

Climate Change, Food, and ‘Sharing’ among the Iñupiat of Wainwright, Alaska

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Introduction: Outline of Issues

Indigenous peoples living in high Arctic environments have developed sophisticated ecological and social relationships with the animals, plants, and inanimate objects that define their complex and dynamic habitat. These relations are integral to maintaining subsistence livelihoods, such as hunting and gathering, which are based on dynamic traditions that have enabled them to adapt to social and environmental change. Although indigenous peoples of the Arctic have contributed little to the causes of climate change, they are among the first to feel its effects. Climate change threatens subsistence livelihoods by increasing the variability and unpredictability of wind, currents, and formation of sea ice. Changes in sea-ice jeopardize the safety of hunters and their access to marine mammals; and therefore, sources of food.

This case study examines the implications of climate change for the Iñupiat community of Wainwright, Alaska. Specifically, it addresses Iñupiat relations with *agviq*, the bowhead whale (*Balaena mysticetus*). First, we describe how Iñupiat whalers hunt the bowhead whale, how the whaling crew shares the whale with the community, and how the community celebrates a successful whaling season. Second, these descriptions are followed by observations of change in sea-ice morphology and phenology, as well as potential impacts of climate change on bowhead whale hunting. These impacts potentially restrict Iñupiat food sovereignty, which is the right and ability of communities to choose culturally relevant and ecologically sustainable foods they obtain and consume from their ecological habitat (Kassam et al. 2010). Furthermore, hunting, distributing, and celebrating bowhead whales demonstrate community values, particularly the value of ‘sharing.’ Even if specific expressions of this value change, because sharing has historically played a significant role among the Iñupiat, it will likely continue to be significant in community adaptation to climate change.

Context: Wainwright, Alaska

The village of Wainwright (70°59' N, 160°07' W) is located on the northern coast of Alaska on the Chukchi Sea, 136 km southwest of Barrow and 10 km northwest of the Kuk River inlet. The Iñupiat name for Wainwright is *Ulgunik*, meaning “where the land slopes to the sea.” The landscape of Wainwright is characterized by Arctic tundra, coastal zones, and wetlands. Temperatures in Wainwright range from -49

to 27°C. The Chukchi Sea near Wainwright has open water from mid-July to September. The current population of Wainwright is estimated at 556 persons (US Census 2010), living in approximately 147 households (ACS 2009). Ninety-two percent of Wainwright residents are Alaska Natives or American Indian, alone or in combination (US Census 2010). Most villagers are Iñupiat, either *Kuugmiut*, people of the Kuk River, or *Utuqqagmiut*, people of the Utuqqaq River (Braund 1993). Sixty-one percent of residents speak a language other than English, mostly Inupiaq. Iñupiat literally means “real” or “genuine people” (Fair 1997).

The Iñupiat have inhabited the North Slope of Alaska for tens of thousands of years (Burch 1998; 2005), and throughout their history in this dynamic landscape, they have responded to many social and ecological changes. The Iñupiat have thrived in spite of the multiple impacts of colonialism, including the introduction of European diseases and integration into the market economy (Kassam 2009). In the late nineteenth and early twentieth century, most Iñupiat moved into permanent settlements. This brought distinct cultural groups together into the same locations, as it did *Kuugmiut* and *Utuqqagmiut* people in Wainwright. Wainwright was established in 1904 when the Alaska Native Service constructed a village school there. Wainwright is now one of eight communities in the North Slope Borough. The borough is a municipal government entity similar to a county. All eight communities participate in elections for borough-wide positions, including mayor and school board representatives. Wainwright also elects The Wainwright Traditional Council, which guides and supports community actions on the basis of indigenous rights, laws, and cultural identity (The Wainwright Traditional Council and Nature Conservancy 2004).

