

Arctic Observing: Indigenous Peoples' History, Perspectives, and Approaches for Partnership

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Author's Note

The work presented here is from my own point of view and is not meant to be comprehensive. Any individual topic has many more layers and details necessary to understand each complex situation. The use of the word “we” generally references the shared history of Alaska Native peoples with whom I identify and is not intended to represent all Indigenous Peoples of Alaska. Finally, this is a living document that can, and should, evolve over time.

- Dr. Nikoosh Carlo

“We must all work together, for the next generations.”

Trimble Gilbert (Gwich'in), Arctic Village, AK

Traditional Chief, Reverend and Honorary Doctorate, June 2014, Reaching Arctic Communities Facing Climate Change (ReAC) Camp

Introduction

Some four million people live in the circumpolar Arctic, a region that spans eight countries—Canada, Finland, Denmark, Iceland, Norway, Sweden, Russia, and the United States. Temperatures across this region are rising at twice the rate of the rest of the globe. Approximately 10 percent of the Arctic population are the Indigenous Peoples who have been the caretakers, observers, researchers, and an integral part of this important social-environmental system for thousands of years. On the front lines of climate change, Arctic Indigenous Peoples are living now with wide-reaching and drastic environmental, economic, and social change; the bulk of these changes are not of our own making.

Climate solutions require contributions from both people and institutions: Arctic researchers and policies, governments, communities and organizations, universities, the public and private sector, and individuals and leadership at all levels. Indigenous Peoples leading these efforts, grounded in our cultural values and understanding of the Arctic environment, will lead to a broader, deeper, and stronger Arctic observation system. We, all people, must leverage our expertise and resources to create a future that is prosperous and just, with vibrant communities and healthy environments. To get there, we must work more collaboratively to address systemic inequity and bias and promote understanding of the tremendous value that different types of knowledge bring to a problem and the role these perspectives have in creating solutions.

It is with this goal in mind that this paper reviews some general background about Indigenous Peoples in Alaska as a means to demonstrate similarities in conditions across the circumpolar North, such as the influence of colonialism and other systemic sources that fuel inequity, the rapid environmental change that exceeds intergenerational knowledge, and the current conditions of relationships between communities and researchers. In addition, Alaska can demonstrate the strong potential for building a model for co-production of knowledge. Lastly, I provide suggestions for how we might approach building partnerships among scientists, Indigenous Peoples, and policy-makers.

Presented primarily from my own point of view, this work is not meant to be comprehensive. Throughout are suggested additional resources with a focus on Indigenous sources meant to inspire your deeper journey in understanding more about the circumpolar Arctic and the Indigenous Peoples that call it home.

My Background

I am Koyukon Athabascan and was born and raised in the Interior region of Alaska—Fairbanks and the village of Tanana situated at the confluence of the Tanana and Yukon Rivers. I am the oldest daughter of Gail and Wally Carlo from North Dakota and Tanana. My grandparents were Poldine and

Bill Carlo from Nulato and Rampart, Alaska. It is important to name my ancestors and my geographic links, so that you have greater context for our interaction. This type of introduction is traditional Alaska Native practice, or protocol, and serves to provide greater understanding of “who is in the room” and what communities and lands each of us are connected to. Indigenous protocol often also contains other important approaches, including honesty and respect, understanding shared values, active listening, attention to nonverbal communication, and awareness of historical, intergenerational, and continuing trauma.

My Athabascan family is like many other Alaska Native families you might meet across the state. My ancestors were thriving on our lands thousands of years before the arrival of outside explorers and missionaries. Contacts among the different groups coming into what is now the state of Alaska and Indigenous Peoples present were, and continue to be, complicated. There have been both positive and negative outcomes on all sides, but the majority of adverse effects from colonization of the region have been borne by its Native peoples.

Our history is punctuated by individual and systemic oppression by outsiders who often viewed the Arctic as a place to conquer—both in discovery and capture of lands, waters, and resources, but also in controlling its people—the Indigenous Peoples of Alaska. This was pervasively to the detriment of Indigenous languages, customs, and cultures. We are still working to learn about our past and to reclaim some of our cultural practices deeply devastated or purposely eradicated. This includes understanding how colonialism has shaped us and the roots of systemic injustice and inequity. Historical trauma is real and to be acknowledged; however, it does not define our future.

I focus on our strength as a community grounded in many shared cultural values. With stories of loss, I have also heard stories of kindness, strength, and determination to pass on to future generations our values and our Indigenous knowledge. We strive to take care of and respect our elders, our children, our families, our villages, and the land and waters that sustained us then, that sustain us now, and for future generations. These cultural values guide us in all aspects of our lives and define our efforts to further strengthen community and environmental resilience. The overwhelming importance of this cannot be minimized as we face a rapidly changing environment.

The Indigenous Peoples of Alaska

Indigenous Peoples in Alaska have thrived in the often extreme and harsh lands and waters of the U.S. Arctic for tens of thousands of years. Experts in observing and nurturing the environment, Alaska Natives have cultural and spiritual connections to core values that support living as part of a healthy ecosystem.

At one time nomadic peoples with small seasonal camps, the territorial ranges of the 11 main groups of Alaska Natives cover the entire state and expand beyond U.S. borders. Many Alaska Natives have family ties with Indigenous Peoples to the east in Canada and Greenland, as well as to the west in Russia.

Today there are 229 federally recognized tribes in Alaska. Tribes have a government-to-government relationship with the United States and are recognized as having the right of self-governance (tribal sovereignty) and receive some services and protection from the U.S. national government. The majority of tribes are accessible only by plane or boat and transportation of people and goods is extremely expensive and dependent on good weather conditions.

Alaska Native peoples spoke their Indigenous languages and raised their families on the land hunting, fishing, and gathering food and materials necessary to survive the seasons. Accordingly, this all changed when explorers, missionaries, gold seekers, and others arrived in Alaska starting in the mid-18th century with Russian colonization of Alaska and enslavement of the Aleut/Unangan peoples.

Speaking our Indigenous languages is one of the ways that we maintain and strengthen our Indigenous knowledge, culture, and identity. There are at least 20 distinct Indigenous languages spoken in Alaska. The oldest generation are our fluent speakers and with each passing day we face the significant loss of the Indigenous knowledge that these elders hold. The last fluent speaker of the Eyak language (Southcentral Alaska) passed in 2008 and other Indigenous languages are rapidly approaching a similar situation. Many regions and tribes are putting more resources toward engaging younger learners, supporting our fluent speakers and adult learners, and building a thriving language ecosystem to support language revitalization.

Additional Resources on Indigenous Peoples of Alaska

Alaska Federation of Natives. 2020. "Alaska Native Peoples." Accessed February 25, 2020. www.nativefederation.org/alaska-native-peoples/ —a short overview of Alaska Native Peoples by the Alaska Federation of Natives.

