Greenland, there are some particular characteristics about the science taking place on the Greenland ice sheet that makes it

particularly difficult to know where to start when thinking about how to engage with Inuit peoples. A large amount of research in Greenland takes place on the ice sheet, away from where people live. As the authors write in "A praxis for ethical research and scientific conduct in Greenland " :

Large-scale international science is conducted in Greenland away from population centres and is typically invisible to the public. Foreign scientists fly into and out of Kangerlussuaq, a former United States Air Force base now serving as Greenland's main international airport. It is not an urban centre by any means; the population of Kangerlussuaq (just over 550) is there mainly to support the airport, the tourist trade, and the community of foreign scientists. The scientists may remain there or, more frequently, head off to remote field stations such as Summit Camp, Thule, or distant sites in east Greenland, and therefore have little to no contact with the Greenland population (Holm et. al).

This makes engaging with the people of Greenland more difficult, and at face value seems like a situation where collaboration may not make sense. If there are no people living on the ice sheet, whom is there to collaborate with? In addition, "although there is a rich literature on the ethics of working with Indigenous communities, this literature is targeted at social scientists and may not be framed in ways that engage natural scientists" (Holm et. al).

There are some permitting procedures in place to do work in Greenland. As of February 2010, these permits are given by the Greenland Ministry of Domestic Affairs, Nature and Environment, whereas before they were given by the Danish Polar Centre (Holm et. al). This shows some improvement, as the Greenlandic government now has more autonomy and agency in the decisions around who will do research in Greenland, but this permitting process is limited.

In "A praxis for ethical research and scientific conduct in Greenland," they describe the permitting process:

The permit process requires little or limited communication of results to the Self-Government authorities or to the broader public. Rather it is largely concerned with issues of safety, collection of biological and mineral samples, and preservation of sites of archaeological importance. For example, the reporting requirement for the "survey license for collection and/or acquisition of biological resources for research purpose" mandates that researchers "state when publications or access to results of the survey are expected" (Government of Greenland 2010) and does not require copies of data and/or publications resulting from the research." (Holm et. al).

In addition, the results of such research are not easily accessible for Greenlanders. The authors of the praxis for ethical research and scientific conduct in Greenland point out that,

More often than not, they are published in specialist journals such as Nature, Science, or Polar Science. Although such publications are technically in the public domain, in widely available journals, they are difficult to understand for readers who are not specialists in the field. Difficulties in reading these articles are compounded by the fact that the population of Greenland by and large knows English as a third language. Furthermore, there are few Greenlandic polar scientists, and the University of Greenland, located in the capital Nuuk, does not have a science faculty that can share the results of this work with the public and in the schools (Holm et. al).

These are a variety of current problems that will require attention and creative solutions.

### **Part 3. Guidelines and Moving Forward**

I've had conversations with scientists who have a feeling of guilt about their relationship with the Greenlandic people. There is a sense that there is something not quite right about coming to a place for research but not interacting with the people there, and there is a deep and human desire to make this right. This isn't an easy process, but there are many smart people thinking about how to bring a higher standard of ethics and integrity to the scientific process. In this section, I will bring together suggestions and guidelines for work in the Arctic and with indigenous people and give examples of how these guidelines could be implemented by ice sheet researchers.

It will be necessary for scientists coming to Greenland to see interacting with and supporting the Greenlandic people as an integral part of the way they do science on the island. Researchers from several research institutes<sup>1</sup> posit that Greenland should have its own legally binding code of ethics and guidelines for scientists conducting research there. An official code of ethics will make it much more difficult for this research to exclude the people living in the arctic, and scientists will have guidelines to help them figure out where to start. The researchers write that:

At present neither the Self-Government authorities nor any research body in Greenland has formulated a comprehensive code of ethics or guidelines for ethical and responsible conduct of research. In this paper we discuss the hazards of this legal vacuum and propose possible opportunities for moving forward. We consider the development of such codes to be integral to the development of science policy by the Self-Government authorities and an important tool for scientific engagement with the international

---

<sup>1</sup> The Greenland Institute of Natural Resources; The Department of Slavic Languages and Literatures, The University of Chicago; The Institute of Arctic Studies at the Dickey Center for International Understanding, Dartmouth College

community at a time when Greenland is making important decisions about resource development and sustainability. (Holm et. al)

Such a code will be created by Greenlanders given the unique location, population, history, and type of data collection occurring in Greenland.