Wainwright residents participate in a mixed economy, meaning they engage in both subsistence livelihoods and wage labor (Wenzel et al. 2000). A recent survey found that over 90% of Wainwright households depend on subsistence foods to some extent, and nearly a third of households depend on subsistence foods for more than half of their annual nutritional needs (North Slope Borough 2011). Although some foods are imported by plane, high shipping costs mean these foods are often unaffordable. In addition to being less expensive, subsistence foods have important socio-cultural and ecological meaning. Subsistence as a way of life is about a wealth of relationships, rather than eking out a meager living (Wheeler and Thornton 2005). Subsistence livelihoods include hunting and gathering plants and animals from the land and sea and illustrate the complex connectivity of human ecological relations of the Iñupiat of Wainwright, Alaska (see Figure 1 - Map). Unlike agricultural communities in lower latitudes that make intensive use of the land, subsistence hunting and gathering communities at high latitudes make extensive use of the land and seascape that defines their habitat. This practice follows seasonal rhythms drawing on ecological resources as well as sea-ice. Wainwright residents hunt birds in

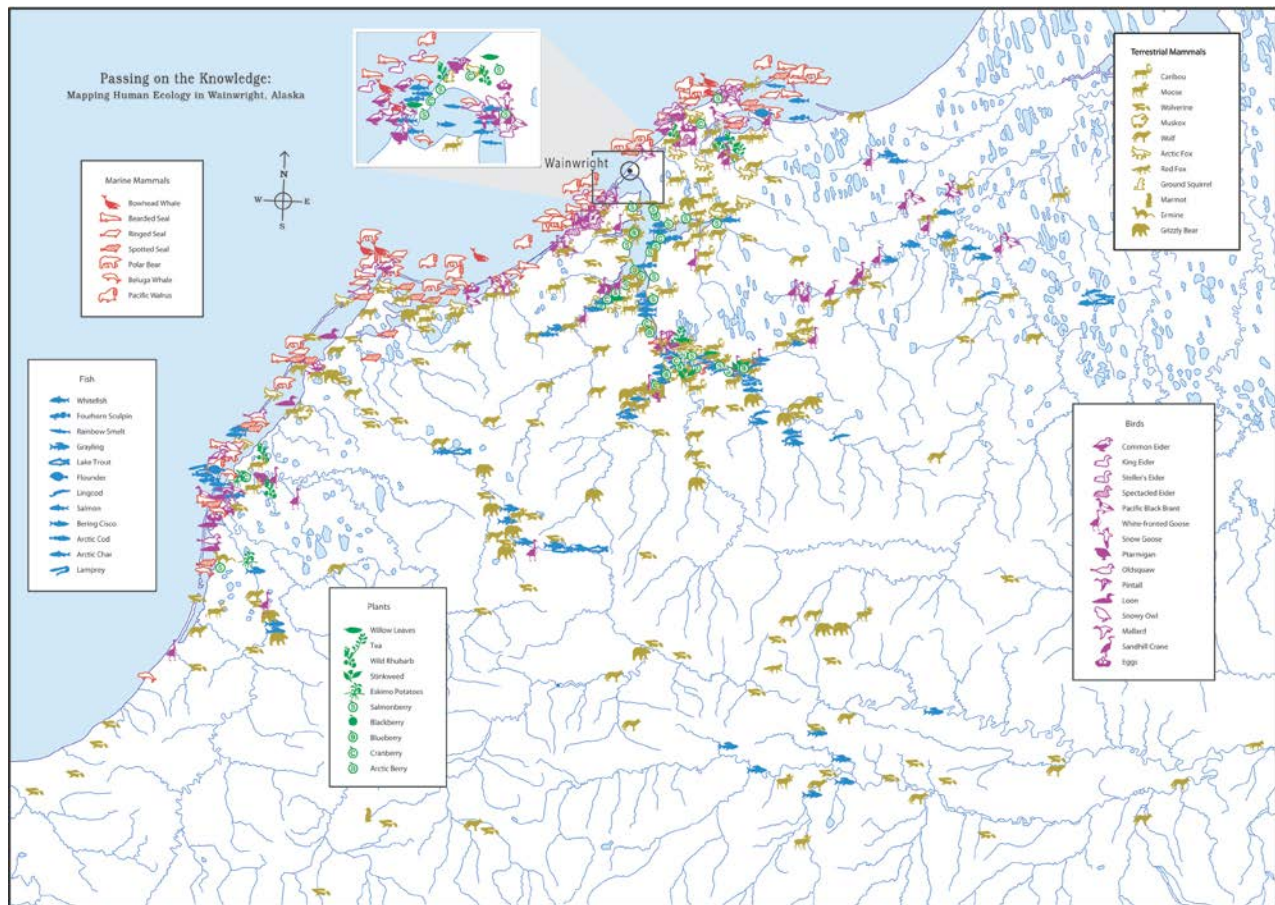


Figure 1 Human Ecological Map of Wainwright, Alaska

early spring, bowhead whales from mid-April to May, fish in summer months, and gather plants in August and September (see Figure 2 - Seasonal Round). Although caribou are hunted throughout the year, most of them are hunted in early autumn (Kassam and The Wainwright Traditional Council 2001). In Figure 2, note the presence and significance of ice to seasonal activities related to obtaining diverse and complimentary food sources. All of these practices emerge from, and are adapted to dynamic ecological relationships that have sustained Iñupiat communities for centuries.

Wages enable many villagers to purchase the fuel and supplies they need for subsistence livelihoods. Approximately 70% of adults in Wainwright earn wages (ACS 2009). Local schools and the North Slope Borough employ about half of the labor force, while the rest work in the private sector, primarily for Olgoonik and Arctic Slope Regional Corporations (North Slope Borough 2011). These corporations were created in 1971 following the Alaska Native Claims Settlement Act (Berger 1985). Despite predictions that new technologies and a cash economy would displace subsistence livelihoods, Iñupiat and other Alaska Native communities have integrated all three into their way of life.