Arctic Council Indigenous Peoples' Secretariat and UiT University. 2019. "Circumpolar Arctic Indigenous Languages Map." Accessed February 25, 2020. www.arcticpeoples.com/arctic-languages#feedback —map updated in celebration of the 2019 International Year of Indigenous Languages.

Peter, Hishinlai' R. 2019. "Adult ancestral language learning and effects on identity." PhD diss., University of Alaska Fairbanks. hdl.handle.net/11122/10528

Holton, Gary. n.d. "Alaska Native Language Relationships and Family Trees." Alaska Native Language Center, University of Alaska Fairbanks. Accessed February 25, 2020. www.uaf.edu/anlc/languages.php —overview of Alaska Native languages, including 1974 language map by Michael Krauss, revised in 1982.

Holton, Gary. n.d. "Mapping Alaska's Native languages." Alaska Native Language Center, University of Alaska Fairbanks. Accessed February 25, 2020. www.uaf.edu/anlc/resources/mapping_alaskas_native_languages.php —history, discussion, and explanation of the Alaska Native Languages Map by Michael Krauss.



Figure 1. Map of Arctic Indigenous languages spoken by members of the Arctic Council Permanent Participant organizations. The borders between the language families and locations are illustrative and not entirely precise. Most languages are written in English and not in their traditional orthographies. Different dialects are marked in italics to demonstrate diversity within languages.

Source (used with permission): Indigenous Peoples' Secretariat & UiT the Arctic University of Norway University Library. 2019. *Ságastallamin – Telling the story of Arctic Indigenous Languages Exhibition*.

Adapted from the Conservation of Arctic Flora and Fauna, 2013, Arctic Biodiversity Assessment.

static1.squarespace.com/static/58b6de9e414fb54d6c50134e/t/5d7d0a0e6695600e2d7defa8/1568475679534/20_01_MapB_Linguistics-updated-v5.pdf

Indigenous Ways of Knowing and Food Security

Indigenous worldviews are specific to each tribe and to a specific place. And yet, there are some common threads. Indigenous knowledge is interconnected with the natural world and our systems of culture, the spiritual world, and in our governance structures and social arrangements. Indigenous Peoples, and human society, are part of the ecosystem, where time is cyclical and we are not greater or higher than the other natural resources (land, waters, or other animals) that sustain us. Indigenous knowledge is dynamic, multi-generational and can have many forms from experiences and observations to the spiritual, ecological, and cultural. Frequently, Indigenous knowledge is encountered by the research community as observations of the natural world, such as changing sea ice conditions; flora and fauna observations, gathering, and processing for food or other materials; and land use practices.

In the midst of rapid Arctic environmental change, there is a greater need to understand Indigenous knowledge, science, and food security, and the impact change has on these systems. In *Alaskan Inuit Food Security Conceptual Framework*, the Inuit Circumpolar Council (ICC)-Alaska offers this definition of Inuit food security:

Alaskan Inuit food security is the natural right of all Inuit to be part of the ecosystem, to access food and to care-take, protect and respect all of life, land, water, and air. It allows for all Inuit to obtain process, store and consume sufficient amounts of health and nutrition preferred foods—foods physically and spiritually craved and needed from the land, air and water, which provide for families and future generations through the practice of Inuit customs and spirituality, languages, knowledge, policies, management practices and self-governance. It includes the responsibility and ability to pass on knowledge to younger generations, the taste of traditional foods rooted in place and season, knowledge of how to safely obtain and prepare traditional foods for medicinal use, clothing, housing, nutrients and, overall, how to be within one's environment. It means understanding that food is a lifeline and a connection between the past and today's self and cultural identity (2015, 5).

The ICC uses the image of a drum to illustrate this food security framework (see Fig. 2). It is through the Indigenous food security lens and the connection between Indigenous Peoples and the flora and fauna that we gain a greater understanding of the Arctic ecosystem and how we might adapt to environmental changes.

Early colonization, Indigenous language repression, and systemic assimilation efforts all undermined Indigenous lifeways and ways of knowing, and these impacts are still felt today. In research, the imbalance persists in many ways—for example, when greater value and resources are put toward the Western science enterprise and research compared to Indigenous knowledge and community priorities. Many scientists and, by extension, their funding sources, have supported this imbalance by translating Indigenous knowledge to a different format; integrating Indigenous knowledge with other data out of context; not engaging Indigenous communities early on and throughout every stage of research projects—from project conception and execution to analysis and next steps; and not

providing funding to ensure Indigenous Peoples and communities have the same opportunities to engage and contribute to research projects.