While it may seem that because the science being conducted on the ice sheet is far from population centers it would be irrelevant to Greenlanders. In fact, it is very relevant. The everyday lives of people in Greenland are drastically changing because of climate change, and having as much information as possible about climate change would be useful. This information would benefit people in their everyday lives and help governments make crucial decisions. Thus, one way to make research on the ice sheet more ethical is to speak with communities before and after conducting research. Aqqaluk Lyngø stated, “All too often, ICC Greenland gets requests from scientists, doctors, researchers, and students wanting us to support a project that they are interested in carrying out. We – perhaps all too often – give them the letter of support that they want. Unfortunately, many never contact us ever again after that. While these cases are diminishing in number, I would like them to be non-existent” (Poppel and Csonka). Researchers could get in contact with local communities or the Greenland ICC and explain what they will be studying, and then afterward follow up by presenting the findings. As stated previously, one of the issues is that when research is published, it isn’t in a form that is easily readable by the average person. It is written for a scientific audience, often in a language that Greenlanders wouldn’t understand (Holm et. al). To remedy this, scientists could have their papers translated into Danish or even better, Greenlandic, synthesize the findings in a way the general public could understand, or volunteer to guest lecture at the University of Greenland. Communicating research will be an important first step, but more is possible.

Ultimately, the science taking place in Greenland should be relevant to the people living there, and they should have input into what happens in Greenland. Lyngé adds that,

We want to be part of your work, but first ask us what Inuit want to have studied, and then ask us to be partners from the start through to implementation. Find resources for us to be effective partners.

This approach, I believe, should reflect an understanding of and respect for new, scientific knowledge and the scientists and other knowledge workers who find new data and disseminate it in our modern, information-driven culture. But this new approach should also reflect an understanding of and respect for the ancient, experience-based knowledge of indigenous cultures. We need a new and genuine partnership in the Arctic between the scientific and Inuit communities. We need to form connections. We need to work collectively for our mutual benefit and the benefit of the planet (Poppel and Csonka).

Lyngé draws attention to the importance of connections and partnerships. Scientists will have to build relationships with Greenlandic people to understand what issues are important to them, and how they can use their research to help. Scientists and Inuit communities may have the same ultimate goals and objectives, but it is important to understand what the mutual goals are, and what each group brings to the table.

Another way to make research in the arctic more ethical is by incorporating indigenous knowledge. The Inuit Circumpolar Council (ICC) defines Indigenous knowledge as:

a systematic way of thinking applied to phenomena across biological, physical, cultural and spiritual systems. It includes insights based on evidence acquired through direct and long-term experiences and extensive and multigenerational observations, lessons and

skills. It has developed over millennia and is still developing in a living process, including knowledge acquired today and in the future, and it is passed on from generation to generation (ICC (Inuit Circumpolar Council)).

In describing the importance of listening to Indigenous knowledge, Watt-Cloutier states that, Science is a body of knowledge, and a way of knowing based on rigorous observation. By this definition, the hunters who criss-cross the ice and snow and embody centuries of observation are scientists. When they describe what is happening to their landscape, the world needs to listen. (Watt-Cloutier 199)

If climate change is harming people and their ways of live, knowledge derived from direct experience should affect people's actions and the actions of policy makers. While Indigenous knowledge can be seen as having a separate place as Western scientific knowledge, in fact they both have key roles to play. In a project called the Snowchange Cooperative, a Finnish scientist from the village Selkie aims to incorporate the important findings from both traditional ecological knowledge (TEK) and conventional science. He sees both types of knowledge as having a place, saying that "Remote sensing can detect changes...but what happens as a result, what does it mean?" (Robbins). TEK, having been derived from thousands of years of experience, can give insight into the implications of the remote sensing. In addition, TEK can have a role when "native people who make a living on the landscape as hunters and fishers note the dramatic changes taking place in remote locales – everything from thawing permafrost to change in reindeer migration and other types of biodiversity redistribution" (Robbins). TEK is valuable because it comes from a perspective of people being connected to the landscape, and not separate from it. If it's incorporated into Western science, then the science will be more relevant to the people who generated the TEK and live on that land.