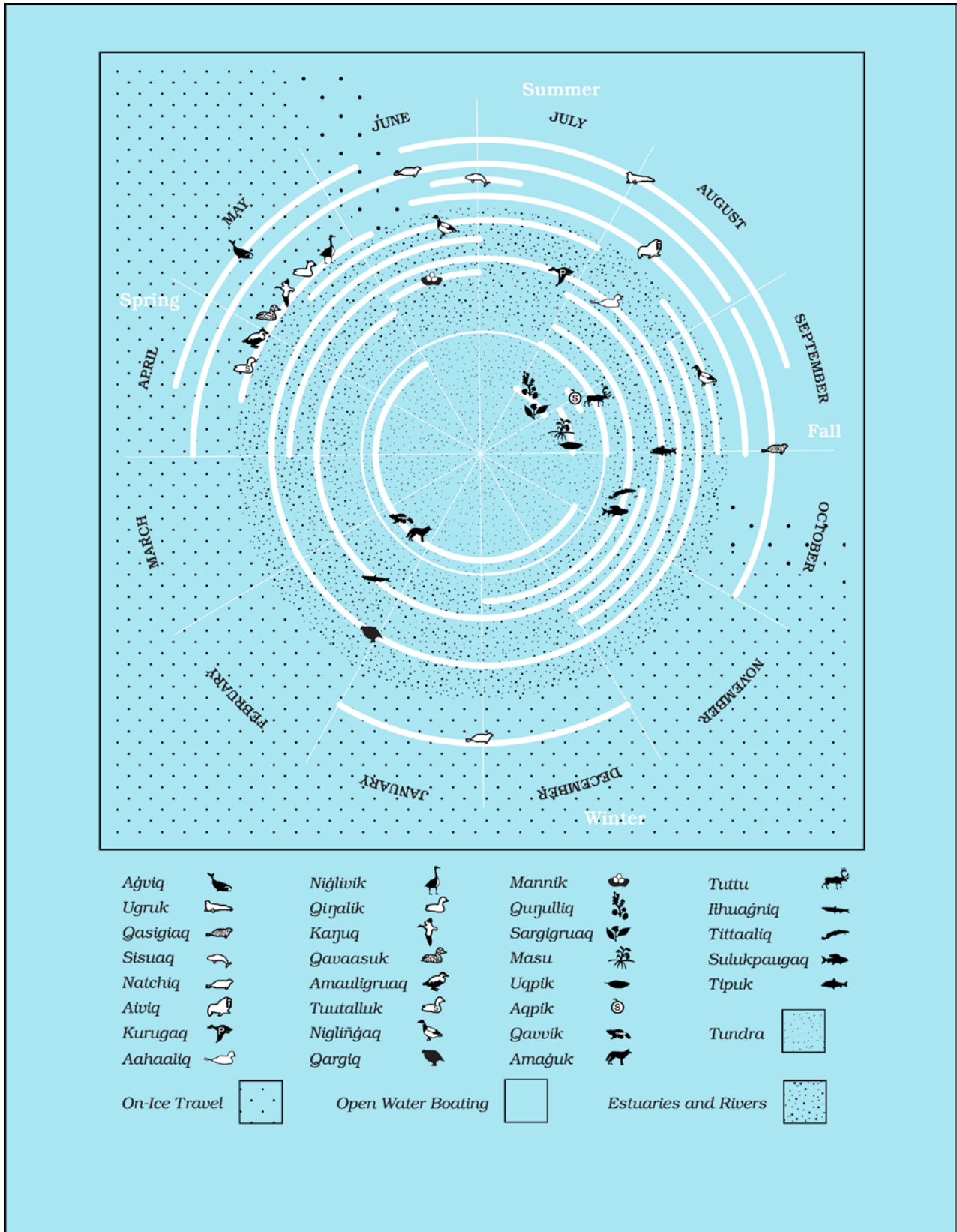


Figure 2 Seasonal Round of Subsistence Harvesting in Wainwright, Alaska

The Bowhead Whale Hunt

Agviq, the bowhead whale (*Balaena mysticetus*), may be one of the longest living mammals on earth, with some individuals living for over 200 years. Although bowhead whales are filter feeders, subsisting primarily on zooplankton, they can grow to over 60 feet long and weigh over 60 tons. More than 10,000 bowhead whales migrate through the Bering, Beaufort, and Chukchi Seas each spring (National Marine Fisheries Service 2007), and it is during this time that they pass close to Wainwright (Moore and Reeves, 1993).

European and American commercial whaling fleets decimated populations of bowhead whales in the 19th and early 20th centuries. Hunting of the bowhead is now regulated by the International Whaling Commission, which sets specific catch limits for subsistence hunting of bowheads by indigenous communities in the Western Arctic. Ironically, some of the countries whose fleets were responsible for taking whale populations to perilously low levels are members of the commission and set quotas for indigenous peoples of North America. The Alaskan Eskimo Whaling Commission, which consists of whaling captains and crewmembers from indigenous whaling communities, determines how many whales each community may take. The village of Wainwright is allowed to harvest up to seven whales per year. Each village organizes a number of whaling crews; Wainwright had six crews in 2010 (John Hopson Jr. 2011 Pers. Comm.). The owner of the whaling boat is the captain of the crew, which includes a driver, harpooner, shoulder gunner, and engineer (Kassam and The Wainwright Traditional Council 2001).