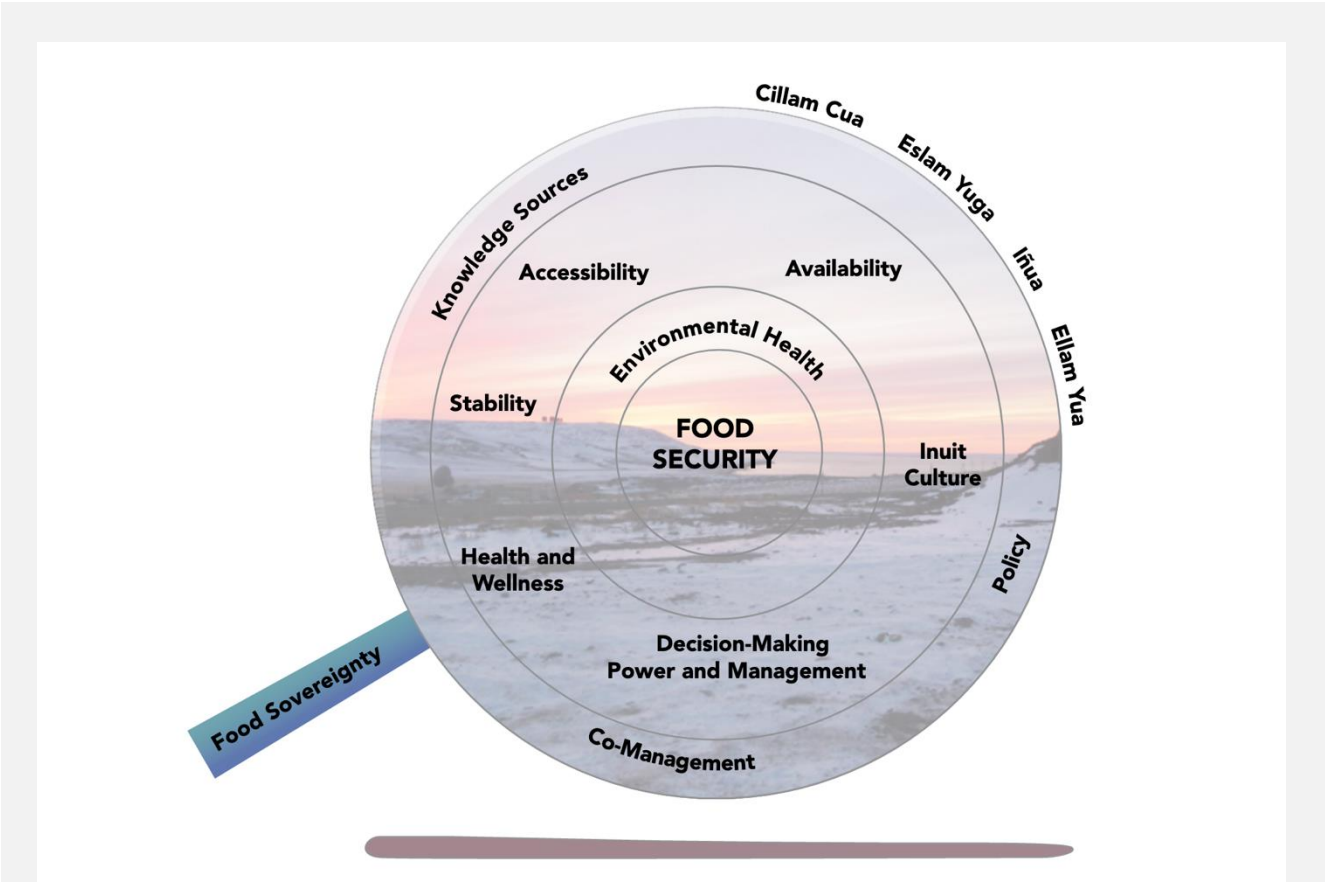


Figure 2. ICC Food Security Drum. The Alaskan Inuit food security framework, illustrated by this drum, explains that food security is characterized by environmental health; environmental health is achieved with the stability of six dimensions: 1) Availability, 2) Inuit Culture, 3) Decision-Making Power and Management, 4) Health and Wellness, 5) Stability and 6) Accessibility. Three tools support the stability of the six dimensions: policy, knowledge sources, and co-management. All of this is held together by the spirit of everything (Cillam Cua, Eslam Yuga, Iñuaand Ellam Yua). The drum is held up by food sovereignty—a requirement for food security.

Source (used with permission): Inuit Circumpolar Council-Alaska. 2015. *Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From an Inuit Perspective: Summary and Recommendations Report*. Anchorage, AK: Inuit Circumpolar Council-Alaska.

Additional Resources on Indigenous Ways of Knowing and Food Security

Kawagley, Angayuqaq Oscar, and Ray Barnhardt. 2005. "Knowledge Systems and Alaska Native Ways of Knowing." *Anthropology and Education Quarterly* 36, no. 1: 8–23.

www.fws.gov/nativeamerican/pdf/tek-barnhardt-kawagley.pdf

Inuit Circumpolar Council-Alaska. 2015. *Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From an Inuit Perspective: Summary and Recommendations Report*.

Anchorage, AK: Inuit Circumpolar Council-Alaska. iccalaska.org/wp-icc/wp-content/uploads/2016/03/Food-Security-Summary-and-Recommendations-Report.pdf

Inuit Circumpolar Council-Alaska. 2015. *Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From an Inuit Perspective: Technical Report*. Anchorage, AK: Inuit Circumpolar Council-Alaska.

iccalaska.org/wp-icc/wp-content/uploads/2016/05/Food-Security-Full-Technical-Report.pdf

Johnson, Noor, Carolina Behe, Finn Danielsen, Eva-Maria Krummel, Scot Nickels, and Peter L. Pulsifer. 2016. *Community-Based Monitoring and Indigenous Knowledge in a Changing Arctic: A Review for the Sustaining Arctic Observing Networks*. Ottawa: Inuit Circumpolar Council.

eloka-arctic.org/sites/eloka-arctic.org/files/files/cbm_final_report.pdf

Colonization

Alaska Natives have been forcibly enslaved and colonized by Russian and other corporate interests and later colonized by the United States after the purchase of Alaska. Throughout the 1700–1900s, explorers seeking to “discover” lands new to them, missionaries interested in increasing their membership, and governments desiring to expand their territory intersected to produce structures and processes that devalued existing Indigenous governance, knowledge, and cultural practices. In ways similar to Canada, Russia, and Scandinavian countries, governments forced Alaska Natives to remain in permanent village sites, send their children to attend far-away boarding schools where they suffered abuse from those in charge of the schools and trauma from separation, serve as human experiments, not use their Indigenous languages, and not practice cultural dancing, singing, or ceremonies.

The goals of these actions were to assimilate Alaska’s Indigenous Peoples into Western society for a variety of reasons, primarily based on control of land and resources desired by the Russian, and then U.S., governments. If the people who were in the way of such development could not simply be eliminated, as had often been the case of Indigenous Peoples in the earliest years after contact in the Americas, then the fundamental goal was to make them “less Native”—to break the strong bonds Indigenous Peoples have with the natural environment and to disrupt links with our tribes and

ancestors. The impacts of these imposed systems of assimilation are still being felt today. We continue to learn about our past and address the historical trauma from the collective effort to erase our traditional ways of life, culture, and identity.

There are many different methods to physically and psychologically destroy sovereignty, the control of one's self, community, and resources. Today we generally discuss them all under the framework of colonization, whether that—to colonize a place—was in fact the goal or not. Colonialism, and what is often discussed as “neo-colonialism”, however, has changed little in its diverse tactics from early explorers and European imperialism, to current management of fish and wildlife, and impacts on food security and legislation that influence our governance structures. The following two subsections address some methods of colonization used in the past and still inherent in some of our existing systems and institutional structures, including within the research enterprise.

Additional Resources on Impacts of Colonization for all Age Groups

Molly of Denali. “Grandpa’s Drum.” Directed by Uwe Rafael Braun. Written by Raye Lankford and Timothy McKeon. PBS Kids, July 15, 2019. kcts9.pbslearningmedia.org/resource/mod19-soc-grandpasdrum/grandpas-drum-molly-of-denali/

Johnson, Princess Daazhrai. n.d. “Talking with Children about ‘Grandpa’s Drum’.” Public Broadcasting Service (PBS). Accessed February 25, 2020. www.pbs.org/parents/thrive/talking-with-children-about-grandpas-drum—includes links to more resources.

