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Dr. Nikoosh Carlo (Koyukon Athabascan) is CEO of CNC North Consulting LLC. She has extensive experience working to advance community

AUTHOR'S NOTE..... 4

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

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

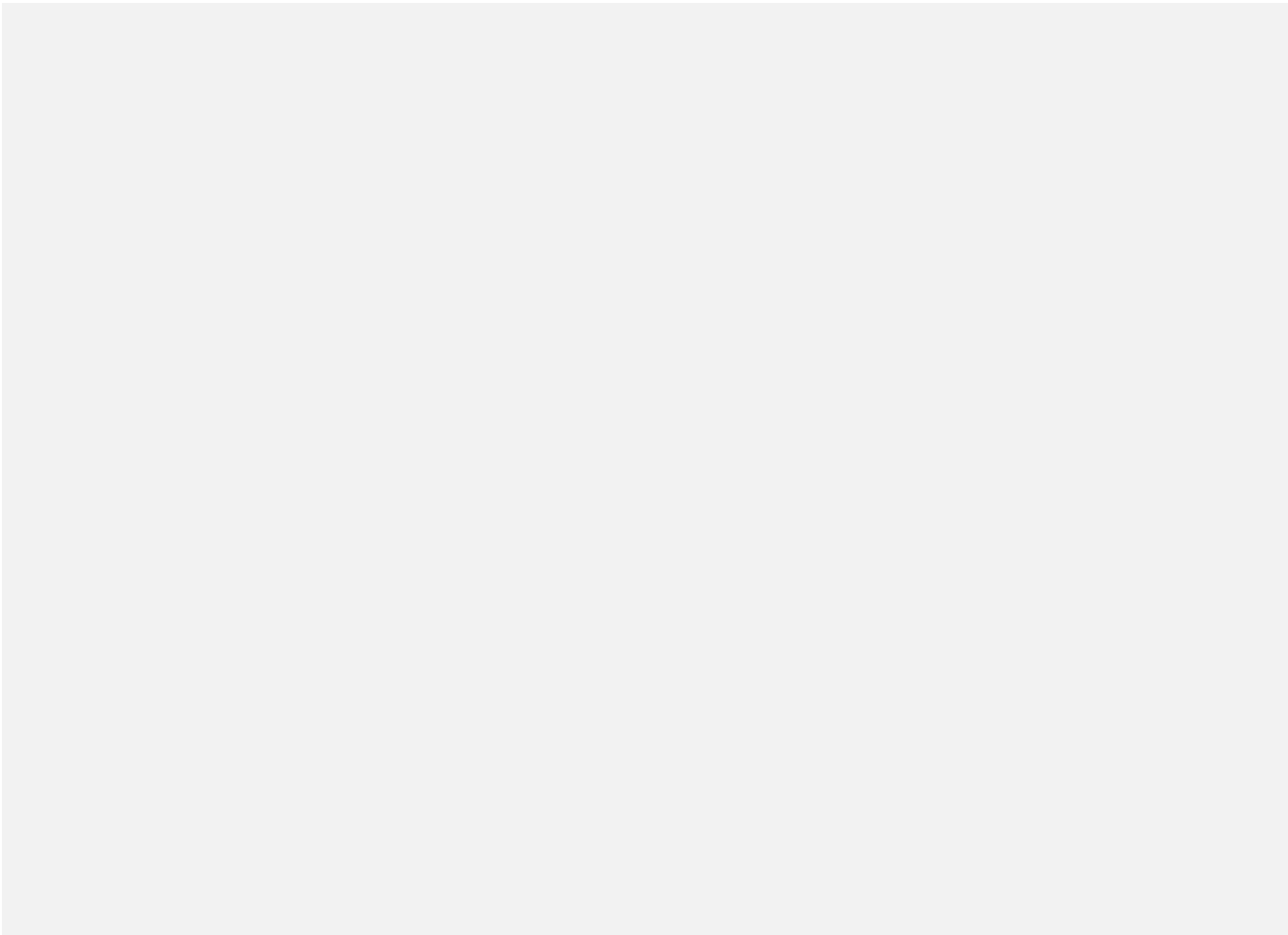
Bill Carlo from Nulato and Rampart, Alaska. It is important to name my ancestors and my geographic links, so that you have greater context for our interaction. This type of introduction is traditional Alaska Native practice, or protocol, and serves to provide greater understanding of “who is in the room” 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