Hunting the bowhead is highly anticipated in Wainwright. When a whaling crew takes a bowhead whale, it is understood to have given itself to the wife of the whaling captain (Bodenhorn 1990). Therefore, the captain's wife must ensure that the house is clean because a whale will not return to an unkempt house. The captain's daughters and other female community members help with the housecleaning, but the men of the whaling crew including the captain are responsible for cleaning the ice cellar. The contents of the ice cellar are consumed to make space for the anticipated whale.

In March, the whaling crews break a trail to the lead, a channel of open water, and start to gather their equipment. As villages to the southwest harvest whales, word is sent to Wainwright that the pod is approaching. Usually bowhead hunting begins in early April, but one elder observed that the bowheads are "slowing down" and have not been appearing until late April, or even May (Kassam and The Wainwright Traditional Council 2001, p. 15). The whaling crews wait for calm weather and appropriate ice conditions to start the hunt. A great deal of effort and financial support are invested to ensure the safety of the whaling crew and to minimize the possibility of a 'strike and loss' of a whale. While the crews are out hunting, all food items are kept off the floor in a whaling captain's house to prevent a whale from

going under the ice after being struck. Before the boats leave, the community holds a church ceremony to offer prayers for a safe and successful hunt (Kassam and The Wainwright Traditional Council 2001).