History of Arctic Research and Indigenous Peoples

Research is linked to European imperialism and colonialism. This resulted in mistrust between Indigenous Peoples and researchers. Exploration and research are both driven by a concept of “discovery”. Early Arctic explorers and adventurers in the 18th and 19th centuries were drawn to the unique geography and natural resources of the Arctic region. Researchers were often members of these expeditions and they collected new data—about navigable waters, sea ice, plants, animals, local ecosystems, the climate, etc.—and also “studied” the Indigenous Peoples they encountered.

Prior to colonization, Indigenous Peoples conducted their own inquiry through observations of their environment. This era of research by Indigenous Peoples often included intergenerational, longitudinal studies that were grounded in place-based understandings of patterns and processes and were connected to animals, plants, ecosystems, and their interactions. In accordance with our many different languages and ways of knowing, the knowledge acquired was diverse. Colonialism disrupted Indigenous knowledge transmission through genocide, slavery, assimilation policies, and language loss. During this colonial research era there was ethical misconduct (through, for example, eugenics and sterilization) and mainly extractive research—or research *on* Indigenous Peoples, not *with* them. Linda T. Smith, in her ground-breaking book *Decolonizing Methodologies: Research and Indigenous*

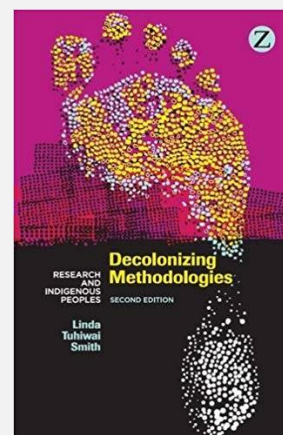
Peoples (Zed Books, 2012), articulates this point clearly: “it appalls us that the West can desire, extract and claim ownership of our ways of knowing, our imagery, the things we create and produce, and then simultaneously reject the people who created and developed those ideas and seek to deny them further opportunities to be creators of their own culture and own nations” (30).

Context for this consistent imbalance goes back to struggles of imperialism and colonialism but also to the establishment of U.S. academic institutions, military sites and operations, museums, resource management and policies meant to directly or indirectly reshape, control, and break apart Native American tribes and our connections to each other and the lands we inhabited.

In the U.S. Arctic the largest higher education system is the University of Alaska, which has three main campuses (Fairbanks, Anchorage, and Juneau) and a network of smaller rural campuses supported by extensive remote delivery of courses and teaching. University of Alaska Fairbanks is one of only a few Land, Space, and Sea Grant institutions in the United States and was established first as a Land Grant university in 1917. Land Grant colleges were established through the Morrill Land Grant Act signed into law in 1862, which turned 17 million acres of land over to colleges for their use. Much of this land was originally Indigenous land and the colleges used the land to establish a funding base for their academic activities. The land endowments secured funding in a way that was not possible for historically black colleges or tribal colleges. The unbalanced funding continues to negatively impact these institutions today and is a good example of systemic inequity.

Decolonizing Research

Decolonizing Methodologies: Research and Indigenous Peoples (Zed Books, 2012) is a profound book by Linda Tuhiwai Smith (Ngati Awa and Ngati Porou) from New Zealand. Her book explores the “intersection of two powerful worlds, the world of Indigenous Peoples and the world of research” (19). She covers the history of imperialism and colonization and how these efforts shaped research and determined “where Indigenous Peoples were positioned within the world” (79). Her book clearly articulates what we (Indigenous Peoples) have been through and the obstacles before us in seeking equity. She highlights the importance of Indigenous Peoples telling their own narratives, ownership of Indigenous ways of knowing, and role in decision-making. At the same time she emphasizes that “decolonization, however, does not mean and has not meant a total rejection of all theory or research or Western knowledge. Rather it is about centering our concerns and world views and then coming to know and understand theory and research from our own perspectives and for our own purposes” (89). Smith’s book provides an additional framework and different perspective that is centered in the Indigenous worldview and is useful for researchers considering their own work, research programs, and processes in a shift away from colonized practices.



Researchers from many different fields have worked in the Arctic. A history of ethical misconduct, devaluation, and misunderstanding of culture was dominant until the early 1990s. For example, after the Japanese invaded the Aleutian Islands in 1942 and with growing threats from Russia, the U.S. military increased its cold weather training and strengthened its presence in Northern Alaska. The U.S. Air Force, based at an office in Fairbanks from 1955 to 1957, studied medical issues related to cold weather acclimatization. One study conducted during this time period looked at the effects of the cold on thyroid function using radioisotope iodine 131; the study compared a cohort of Alaska Natives (~100 individuals from four Inupiat and two Athabascan villages) with a cohort of white military service men (~20). Only many years later, in 1993, were questions raised about the ethics of this racially-based study. It is not clear that the Alaska Native participants were informed of or understood the details of the study and, in particular, the specifics of the radioisotope or that the treatment had no known medical benefits. The study raises issues around informed consent from Indigenous communities and contributes to the distrust we have with researchers today.

Naturalists, archeologists, anthropologists, and others funded by museums began exploring the Arctic in the late 19th century. They generally treated the Indigenous communities they encountered and observed as part of the landscape, used them for their knowledge about the terrain (plants, animals, etc.) and how to survive in the harsh conditions. It was not until over a 100 years later, in the late 20th century, when Arctic Indigenous Peoples were valued for our Indigenous knowledge and museum perspectives shifted to engage with Indigenous Peoples as scholars. In the United States, museums hold the majority of the materials informing the history and culture of Indigenous Peoples. There is a lot more work ahead of us to reclaim the information from these materials and use it to inform our current cultures and perspectives.

Resource management organizations have sought involvement of Indigenous communities in research due to the incredible longitudinal data captured in Indigenous knowledge. This data has often been used to influence the regulations around subsistence harvests and resources in ways that do not take into account the wellbeing of Indigenous communities, and instead are used against us to benefit commercial or government interests. Natural resource management decisions are based on population measurements, perhaps at different life cycle time points, as well as quantifiable measurements (e.g. species genetics, size, stock structure) and often do not capture the more holistic perspective of Indigenous Peoples. There are some Alaska Native organizations that have co-management relationships with federal agencies for specific species, such as polar bear, seals, walrus, and bowhead whale. This arrangement allows Indigenous organizations to have input and contribute Indigenous knowledge.

As might be expected, based on previous experience, there is often hesitation from Indigenous communities to engage in research and with researchers. I hope we are now in a new era with a shift to research *with* Indigenous Peoples. I think we are getting there with more transdisciplinary research including human rights ethics and informed consent. In the U.S., throughout the 1900s there was a growing recognition of the often abhorrent mistreatment of African-Americans, the poor, women, and other marginalized groups in scientific research. This has facilitated a greater awareness and genuine respect, broader inclusion, and self-determination or authority over Indigenous knowledge,

data, and processes. Indigenous Peoples should be able to drive the research process from idea generation to ownership of data and analysis. However, there is more work to do in addressing equity and resource parity in the collaborative relationship between researchers and Indigenous communities, scholars, and knowledge holders.

