

## Gender, Subsistence, Change, and Resilience in Quinhagak's Present and Past

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Anna C. Sloan

Volume 43, Number 1-2, 2019

URI: <https://id.erudit.org/iderudit/1071947ar>

DOI: <https://doi.org/10.7202/1071947ar>

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#### Publisher(s)

Centre interuniversitaire d'études et de recherches autochtones (CIÉRA)

#### ISSN

0701-1008 (print)

1708-5268 (digital)

[Explore this journal](#)

#### Cite this article

Sloan, A. C. (2019). Gender, Subsistence, Change, and Resilience in Quinhagak's Present and Past. *Études Inuit Studies*, 43(1-2), 243–264.  
<https://doi.org/10.7202/1071947ar>

#### Article abstract

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# Gender, Subsistence, Change, and Resilience in Quinhagak's Present and Past

Anna C. Sloan<sup>i</sup>

## ABSTRACT

Like many other Alaska Native communities, the Yup'ik people of Quinhagak follow a subsistence lifestyle that is multi-faceted, socially embedded, and specifically tailored to the land and water on which it is practiced. This paper provides a synthesis of Quinhagak residents' perspectives on subsistence in both the present and the past, as documented in original interviews and in the literature, with a focus on how gendered social identities are enacted through these traditions. The Nunalleq site presents a unique opportunity to examine the time depth of local subsistence lifeways and their social iterations, as well as how these were affected by changing landscapes and climate—all realities of contemporary Quinhagak life, just as they were for the ancestors at Nunalleq. The interrelation of subsistence and sociality has implications for how we understand Yup'ik resiliency and survivance in the face of such changes.

## KEYWORDS

Subsistence, gender, Quinhagak, Yup'ik, resilience

## RÉSUMÉ

**Genre, subsistance, changement et résilience chez les Quinhagak actuels et passés**

Comme beaucoup d'autres communautés des Premières Nations de l'Alaska, les Yup'ik de Quinhagak ont un mode de subsistance à « multi-facettes », socialement intégré et spécifiquement adapté à la terre et à l'eau dans lesquels ils sont pratiqués. Cet article propose une synthèse des perspectives de subsistance des résidents de Quinhagak, à la fois dans le présent et dans le passé, documentée à partir des entrevues originales et de la littérature axées sur les identités sociales de genres établies à ravers ses traditions. Le site Nunalleq offre l'unique opportunité d'examiner en profondeur les modes de subsistance dans le temps et leurs interactions sociales, ainsi que la manière dont les changements du climat et des paysages en sont affectés – toutes les réalités de la vie contemporaine à Quinhagak. Juste comme elles étaient pour leurs ancêtres à Nunalleq. L'inter-relation de la subsistance et de la société a eu des implications sur la manière dont nous comprenons la résilience et la survit des Yup'ik face à de tels changements.

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i. University of Oregon, Department of Anthropology, Eugene, Oregon. United-States. [asloan3@uoregon.edu](mailto:asloan3@uoregon.edu)

## MOTS-CLÉS

Subsistance, genre, Quinhagak, Yup'ik, résilience

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While much academic discourse on subsistence has focused on economic utility, those who practice subsistence often describe these lifeways as all-encompassing. Rather than “the bare minimum to survive economically,” subsistence speaks to a multitude of intersecting activities, values, beliefs, and relationships, and exists at the confluence of economic, social, spiritual, cultural, and political realms (Moss 2010, 121–22). Contemporary subsistence practice in the Yup'ik village of Quinhagak is undergoing significant changes due to multiple factors, including climate change. At the same time, the continuity of subsistence remains essential to village identity. This paper explores the interrelation of subsistence and sociality in Quinhagak from multiple perspectives: through Quinhagak residents' own definitions and descriptions of subsistence; through exploring the gendered and social dimensions of these practices in Yup'ik tradition and at the Nunalleq site; and through considerations of how the social connectivity of subsistence might affect resiliency in the contexts of both Nunalleq and Quinhagak.

Though the modern-day village of Quinhagak and its antecedent Nunalleq are separated in time by at least three centuries, I consider them in tandem for several reasons. Local oral history equates Nunalleq with the remains of a village destroyed during the Bow and Arrow Wars of the fourteenth to eighteenth centuries (Rearden and Fienup-Riordan 2013). Located just a few miles outside of Quinhagak, Nunalleq is an important place for the reckoning of local history. Quinhagak resident Emily Friendly (2017) explained that the site provides “a sense of identity—that...our people are not a forgotten people. They are us.” Cultural continuity is visible in Nunalleq's material culture, which resembles post-contact ethnographic collections. The period of Nunalleq's occupation was characterized by changing climate (Masson-MacLean et al. 2019) and by forces of political and social change—a situation similar to Quinhagak's today. While the contexts for change in these scenarios are vastly different (e.g., general climatic cooling versus warming, differential access to technology and information, integration into the global commercial economy, etc.), the ways that ancestors at Nunalleq responded to such shifts within a Yup'ik cultural framework may be relevant to Quinhagak's own path forward.