One way to bridge the gap between Indigenous knowledge and Western science is by supporting more indigenous students to pursue science. Scientists who are able to take on graduate students should prioritize working with indigenous students. Scientists coming to Greenland could invest time and energy into the University of Greenland in Nuuk. The University of Greenland does not have a science program despite the significant volume of research coming out of the country. The ethical code for research could include a guideline about researchers supporting the science program with funding and time. We also have to rethink science education to make it more accessible to indigenous students. This is true starting with primary school and going all the way through higher education. A Western science class may not seem to have anything to do with the lives of students. But when classes are taught in a way that brings in traditional knowledge and is related to the surrounding environment of students, science feels much more relevant (Watt-Cloutier). The Alaska Native Knowledge Network put forth a list of guidelines for respecting native knowledge. This included guidelines for elders, for researchers, and also for curriculum developers and educators. These guidelines include:

1. Establish an easily accessible repository of culturally-appropriate resource materials and knowledgeable expertise from the community.
2. Include the voices of representatives from the local culture in the curriculum materials used in the school.
3. Utilize the natural environment of the community to move educational activities beyond the classroom as a way of fostering place-based education and deepening the learning experiences of students.
4. Support the implementation of an Elders-in-Residence program in each school and classroom.
5. Provide an in-depth cultural orientation program for all new teachers and administrators.
6. Establish a review committee of locally-knowledgeable people to review all textbooks and other curriculum materials for accuracy and appropriateness in relation to the local

cultural context, as well as to examine the overall cultural responsiveness of the educational system.

7. Learn how to use local ways of knowing and teaching to link the knowledge base of the school to that of the community.
8. Make effective use of local expertise, especially Elders, as co-teachers whenever local cultural knowledge is being addressed in the curriculum.
9. Take steps to recognize and validate all aspects of the knowledge students bring with them, and assist them in their on-going quest for personal and cultural affirmation.
10. Develop the observation and listening skills necessary to acquire an in-depth understanding of the knowledge system indigenous to the local community and apply that understanding in teaching practice (Alaska Native Knowledge Network)

At the core of these guidelines is a respect for the students, their culture, and their ability to learn. These guidelines tailor the classroom environment to the native students, rather than forcing them to conform to the dominant way of thinking and learning. This would give indigenous students more space to pursue the scientific questions that were interesting to them and their communities. scientific community would be more rich and diverse and a better place for everyone if the best interests of indigenous people were being supported in the education system.

#### **Part 4: Case Studies**

Scientists can use our resources, skills, and scientific work to take part in helping the world listen to Indigenous voices. To do this, we ourselves will have to be in positions to listen to Indigenous voices. In a quickly changing world, and as a white nonindigenous person, it is difficult for me to say how exactly to do that. So in this section, I will provide examples showing relationships between indigenous groups and scientists that were mutually beneficial. These examples inspire me to be creative with my conception of the role of scientists in the world.

One example is the collaboration between indigenous and non-indigenous people to write the Arctic Climate Impact Statement (ACIA). The ACIA is a document requested by the Arctic

Council and written by the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP), Conservation of Arctic Flora and Fauna (CAFF), and the International Arctic Science Committee (IASC) (ACIA). The purpose of the document is to aggregate science about the impact of climate change in the Arctic. It gives data and information to policy makers. From the beginning, the authors knew that it would be important to include indigenous knowledge and mainstream science. For four years, scientific and traditional knowledge teams researched the effects of climate change in the Arctic (Watt-Cloutier). While the process was collaborative, there were still battles to be fought. One was the inclusion of information about "the health and cultural impacts that climate change was having on Indigenous peoples in the circumpolar North" (Watt-Cloutier 202). This was important because "We Indigenous peoples of the North were part of the environment--we had survived in harsh conditions for thousands of years by listening to the land's cadence and adjusting to its rhythms... climate change [is] an issue of cultural survival." (Watt-Cloutier 203) The report successfully made these additions and also included a request for the Arctic countries to limit their carbon emissions. Perhaps because of these additions to the ACIA, there were many people on the Arctic council who did not want the report to pass. There were many arguments and conferences. Watt-Cloutier was very involved in this process and at one of the conferences, Watt-Cloutier made a statement defending the scientists.