Additional Resources on Arctic Research and Indigenous Peoples

Martin, Michael V., and Janie Simms Hipp. 2018. "A Time for Substance: Confronting Funding Inequities at Land Grant Institutions." *Tribal College: Journal of American Indian Higher Education* 29, no. 3. tribalcollegejournal.org/a-time-for-substance-confronting-funding-inequities-at-land-grant-institutions/

Loring, Stephen. 2009. "From Tent to Trading Post and Back Again—Smithsonian Anthropology in Nunavut, Nunavik, Nitassinan, and Nunatsiavut: The Changing IPY Agenda, 1882-2007." In *Smithsonian at the Poles: Contributions to International Polar Year Science, 1882-2007*, edited by Igor Krupnik, Michael A. Lang, and Scott E. Miller, 115-128. Washington, D.C.: Smithsonian Institution Scholarly Press. repository.si.edu/bitstream/handle/10088/6814/10_Loring_pg115-128_Poles.pdf

Inuit Circumpolar Council-Alaska. 2019. "Food Sovereignty and Self Governance: Inuit Role in Managing Arctic Marine Resources—Project Summary and Update." Accessed February 25, 2020. iccalaska.org/wp-icc/wp-content/uploads/2019/10/FSSG-Collective-Meeting_ICC.pdf

Smith, Linda Thiwai. 2020. *Decolonizing Methodologies: Research and Indigenous Peoples, 2nd Edition*. London: Zed Books. www.zedbooks.net/shop/book/decolonizing-methodologies/

Alaska Native Claims Settlement Act (ANCSA) and Alaska National Interest Lands Conservation Act (ANILCA)

Researchers and others working in Alaska will likely encounter and need to collaborate with various governance organizations in order to accomplish their work. Unlike the rest of the U.S., Alaska does not have reservations or clear land boundaries that are designated as "Indian Country". Instead, Alaska has a different arrangement with the federal government. The legal framework and social order of today can serve to support our communities, but also remains in some ways a source of friction from ongoing inequity.

In Alaska, 12 regional non-profit tribal organizations were formed in the early to mid-1960s to advocate for land, civil, and subsistence rights and provide social services programs (e.g. healthcare, job training, childcare and early education, family services, safety) to Alaska Natives. Many of the non-

profit leaders were instrumental in the development of the 1970s legislation that has significantly shaped Alaska Native lives today.

In 1971, the U.S. Congress passed into law the Alaska Native Claims Settlement Act (ANCSA). In exchange for giving up all claims to additional lands based on aboriginal title and to hunting and fishing rights, the Alaska Native peoples received approximately 43 million acres of land and a cash settlement of \$962 million USD. ANCSA created 12 regional corporations and 253 village corporations that were granted the land and money. A thirteenth corporation represents those no longer residing in Alaska (this corporation owns no land). This was different than the settlement of aboriginal land claims in the 'lower 48'. Outside of Alaska—in the other U.S. states—land was put into trust for the tribes themselves. There are no “reservations” in Alaska since ANCSA, except for the Metlakatla reservation in Southeast Alaska. Village corporations own lands surrounding villages, and the regional corporations own the land and subsurface rights surrounding the village corporation land, as well as large tracts of other lands across the state. Today the 12 regional corporations are huge drivers of statewide and regional economies. The entire state is a patchwork of land ownership and governance by the corporations, tribes, and state and federal governments.

In 1980, the Alaska National Interest Land Conservation Act (ANILCA) created 104 million acres of new national parklands, wildlife refuges, and other conservation lands in Alaska. ANILCA also reaffirmed land claims and attempted to “settle” subsistence rights by creating a rural Alaska resident preference for hunting and fishing. This “rural” preference written in federal law is seen by some to conflict with state law, which includes a provision for equal access to natural resources. This inconsistency between state and federal law has created a dual system of management that is very complex and continues to be a source of disagreement and litigation between the State of Alaska and tribes.

Additional Resources on ANCSA and ANILCA

ANCSA Regional Association. n.d. “About the Alaska Native Claims Settlement Act.” Accessed February 25, 2020. ancsaregional.com/about-ancsa/—overview of ANCSA and the twelve regions.

Hensley, Elizabeth Saagulik. 2006. “Look Back to Go Forward.” *Alaska Law Review* 33, no. 2: 287-302. lbblawyers.com/wp-content/uploads/2016/11/4175505-Look-Back-To-Go-Forward-by-Hensley.pdf

Landye Bennett Blumstein LLP. “ANCSA Resource Center: a compilation of information about the Alaska Native Claims Settlement Act.” Accessed February 25, 2020. lbblawyers.com/ancsa/

Co-production of Knowledge Model for Engaging with Indigenous Peoples

The previous sections have focused on a few key issues relevant to further understanding of Indigenous Peoples and ways of life in Alaska. This context provides a foundation for true collaboration with Indigenous Peoples. A co-production of knowledge (CPK) approach brings together different knowledge systems while building equitable and collaborative partnerships from different ways of knowing. In today's rapidly changing environment, bringing together Indigenous Peoples' knowledge systems and Western science knowledge systems is critical to addressing climate change impacts, mitigation, adaptation, and proactive solutions. Different knowledge systems have their own methodologies, evaluation, and analyses. They ask different questions, and these alternative perspectives allow for a more comprehensive understanding of climate change. Understanding the value and importance of Indigenous knowledge systems is required for a CPK approach. Within a co-production framework or approach, all knowledge experts must be trusted and respected for the knowledge that they contribute.

To achieve the goal of co-production of knowledge, we must address the issue of equity—everyone needs resources to engage and contribute in a fair way—and address the fact that both Indigenous knowledge systems and science knowledge systems need to be valued equally.

In a 2018 webinar for the Alaska Center for Climate Assessment & Policy at the University of Alaska Fairbanks, Raychelle Daniel, Carolina Behe, and Julie Raymond-Yakoubian propose some specific tools that can help us move toward greater equity and achieving co-production of knowledge:

- *Deliberate and Intentional Choice*: Everyone involved must make a deliberate choice to be a part of the CPK process and develop a shared understanding about the intent of the collaborative approach. Decision-makers should be identified, and the decision-making process should be agreed upon.
- *Sovereignty*: Indigenous Peoples have inherent sovereign rights over their own well-being. Recognize that Indigenous Peoples have authority over their knowledge systems (United Nations Declaration on the Rights of Indigenous Peoples, Article 31). Free, prior, and informed consent (Article 13) means that Indigenous Peoples and knowledge holders are informed of the costs, benefits, risks, and opportunities upfront. They also need to consent—say yes or no—to participating, and Indigenous Peoples have a right to say no.
- *Relationships*: Building relationships requires immense effort to learn and understand each other's knowledge systems, motivations and goals. Western scientists should speak less and with careful intention, listen more, self-initiate learning, and approach every interaction with respect. With time, we gain trust that can help us identify common goals and together identify options and ways forward. It takes commitment and work by everyone to main relationships.
- *Capacity*: It is necessary to build capacity for both Indigenous Peoples and the research community. For Indigenous Peoples, this includes the means and ability to participate in CPK processes. For the research community, this includes learning about Indigenous Peoples, their

cosmologies, histories, values, concerns, and methodologies. For example, Indigenous respect means having regard for all life, an inherent recognition of the interconnectedness of everything, and a reverence for the spirit of all things.