A harpoon and a darting gun are used to hunt the whale. When the harpoon hits the whale, it attaches a float. Next, the darting gun trigger rod strikes and ignites a propellant charge, thrusting a black powder bomb into the whale, which explodes three seconds after striking, killing the animal quickly. The whale is pulled onto the sea-ice to be butchered (Kassam and The Wainwright Traditional Council 2001).

Sharing the Whale

When a whale is harvested, the majority of the community goes out to the lead to help with the initial preparation of the animal. A whale must be butchered immediately to avoid spoilage. Once the whale has been butchered, it is divided into portions and taken back to the community for distribution. The meat, blubber, heart, liver, tongue, eyes, flippers, fluke, and intestines will be consumed. To a lesser extent, the brain, kidneys, gums, and stomach are also eaten. Whale skin and blubber (*maktak*) is an important staple. Bowhead whale meat is prepared in a variety of ways: fermented in blood (*mikigaq*), eaten frozen and raw (*quaq*), boiled, fried, or baked (Kassam and The Wainwright Traditional Council 2001).

Some parts of the whale are consumed daily, while other parts are retained for community-wide celebrations. The portion of the whale, from the belly button to the tail, is given to the whaling captain to retain for the *Nalukataq* (or “blanket toss”) festival, Thanksgiving, and Christmas. The gunner who struck the whale receives the right fluke, while the left fluke, eyes, and half of the tongue are given to the captain for use at *Nalukataq*. The other half of the tongue is shared among the crewmembers. Half of the baleen and the midsection of the whale (called the “belt”) are given to the whaling captains of any boats that helped tow the whale to the ice. The remaining whale meat is split into equal portions and distributed among all the whaling crews and the community members. Usually the best parts are given to elders who can no longer hunt. Community members often share their portions with friends and relatives in other communities (Kassam and The Wainwright Traditional Council 2001).

Several ceremonies and celebrations are associated with the bowhead whale. *Apugautituq* is held when a successful whaling crew comes ashore. A piece of *maktak* (skin with blubber) is cut from the whale and distributed to the community. The *Nigipkai*, or “mini blanket toss”, takes place when all of the whaling crews have brought in their boats. Intestines, heart, meat, kidneys, and *mikigaq* are served at this time. The largest ceremony, the *Nalukataq*, is held in June to celebrate a successful whaling season. The wives of the whaling crews prepare the whale while other community members contribute additional

foods, including duck and geese. The community gathers in the school or church to share *maktak* and the other dishes. Similar feasts take place on Thanksgiving and Christmas, when any remaining whale meat must be consumed to receive the following year's harvest (Kassam and The Wainwright Traditional Council 2001).

Practices associated with the bowhead whale demonstrate that the value of sharing is central to Iñupiat culture. The bowhead whale not only meets the nutritional needs of the residents of Wainwright, but the value of sharing is enacted through the hunt, the distribution of food, and the celebration of *Nalukataq* (Kassam 2009). That the bowhead whale gives itself is an example of sharing within an ecological community. The sharing of responsibilities among the whaling crews and their families strengthens social relations and promotes interdependence. The distribution of food between the whaling crews and with the broader community, particularly elders and those who cannot hunt, demonstrates the practical and cultural significance of sharing. The celebration of *Nalukataq* ensures that the whale hunt is meaningful for everyone so that they continue to contribute to its success.

The centrality of the value of sharing in the community of Wainwright is evident in the social and ecological relations described above. Climate change could affect not only the ability of hunters to obtain whales for their community, but Iñupiat relations with the bowhead whale. Due to the complex connectivity of Iñupiat social and ecological relations, these changes may have further ramifications for the community.