"I also tried to come to the defense of the scientists. Government officials at the council meetings had been making comments about how scientists should leave policy and recommendations to the "policy experts." Of course, this attitude was not isolated to these particular officials or this ACIA process. Scientists around the world were being ignored or muzzled when their research presented challenging truths to governments,

industries, or businesses. I remind the group that it was important to respect the work done by both Western scientists and Indigenous elders in compiling the data in the ACIA...I noted that it wasn't helpful for governments to dehumanize scientists as a means of dismissing what they said" (Watt-Cloutier 214).

In the end, the document was passed. Watt-Cloutier highlights the importance of the document and the process of writing it:

...thanks to the hard work of our hunters and elders, the scientists, the circumpolar Indigenous leaders and staff, and the politicians and their bureaucrats, the void in Arctic climate change science was filling up. The arctic sentinel now had a powerful tool for engaging in an even stronger campaign to save our home" (Watt-Cloutier 217).

This is a beautiful example of climate scientists working collaboratively with Indigenous people for change. Climate scientists want people to listen to what they are saying about climate change, and because the climate scientists who worked on this report allied themselves with an interdisciplinary team including powerful activists like Watt-Cloutier, their work will have far reaching effects. This also shows that both TEK and Western science have an important place together. The work that these scientists took part in will not stay inside a journal but will have far reaching effects in the world. What scientist doesn't want that?

In another example from Watt-Cloutier's book, a biologist does important work on Persistent Organic Pollutants (POPs). This is another issue that, while not climate change related, Watt-Cloutier took on in her activist career. POPs are toxins found in synthetic chemicals used in "agriculture, disease control, manufacturing, or industrial processes" (Kavner). One example of a POP is the insect killing DDT, made famous by Rachel Carson's *Silent Spring*. Because the chemicals do not break down easily and are attracted to cold, the Arctic has much higher levels

of POPs than the rest of the world (Watt-Cloutier 134). The toxins can be found in traditional foods like seal and whale, and when eaten end up in the bloodstreams and breast milk of Inuit people. In her efforts to end the use of POPs, Watt-Cloutier collaborated with a variety of people, including policy makers, film makers, and scientists. One scientist who she names in her book was Barry Commoner, a biologist working at Queens College, City University of New York. (Watt-Cloutier, 171) The focus of Commoner's work was dioxins and furans, which were both being found in Inuit food. Industry such as electricity production, the production of some metals, and burning trash produces these chemicals.

The health impacts show up in problems with a person's skin, liver, immune system, endocrine system, reproductive system, and nervous system development, and in particular types of cancer (Watt-Cloutier 172).

Commoner's work focused on the transport of the chemicals, determining how much of each chemical was ending up in Nunavut and also tracing back the chemicals to the exact industrial plants where they were produced. This is a great example of scientific research conducted with the purpose of helping indigenous communities. The findings of the studies were that "Nunavut itself could have, at most, contributed 0.32 percent of the total toxins found in Nunavut, while sources outside North America contributed only between 2 and 20 percent. This meant that almost all the dioxins and furans found in the Nunavut environment were a result of North American sources outside of Nunavut." (Watt-Cloutier 172) This highlights the harsh irony that Inuit people were producing almost none of these toxins but were being saddled with the greatest effects. Watt-Cloutier used this data to write letters to the companies to urge them to stop using the toxins. (Watt-Cloutier 172). Watt-Cloutier's work adds a human component to the data created by Commoner and other scientists. She gave many talks to audiences of scientists

and policy makers, contextualizing the impact POPs were having within the other struggles and challenges placed on her community.

During those talks, I told the audience that the issue of contaminants could not be treated separately as an issue unto its own. It could not be isolated from the many other challenges that we were faced with as a people. It was yet one more difficulty placed on us from the outside, adding to all the other historical traumas that had come into play for us in the fifties, sixties, and seventies. Now, on top of everything else we were grappling with in our communities, we had to deal with these toxins in our food and in our bodies.