- *Trust and Respect:* Researchers and Indigenous Peoples need to respect each other's knowledge sources and move away from attempting to translate one knowledge into the other for efficiency or brevity. Researchers and others need to trust what Indigenous Peoples are speaking about and that we have the ability to analyze our own information, and respect that each of us comes to the table with the credentials needed to be there. One should respect different cultures, including their ways of communicating, individual thought processes, philosophies, and cosmologies.
- *Ethical Principles:* Each community's ethical principles should be followed, as well as the established disciplinary ethical guidelines. Ethical practices need to be at the center of relationships between Indigenous communities and the research community. The ethical principles implemented in a co-production relationship should be agreed upon by all participants before work begins.
- *Empowerment:* Make political and intellectual space for Indigenous Peoples to speak with authority and power. Non-Indigenous scientists should use what leverage they have to actively create a balanced space that uplifts Indigenous Peoples and builds capacity for future collaborative efforts.
- *Decolonization:* Indigenous Peoples have a way of knowing and understanding the world that differs from predominant mainstream systems. Rules, regulations and norms—for education, decision-making, research, work schedules, natural resource management, and even religious practices—have been imposed on Indigenous communities without including, and sometimes by purposefully excluding, Indigenous ways of being and knowing. Many Indigenous practices and approaches still exist today and are regularly practiced in, for example, hunting, the grieving process, education, and justice. To work within a co-production framework, it is important that Indigenous systems, processes, and methodologies are treated equally with Western scientific approaches.

In addition to these tools, a research process for the co-production of knowledge includes: defining the problem and identifying questions; developing methods, data collection and analysis; communicating findings and reviewing results; addressing who has access and control of the data and results; and practicing reciprocity. What is meant by reciprocity is that a balance of the give and take between researchers and communities, including Indigenous knowledge holders, exists. These elements are not linear steps in a project; rather, they are an interconnected network of processes, happening together, through which the components discussed above can result in equity.

Additional Resources on the CPK Model for Engaging with Indigenous Peoples

Daniel, Raychelle, Carolina Behe, and Julie Raymond-Yakoubian. "Understanding the Arctic through a Co-Production of Knowledge." ACCAP Webinar, Alaska Center for Climate Assessment & Policy, University of Alaska Fairbanks, Fairbanks, AK, April 11, 2018. [uaf-accap.org/event/understanding-the-arctic-through-a-co-production-of-knowledge/](https://accap.org/event/understanding-the-arctic-through-a-co-production-of-knowledge/)

UN General Assembly. 2007. "United Nations declaration on the rights of indigenous peoples." Resolution adopted 13 September 2007. www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html

2018 Update of the *Principles for Conducting Research in the Arctic (1990)*

The 2018 *Principles for Conducting Research in the Arctic* align with U.S. Arctic policy, apply to research across all disciplines, and are used to guide academic and federal agency researchers active in the Arctic and funded by the national government. The guidelines were developed by the Interagency Arctic Research Policy Committee (IARPC) with input from the broader community. The guidelines support responsible and ethical research with respect for all individuals, cultures, and the environment. They emphasize the following actions for researchers: be accountable; establish effective communication; respect Indigenous knowledge and cultures; build and sustain relationships; and pursue responsible environmental stewardship. Projects on Indigenous homelands or involving Indigenous Peoples should be coordinated with Indigenous leadership and should follow all applicable regulations and local research guidelines.

Additional Resources on the *Principles for Conducting Research in the Arctic*

Interagency Arctic Research Policy Committee (IARPC). 2018. *Principles for Conducting Research in the Arctic*. Accessed February 25, 2020. www.nsf.gov/geo/opp/arctic/conduct.jsp—read the complete *Principles* here.

Arctic Research Consortium of the United States. n.d. "Conducting Research with Northern Communities: Documented Practices and Resources for Productive, Respectful Relationships Between Researchers and Community Members." Accessed February 25, 2020. www.arcus.org/resources/northern-communities—explore more about research with northern communities in this list of resources compiled by ARCUS.

A Path Toward Achieving Equity and Representation

We have not yet reached a comfort level where we have fluid communication between Indigenous Peoples and researchers, nor is there an understanding of and respect for the many diverse cultural worldviews across the Arctic. We need continued emphasis on building relationships and strengthening the connections between scientists, Indigenous Peoples, Indigenous knowledge holders, and policy-makers. In order to build those relationships, we need more honest discussion, listening, learning, respect, and time to build trust before identifying common goals and together identifying options and ways forward. We have taken some steps in this process but have more to do to achieve strong dialogue and maintain open lines of communication. Meaningful collaboration requires an iterative commitment by everyone to build and maintain relationships. Doing so can develop the following:

Correct the imbalance: Recognize, create, and maintain balance by helping to address the power imbalance felt by Indigenous Peoples in academic spaces such as at conferences and in policy discussions, by recognizing and using Indigenous protocol. Look for ways to have smaller group discussions with multi-step processes. Hold meetings that are led and convened by Indigenous Peoples in a place where we have a connection to the land.

Provide resources: Adequate resources are absolutely critical for Indigenous Peoples to participate in research and policy-making. Provide resources in an equitable way that uplifts Indigenous Peoples and knowledge holders, so that we are prepared and able to engage in a more influential way. Part of this effort means thinking about new and different funding structures that build capacity in Indigenous communities.

Evolve institutions: Ensuring that underserved voices are heard from Indigenous Peoples, people of color, and other marginalized groups requires disruption of existing institutions and coordinating bodies. Intentionally working together with diverse perspectives and leadership across all levels of an organization or research problem can change the power balance and support better science, as well as the provision of resources for collaborating. Listening to these voices can help set priorities within those structures so that they reflect the reality of the Arctic.