Impact of Climate Change on Bowhead Whale Hunt

Iñupiat communities are already observing the effects of climate change. Over the past several decades, hunters have experienced changes in sea-ice conditions affecting the bowhead whale hunt. Hunters observe that ice freeze-up has shifted from mid-September to late November or December. Furthermore, changes in ice morphology have been attributed to late ice formation. In the past, ice was rough, thick, and robust where it currently tends to be thinner, less likely to anchor to shore, and has a tendency to 'rot' (i.e., decay) more rapidly in the spring (Kassam 2009; Nelson 1969; 1982).

Changes in currents, winds, and temperature influence the formation of sea-ice, in particular the formation of pressure ridges and leads. Pressure ridges act as anchors that secure shore-fast ice to the ocean floor in shallow areas, allowing safe passage for hunters, even when currents are shifting. Leads are openings in the ice where marine mammals, including whales, are often hunted. Leads form when winds and currents break ice free from the shore-fast ice and move it into the ocean. Leads often form on the seaward side of pressure ridges (Kassam 2009).

Sea-ice conditions are critical for the bowhead whale hunt. The Iñupiat have developed detailed ecological knowledge from their interactions with sea-ice, but the impacts of climate change on sea-ice formation threaten their hunting activities in at least two ways. First, changing sea-ice conditions threaten the safety of hunters and limit their access to marine mammals for meeting their nutritional needs. Erratic currents and winds prevent the formation of pressure ridges, which makes it more difficult to travel across sea-ice safely. These same patterns prevent leads from forming or remaining open, and this limits hunters' ability to reach bowhead whales. Second, the quality and thickness of sea-ice is declining, so it is often no longer robust enough to support the weight of large marine mammals. Hunters have noted that they now need to search for ice that is strong enough to support the weight of a bowhead whale as it is butchered (Kassam 2009)

Iñupiat Food Sovereignty in the Context of Climate Change

Climate change is challenging the ability of the Iñupiat to acquire food from their landscape; this may be understood as a threat to their food sovereignty. Food sovereignty has been defined as "the right of Peoples to determine their own policies and strategies for the sustainable production, distribution, and consumption of food, with respect for their own cultures and their own systems of managing natural resources and rural areas" (Declaration of Atitlan 2002). Indigenous peoples often define themselves in relation to their land, and their food systems represent the continuity of their presence in a place (Kuhnlein et al. 2009). The harvesting and preparation of foods such as the bowhead whale have deep social and cultural meanings for the Iñupiat.

The notion of food sovereignty acknowledges the multiple significances of food, and requires that communities are able to maintain culturally appropriate choices about how and what they eat. Food sovereignty implies choice at multiple social scales; within a community, choices of food may vary from household to household, or from person to person. Families in Wainwright rely on whale and caribou, and choose to supplement their diet with foods from the grocery store. Knowledge about imported foods is an increasingly important element of cultural choice. In Wainwright, imported foods may be convenient for people with sufficient cash resources, but knowledge about the health implications of those foods influence the dietary choices people make. Wainwright residents say that many imported foods are not as healthy or as filling as their traditional foods. In other North American indigenous communities, increased reliance on store-bought foods has led to higher rates of diet-related diseases, including diabetes, obesity, high blood pressure, and heart disease (Jackson 1994). These experiences can inform people in Wainwright as they assert their own food sovereignty and make decisions about their own food

systems. However, as subsistence hunting for bowhead whales and other animals is affected by climate change, families in Wainwright are concerned that they will no longer be able to access the animals and plants that have nurtured their people for centuries. As a result, climate change threatens to limit important food choices and overwhelm ecological relations that are sources of cultural identity.

Food sovereignty is not possible without ecological knowledge. While food sovereignty is often described as a right (Declaration of Atitlan 2002), it relies on local capacities to obtain, distribute, and consume food in accordance with community values. Locally-situated indigenous knowledge of animal migration patterns, sea-ice morphology and phenology, and hunting and processing techniques are all essential to food sovereignty. Without these capabilities, food sovereignty as a right is irrelevant. Ecological knowledge is generated through consistent practice and use, and is therefore highly adaptive, i.e., able to respond to social and ecological change (Berkes et al. 2000). On the other hand, climate change can rapidly increase variability and uncertainty, raising concerns that knowledge developed over previous centuries will become ineffective, making it difficult or impossible for future generations to secure the foods that have sustained their ancestors.