(Watt-Cloutier 143)

This connects environmental degradation to colonialism. Environmental racism, in the form of toxins being concentrated in areas where indigenous people live is a modern manifestation of colonialism. Science that draws attention to these issues could be seen as an act of fighting against colonialism and the oppression of indigenous peoples.

In Finland, TEK was used in a paper about biodiversity. This was through a collaboration project with the Sami people and the government of Finland. The paper was published in science magazine (Pecl et al.). The Sami people in Finland have been recording a decrease in Salmon in the Nääämö River, and changes in the types of insects being found in the Arctic. Sami people have been documenting changes in insects for thousands of years, so much that the introduction of the scarbaeid beetle is part of their oral history (Robbins). The Sami have been using this information to modify their salmon collection, “reducing the number of seine nets they use to catch fish, restoring spawning sites, and also taking more pike, which prey on young salmon, as part of their catch” (Robbins). The Sami are adjusting their way of life to based on the

information they have about climate change. As climate scientists, we too can use the information we have about the climate to change our ways of life.

## **Part 5. Conclusion**

In conclusion, the relationship between scientists and Indigenous people can be a meaningful and mutually beneficial one. Lynge states that,

Scientists have much to contribute to Inuit communities. Inuit communities need your help. Climate change, for example, is hitting us hard, as hard and as unexpectedly as we've been hit over the centuries by colonizers and their religion. We need your help in dealing with the warming Arctic. We need help in developing mitigation measures and in learning how to adapt to those parts of the Inuit lands and seas that are already past the point of recovery. We need your thoughts on how Greenland should develop further so it can both employ its people and move towards greater autonomy. We need expert advice, we need jobs, we need financial help, and we need help to address major problems such as the fact that villages are falling into the sea from erosion. We need help in understanding suicide and diabetes. Our youth need the scientific community as they face the challenges of tomorrow today (Poppel and Csonka).

At the same time, scientists need indigenous people. We need them because of the boldness and steadfastness of their activism. We need them because of their clear vision and straightforward leadership around climate change. We need them because they are humans who are being affected strongly by climate change and are bravely pointing it out to the world. This is an exciting time to be a climate scientist. As the effects of climate change become more and more evident, more and more people will look to climate scientists indigenous activists, and

indigenous scientists for information and guidance. This means that everyone, not just people who are part of the indigenous or scientific communities, will stand to benefit from collaborations between scientists and indigenous people. These collaborations will shift policy, ideologies, and power structures, and ultimately will lead to innovative research that will help us adapt to and mitigate climate change.

## Works Cited:

ACIA. "Acia 2004." (2004): 140. Web.

Alaska Native Knowledge Network. "Respecting Cultural Knowledge." (2000): 31. Web.

Holm, Lene Kielsen, Lenore A. Grenoble, and Ross A. Virginia. "A Praxis for Ethical Research and Scientific Conduct in Greenland." *Études/Inuit/Studies* 35.1–2 (2011): 187. Web.

ICC (Inuit Circumpolar Council). "Application of Traditional Knowledge in the Arctic Council." *inuitcircumpolar.com*. N.p., 2013. Web.

Kavner, Karissa. "Persistent Organic Pollutants A Global Issue, A Global Response." *EPA.gov*. N.p., 2009. Web.

Lambert, Tim. "A BRIEF HISTORY OF GREENLAND." *localhistories.org*. N.p., n.d. Print.

Moe, Kristin. "Idle No More: Indigenous Uprising Sweeps North America." *Yes Magazine* Jan. 2013. Web.

Pecl, Gretta T. et al. "Biodiversity Redistribution under Climate Change: Impacts on Ecosystems and Human Well-Being." *Science* 355.6332 (2017): n. pag. Web.

Poppel, Birger, and Yvon Csonka. *Arctic Social Sciences – Prospects for the International Polar Year*. Vol. 6. N.p., 2011. Print.

Rasmussen, Rasmus Ole. "Greenland." *Encyclopedia Britannica* 2018. Web.

Robbins, Jim. "Native Knowledge: What Ecologists Are Learning from Indigenous People." *Yale Environment* 360. N.p., 2016. Web.