Actions Toward Partnership

Start from a place of personal reflection. Acknowledge the lack of understanding around equity and the systemic issues that need to be addressed in order for different knowledge systems to be valued equally. Further understand or explore your historical or current privilege and take action to extend or create a balanced space for interactions. Take personal responsibility to learn, read, research, and gain a better understanding of the Indigenous Peoples and cultures you engage with, or on whose lands and waters you work; challenge your apparent or subtle assumptions about them.

Follow personal reflection with tangible action. Use this greater understanding to enhance engagement, partnerships, and co-production of knowledge with Indigenous Peoples. We, all people, must work to achieve these key steps:

- Commit to meaningful exchanges in different types of engagement. Shift modes of thinking with new approaches—listen more, honor time for reflection and balanced dialogue.
- Provide extra information, support, and resources in your relationships and activities with Indigenous Peoples.
- Create space for Indigenous Peoples to gather, lead, and be part of the decision-making process. This should happen at all stages of any research project.
- Recognize that Indigenous Peoples work across different management and policy-making processes, in addition to internal governance structures, and intentionally collaborate.
- Inform developing research by seeking existing knowledge from Indigenous communities that has been documented, synthesized, and is held by Indigenous sources and organizations.
- Promote understanding of the tremendous value that different types of knowledge bring to a problem and the role these perspectives have in creating solutions.

Arctic residents and especially Indigenous Peoples have intimate knowledge of and are directly affected by climate change impacts. We must build trust and relationships based on respect and understanding of different worldviews and systems of knowledge. We can correct the imbalances in our institutions and processes. We can change and create new structures where diverse voices are heard, and actions are taken as a result. We can provide abundant resources to ensure the participation of Indigenous Peoples in research and policy. For me, this is what progress means; progress may be different for other people. Intentionally choosing to work together, we can make real progress in our relationships.

Additional Resources on Actions Toward Partnership

David-Chavez, Dominique M., and Michael C. Gavin. 2018. "A global assessment of Indigenous community engagement in climate research." *Environmental Research Letters* 13, no. 12. iopscience.iop.org/article/10.1088/1748-9326/aaf300

Appendix A: Examples of Partnership with Indigenous Communities

Below are a few illustrative examples to highlight some elements of the co-production of knowledge model discussed above. Some of these projects did not start out in the right way, none are perfect, and some may have had significant course corrections along the way. We need more collective efforts to identify when research uplifts Indigenous communities and knowledge, while learning from missteps and committing to not make the same mistakes in the future.

Research and community partnerships

Alaska Arctic Observatory & Knowledge Hub (AAOKH) coordinates observations on sea ice, wildlife, and coastal waters from Indigenous knowledge holders among seven Northern Alaska coastal communities. AAOKH also provides tools and is a hub for sharing observational data some of which is collected by local observers in the communities that are supported by the program. arctic-aok.org/

Co-production of knowledge

SMARTIce is a climate change adaptation tool that uses both Indigenous knowledge of sea ice and satellite data to provide to communities near real-time information about sea ice thickness and local ice conditions. This project may not have started out as co-production but evolved and is now a collaborative project with Indigenous organizations. www.smartice.org

Nexus of research, community, and policy-making

Northern Bering Sea Climate Resilience Area was established by Presidential Executive Order in December 2016. The historic designation was the result of work by three Indigenous organizations, which together represent more than 70 federally recognized tribes, to improve consultation with tribes and to facilitate inclusive, comprehensive management in their region. The formation of the Resilience Areas is a good example of collaborative partnership between Indigenous organizations and the federal government. However, the Executive Order was rescinded in 2017 by President Trump, which is yet another example of the U.S. government breaking an agreement and trust with Indigenous Peoples. usa.oceana.org/northern-bering-sea-climate-resilience-area

Tuvaijuittuq Imanga National Marine Conservation Area in Canada's high Arctic Basin was established in August 2019 and covers more than 427,000 square kilometers. Science and Inuit Qauijimajatuqangit (traditional knowledge) informed the creation of the protected areas and will inform future management and protection of Inuit harvesting rights and species at risk. www.pc.gc.ca/en/amnc-nmca/cnamnc-cnnmca/tallurutiup-imanga

Learn more from this recorded discussion between Sandra Inuitiq, lead negotiator for the Qikiqtani Inuit Association, and Kevin McNamee of Parks Canada Agency, who both worked on this historic agreement: youtu.be/ExspZcbzXkU

Additional resources:

Daniel, Raychelle, Carolina Behe, Nicole Herman-Mercer, and Andrew Mahoney. 2018. "Different Ways of Knowing: Successful Examples of Knowledge Co-production in Arctic Research." IARPC Webinar, February 16, 2018. www.iarpcollaborations.org/events/10781

Appendix B: Additional Reading and Resources

Listed below are some suggested readings and additional resources. One of the goals of this paper is to highlight Indigenous knowledge and perspectives and this list is mainly Indigenous sources and authors. However, there are several gaps where non-Indigenous authors are referenced. This is a starting point that should be updated as more Indigenous sources are created and identified.

General multi-media

Whose land are you on? Find out at native-land.ca/. This website (also a mobile app) is part of the Indigenous-led Canadian non-profit Native Land Digital.

Topkok, Sean Asiqluq. n.d. *Alaska Native Studies Council Writing Style Guide*. Juneau, AK: Alaska Native Studies Council. Accessed February 25, 2020. www.academia.edu/36961279/Alaska_Native_Studies_Council_Writing_Style_Guide—this is a “living” document (evolving over time).

Talaga, Tanya (Ojibwe). 2018. *All Our Relations: Finding the Path Forward*. 2018 CBC Massey Lecture series. Accessed March 4, 2020. www.cbc.ca/radio/ideas/the-2018-cbc-massey-lectures-all-our-relations-finding-the-path-forward-1.4763007—also available in book form from House of Anansi Press (Canada) at <https://houseofanansi.com/products/all-our-relations>

Podcasts

Explore issues around native feminism, cultural appropriation, food sovereignty, decolonization, traditional tattoos, and more with these podcasts:

All My Relations podcast by Matika Wilbur (Swinomish and Tulalip) and Adrienne Keene (Cherokee Nation) www.allmyrelationspodcast.com/

Coffee and Quaq podcast by Alice Qannik Glenn (Iñupiaq) www.coffeeandquaq.com/podcast

Harp, Rich, Kim TallBear, Candis Callison, and Tate Walker. “Putting Science under an Indigenous Microscope.” *Media Indigena: Indigenous current affairs*. Podcast audio July 13, 2019. <https://mediaindigena.libsyn.com/ep-169-putting-science-under-an-indigenous-microscope>

On the Land podcast by creator and host Deenaalee Hodgdon (Deg Xit’an Dene and Supiaq). <https://www.onthelandmedia.com/>