Ecological sustainability is also integral to food sovereignty. Indigenous ecological knowledge emerges from continuous presence in a given geographical area, and communities have sustained indigenous food systems for millennia. In the case of Wainwright, maintaining a healthy population of bowhead whales is necessary to ensure that culturally appropriate foods will be available for future generations. Not surprisingly, Iñupiat hunters' ecological knowledge of bowhead whale populations has been consistently more accurate than estimates generated by visiting scientists. In the 1970s, scientists underestimated the Western Arctic bowhead whale population at less than 2,000, while Iñupiat hunters maintained a far more accurate estimate of about 4,000 whales (Huntington 2000; National Marine Fisheries Service 2007).

Based on this ecological knowledge, subsistence hunting of bowhead whales by the Iñupiat has been sustainable. The population of bowhead whales in the Western Arctic has been growing at a rate of 3% per year and is currently estimated at 10,500 whales. The Alaska Eskimo Whaling Commission, which includes Wainwright and nine other Alaska Native villages, works with the National Marine Fisheries Service, the National Oceanic and Atmospheric Association, and the International Whaling Commission to set subsistence harvest quotas. A block quota of 280 whales to be divided between ten Alaskan and one Russian village was set for the five-year period of 2008-2012. Therefore, in any given year, no more than 1% of the population is taken. In addition, Iñupiat hunters' prefer to take immature whales not

accompanied by a calf, which ecologists confirm will contribute to higher recruitment and population growth (National Marine Fisheries Service 2007)

In short, food sovereignty emerges from cultural choice, ecological knowledge and sustainable practices. In responding to climate change, Iñupiat communities are attentive to the multiple meanings of their food, the workability of their ecological knowledge, and the long-term viability of their relations within the landscape. This attention to the elements of food sovereignty should facilitate adaptation in the context of dramatic change.

Implications for Food Sovereignty and the Iñupiat Value of Sharing

The core value of sharing is intimately connected to food sovereignty as Iñupiat communities formulate responses to climate change. The bowhead whale hunt implies the centrality of this value in Iñupiat life, including its role in maintaining relations with the whale and members of the broader community. In giving itself, the whale is the first exemplar of sharing, followed by the captain and crew as they divide and distribute the whale, and finally, other community members as they contribute additional food to celebrate *Nalukataq*, Thanksgiving, and Christmas. Sharing and other values have an ecological foundation and emerge from complex socio-cultural relations of the Iñupiat with their habitat. As this socio-ecological landscape transforms, values are an important source of cultural continuity and community solidarity.

Food sovereignty and the value of sharing are mutually reinforcing. Iñupiat communities have shaped their food systems to reflect this key value. Without the ability to hunt whales, they would need to find other ways to demonstrate and reinforce the value of sharing. Acts of generosity and reciprocal exchange reaffirm food sovereignty, because sharing enables the community to decide how to obtain, distribute, and consume food together. In turn, Iñupiat food sovereignty enables the community to maintain ecological relations according to cultural values, including that of sharing. Food sovereignty as a right and capability conciliates cultural values and social-ecological relations.

Despite the challenges climate change poses to Iñupiat food sovereignty, the role of values such as sharing in responding to past change infuses hope. European contact brought about dramatic change in northern indigenous communities in a relatively short period of time. These changes included the introduction of new technologies such as guns and snowmobiles, the spread of European diseases, and integration into the market economy. By the end of the nineteenth century and continuing until the middle of the twentieth century, scholars consistently predicted that these changes would result in the disappearance of the Iñupiat through assimilation with European ways of life, the loss of material culture,

and the erosion of traditional values (Nelson 1969). These predictions were based on the notion that tradition is static. History has demonstrated the inaccuracy of this assertion; the Iñupiat have been able to maintain vital communities and cultural systems based on their ecological knowledge and values (Kassam 2009; Nelson 1982).