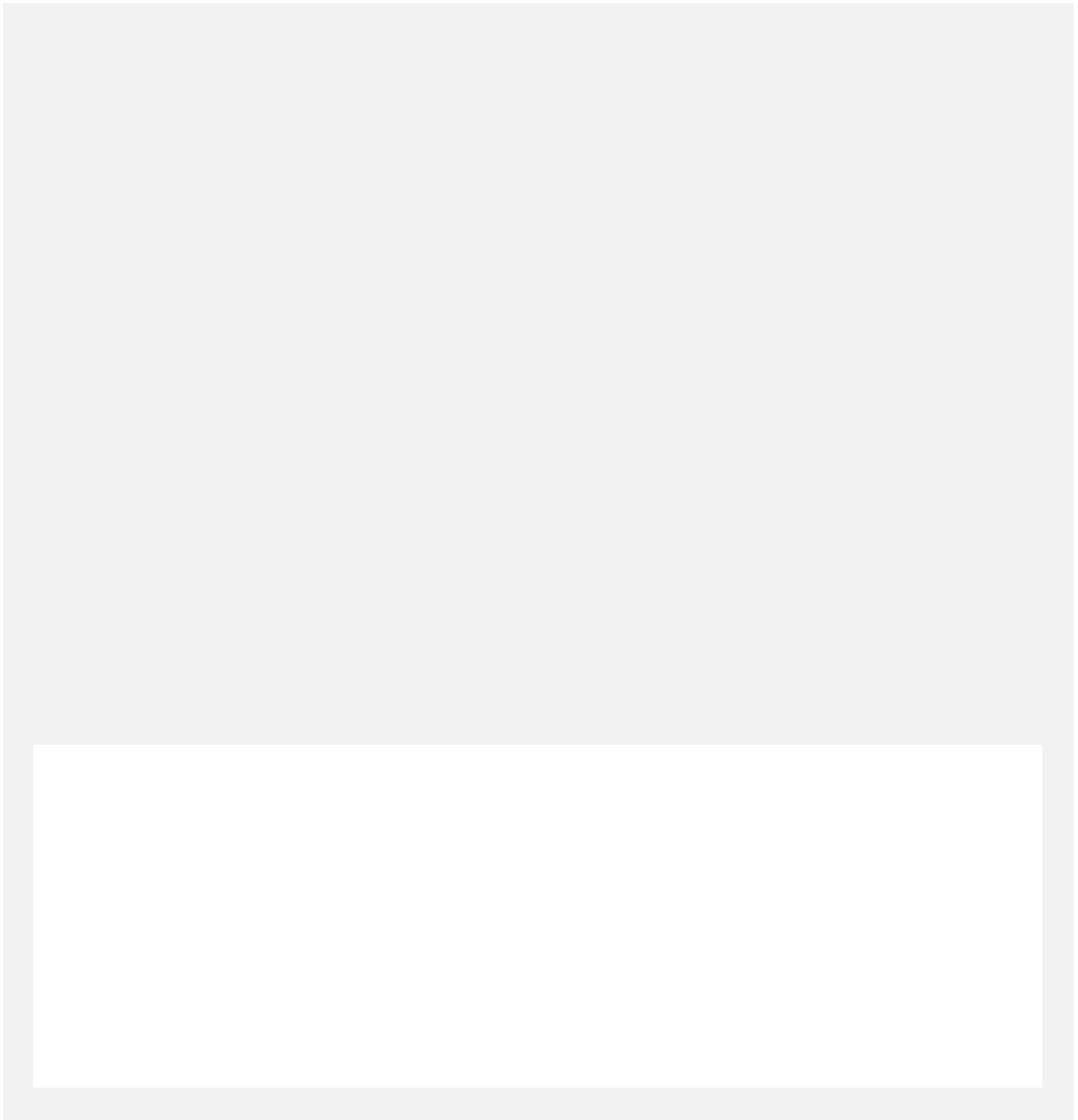
Today there are 229 federally recognized tribes in Alaska. Tribes have a government-to-government relationship with the United States and are recognized as having the right of self-governance (tribal



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 the Inuit Circumpolar Council (ICC)-Alaska offers this definition of Inuit food security:

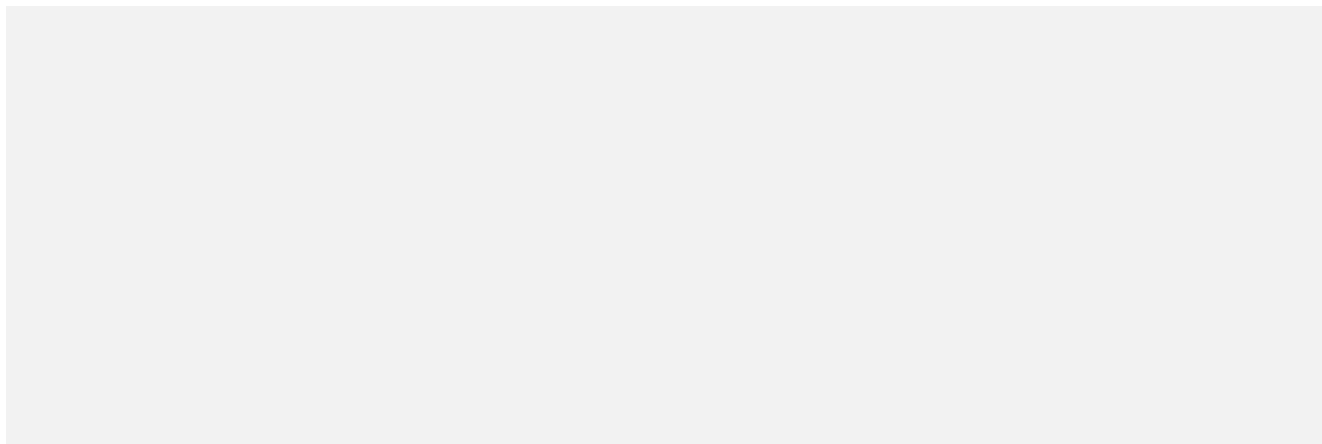
providing funding to ensure Indigenous Peoples and communities have the same opportunities to engage and contribute to research projects.



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.

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.



(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

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 participan

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

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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

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:

- 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.
- 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.
- 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.
- 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

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

Interagency Arctic Research Policy Committee (IARPC). 2018.

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, F1 esg

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.

Alaska Arctic Observatory & Knowledge Hub (AAOKH) coordinates observations on sea ice, wildlife, and coastal waters from Indigenous knowledge holders among

“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.

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