Ayed, Nahlah and Wade Davis. “Into the Wild: Anthropologist Wade Davis.” *Ideas with Nahlah Ayed: a CBC Listens production*. Podcast audio, Feb 18, 2020. <https://www.cbc.ca/listen/live-radio/1-23-ideas/clip/15761361-into-the-wild-anthropologist-wade-davis>

Films

Schilling, Vincent. 2019. “‘Now is the time,’ Six Indigenous movies that capture Indigeneity.” *Indian Country Today*, September 9, 2019. newsmaven.io/indiancountrytoday/news/now-is-the-time-six-indigenous-movies-that-capture-indigeneity-uNFhT6ISpUaZ-F--myDgnw/

“Podcasts, Books, and Resources for Developing Understanding of Indigenous Perspectives”—list maintained and updated by the Interagency Arctic Research Policy Committee collaboration teams (must register to access): www.iarpccollaborations.org/members/updates/15317

Tanana Chiefs Conference. n.d. “Legacy of Our Elders.” Accessed February 25, 2020 www.tananachiefs.org/legacy-of-our-elders/—video archive documenting the lives of Alaska Native elders.

The Doctrine of Discovery: Unmasking the Domination Code. Directed by Sheldon Peters Wolfchild (Lakota). 38 + 2 Productions, 2014. www.imdb.com/title/tt3816388/

Literature: Alaska Native culture, history, and ways of life

Interior Region

Carlo, Poldine (Koyukon Athabascan). 1978. *Nulato: An Indian Life on the Yukon*. Self-published.

Harper-Haines, Jan (Athabascan). 2000. *Cold River Spirits: Whispers from a Family's Forgotten Past*. Alaska: Epicenter Press. www.epicenterpress.com/Home/Book/13

Wallis, Velma (Gwich'in Athabascan). 1993. *Two Old Women: an Alaska Legend of Betrayal, Courage, and Survival*. Fairbanks/Seattle: Epicenter Press. www.harpercollins.com/9780062244987/two-old-women-20th-anniversary-edition/

Wallis, Velma (Gwich'in Athabascan). 1996. *Bird Girl and the Man who Followed the Sun*. Kenmore, WA: Epicenter Press. www.harpercollins.com/9780060977283/bird-girl-and-the-man-who-followed-the-sun/

Wallis, Velma (Gwich'in Athabascan). 2002. *Raising Ourselves: A Gwitch'in Coming of Age Story from the Yukon River*. Alaska: Epicenter Press. www.goodreads.com/en/book/show/311781.Raising_Ourselves

David, E.J.R. (Tagalog and Kapampangan). *We have not stopped trembling yet: letters to my Filipino-Athabascan Family*. Albany: State University of New York Press. www.sunypress.edu/p-6544-we-have-not-stopped-trembling-y.aspx

Southwest Region

John, Paul (Yup'ik). 2003. *Qulirat Qanemcit-Illu Kinguvarcimalriit: Stories for Future Generations - the Oratory of Traditional Yup'ik Chief Paul John* (translated by Sophie Shield and edited by Ann Fienup-Riordan). (2003) by Paul John (Yup'ik), edited by Ann Fienup-Riordan. Seattle: University of Washington Press and Bethel: Calista Elders Council. uwapress.uw.edu/book/9780295983509/stories-for-future-generations-qulirat-qanemcit-llu-kinguvarcimalriit/

Napoleon, Harold (Yup'ik). 1996. *Yuuyaraq: The Way of the Human Being*. Fairbanks, AK: Alaska Native Knowledge Network. ankn.uaf.edu/Publications/Books/Yuuyaraq.pdf

Kawagley, Angayuqaq Oscar (Yup'ik). 1995. *A Yupiaq Worldview: a Pathway to Ecology and Spirit*. Longrove, IL: Waveland Press. www.waveland.com/browse.php?t=28&r=a%7C44

- Rearden, Alice (Yup'ik) and Anna Jacobson (Yup'ik). 2009. *Qanruyuteput linruugut: our teachings are medicine*. Fairbanks, AK: Alaska Native Language Center.
epay.alaska.edu/C21563_ustores/web/classic/product_detail.jsp?PRODUCTID=5563
- Fienup-Riordan, Ann (editor). 2005. *Yup'it Qanruyutait: Yup'ik Words of Wisdom*. Lincoln, NE: University of Nebraska Press. www.nebraskapress.unl.edu/bison-books/9781496204974/

Southcentral and Southeast Regions

- Hope, Ishmael (Inupiaq and Tlingit). 2017. *Rock Piles Along the Eddy*. Ishmael Reed Publishing Company. www.goodreads.com/book/show/35224521-rock-piles-along-the-eddy
- Hayes, Ernestine (Tlingit). 2015. *Blonde Indian: an Alaska Native Memoir*. Tucson: University of Arizona Press. uapress.arizona.edu/book/blonde-indian
- Hayes, Ernestine (Tlingit). 2017. *The Tao of Raven: an Alaska Native Memoir*. Seattle: University of Washington Press. uwapress.uw.edu/book/9780295745725/the-tao-of-raven/
- Tansy, Jake (Ahtna). 1997. *Indian Stories: Ahtna Indian Stories from Cantwell, Alaska*. Glennallen, AK: Ahtna Heritage Foundation.
www.uaf.edu/anla/collections/search/resultDetail.xml?resource=9923

Northwest and Arctic Slope Regions

- Kane, Joan Naviyuk (Inupiaq). 2009. *Cormorant Hunter's Wife*. Chicago: North Shore Press.
thecormoranthunterswife.com/
- Ojanen, Carrie Ayagaduk (Inupiaq). 2018. *Roughly for the North*. Fairbanks: University of Alaska Press. www.alaska.edu/uapress/browse/detail/index.xml?id=572
- Oquilluk, William A. (Inupiaq). 1973. *People of Kauwerak: Legends of the Northern Eskimo*. Anchorage: Alaska Pacific University Press.
www.alaskool.org/native_ed/historicdocs/people_of_kauwerak/Kauwerak_pp.htm
- Brown, Ticasuk Emily Ivanoff (Inupiaq). 1987. *Tales of Ticasuk: Eskimo Legends & Stories*. Fairbanks: University of Alaska Press.
www.press.uchicago.edu/ucp/books/book/distributed/T/bo5786079.html
- Norbert, Eileen (Inupiaq). 2016. *Menadelook: An Iñupiat Teacher's Photographs of Alaska Village Life 1907-1932*. Seattle: University of Washington Press.
uwapress.uw.edu/book/9780295999333/menadelook/
- Hensley, William Iggiagruk (Inupiaq). 2010. *Fifty Miles from Tomorrow: A Memoir of Alaska and the Real People*. New York: Picador. us.macmillan.com/books/9780312429362