Already, Iñupiat responses to change illustrate the dynamic nature of tradition and strength of human agency. The people of Wainwright are constantly adapting their subsistence livelihoods to changing contexts. For example, the use of technologies such as snowmobiles, guns, and GPS instruments has been incorporated into subsistence practices. Despite past changes in the context of social relations, sharing continues to be a core value. Though it is not easy to predict what will happen, responses to past changes infuse hope and provide insight into potential response to climate change. Nonetheless, the ecological foundation, particularly sea-ice, remains perilously threatened.

Summary and Conclusions

This case study of the bowhead whale hunt is indicative of broader implications of climate change for the community of Wainwright, as well as other indigenous communities throughout the Arctic. Changing sea-ice conditions caused by erratic wind conditions, shifting currents, and increasing temperatures affect subsistence livelihoods maintained by the people of Wainwright. This in turn, has implications for Iñupiat food sovereignty because they challenge the community's ability to safely and sustainably harvest whales and other marine mammals based on their ecological knowledge. In addition to meeting nutritional needs, the bowhead whale hunt reinforces important cultural values such as sharing. This core value has helped the Iñupiat to adapt to dramatic social and ecological changes, but climate change challenges the community in new ways. As the people of Wainwright prepare for an uncertain future, they recognize the value of their ecological knowledge, understand their relations to their Arctic habitat, and will draw upon their historical ability to adapt to change.

Discussion Questions

- Climate change is having a significant impact on subsistence livelihoods in Wainwright. If you were to undertake further study on this issue, what approach would you take? What information would you need?
- Why is food sovereignty important for the people of Wainwright? What actions could be undertaken to ensure food sovereignty for this community? (Draw a flow diagram of the implications of climate change for food sovereignty in Wainwright).
- Do you think cultural values change? How might change affect the value of sharing in the future?
- How can the community of Wainwright adapt to climate change (Use Figures 1 and 2 to assist you)?

Suggested Activity

The goal of this activity is to explore the similarities and differences between recommendations for climate change adaptation made by external decision makers and those decisions made from within the community of Wainwright. In addition, the objective of this exercise is to illustrate the value of participation of both outside experts and community practitioners in decision-making.

1. Divide the class into small groups of 3 to 5 students each.
2. Ask one third of the groups to discuss the following question:
 - If you lived in Wainwright, how would you adapt to climate change?
3. Ask the second third of the groups to discuss the following question:
 - As a student, what would you recommend the community do to adapt to climate change?
4. Ask the remaining third to subdivide. Half of the students will represent outside experts and the other half will represent hunters. Answer the following question:
 - How should Wainwright adapt to climate change?
5. Allow 15 minutes for the groups to record 3 or 4 recommendations for adaptation.
6. Bring the class back together and ask each group to share their results. Discuss similarities and differences that emerge.

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Additional Online Resources

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- [Kassam, K-A., and The Wainwright Traditional Council \(2001\). *Passing on the knowledge: Mapping Human Ecology in Wainwright, Alaska*. Calgary: Arctic Institute of North America.](#)
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- [Indigenous Declaration of Rights, 2007](#)
- [Intergovernmental Panel on Climate Change \(IPCC\)](#)
- [The Iñupiaq People of Barrow, Alaska](#)
- [Traditional Whaling in the Western Arctic](#)
- [Cultural Claim to Whale Hunting](#)
- [The Whale Hunt - A Storytelling Experiment](#)
- [Alaska Whale Foundation](#)
- [Bowhead Whales in Alaska](#)
- [The Inuit Case for Whaling](#)
- [Will Global Warming Alter the Iñupiaq Way of Life?](#)
- [As the Arctic Melts, An Ancient Culture Faces Ruins](#)
- [For Alaska's Inupiat, Climate Change and Culture Shock](#)
- [Climate & Development Knowledge Network](#)

Recommended Readings:

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