Such connections between the present and the past impel us to listen to the Quinhagak community when thinking about subsistence at Nunalleq.

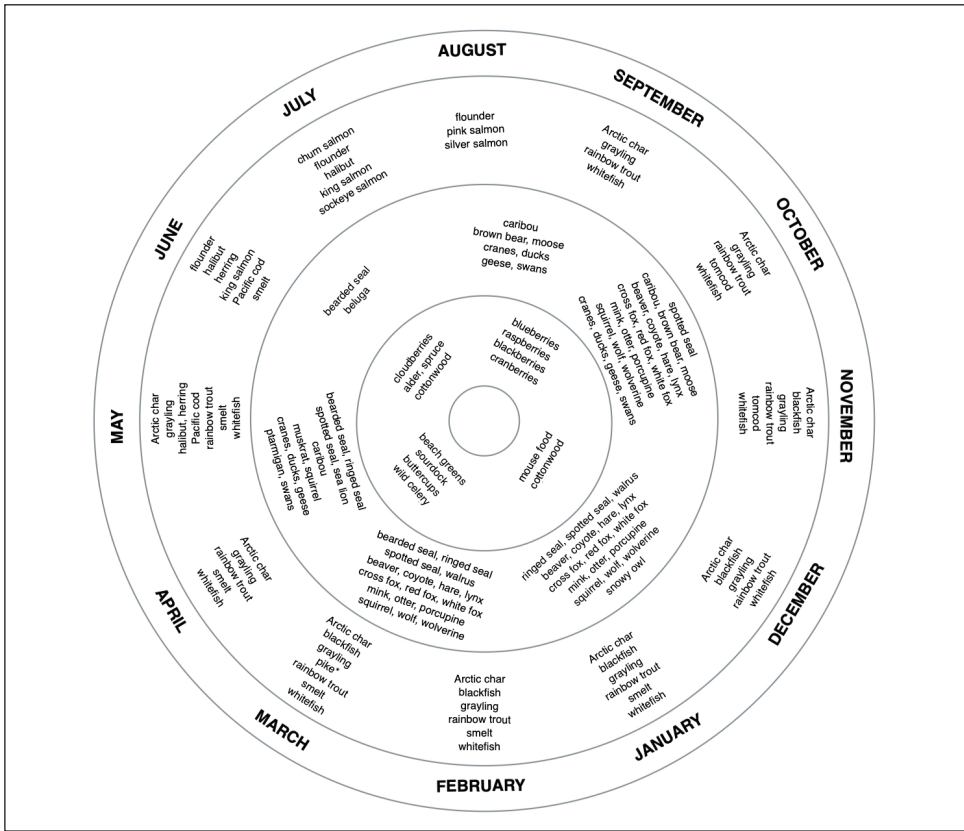
Local knowledge augments our understanding of the cultural situatedness of Yup'ik subsistence practices, and how changes to these reverberate through society. Drawing on the community-based nature of the Quinhagak Archaeological Project, this paper relies primarily on information collected from Quinhagak residents via interviews carried out during dissertation research in 2015, 2017, and 2019.<sup>1</sup> Community members cited herein include Elder John O. Mark; Willard, Mary, Wade, and Lynn Church; Emily Friendly; Evelyn Jones; Warren Jones; Edward Mark; Fannie Johnson; and Mike Smith. To add richness to the narrative, earlier work by Fienup-Riordan and colleagues documenting Quinhagak Elders' teachings is also integrated (Fienup-Riordan, Rearden, and Knecht 2015; Rearden and Fienup-Riordan 2013). The information presented thus comes from multiple generations, including from young adults (Wade and Lynn Church; Johnson; Smith), whom Elders see as collective inheritors of Nunalleq's legacy. The result is a synthesis of localized knowledge about subsistence, gender, and change that points to the continued resiliency of Yup'ik people through time.

## **Quinhagak Subsistence Teachings**

To the outsider visiting Quinhagak, it becomes immediately apparent that subsistence is a central aspect of village life. Local conversations recount recent harvests, animal sightings, and how the weather is affecting acquisition. Four-wheelers, snow machines, boats, smokehouses, rods, motors, antlers, and marine mammal bones are regular parts of the village landscape. In summer, one realizes that local time runs on an opportunistic scale, and it's often difficult to locate whomever one hopes to see; they're likely out berry picking, or fishing upriver, or tracking caribou and moose in the mountains (see Figure 1 for Quinhagak's seasonal subsistence cycle.) While Quinhagak proper is a concentrated cluster of houses, public buildings, and people, much local life is lived beyond its limits, out on the expansive wilderness and water that surround.

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1. This research involved semi-structured interviews with thirty-four Quinhagak residents aged eighteen and older over three field seasons. Interviews were carried out either one-on-one or in small groups, lasted 45 to 120 minutes, and covered questions related to gender, social relationality, subsistence, and climate change, amongst other topics. An informed consent procedure approved by the University of Oregon IRB was conducted prior to each interview (protocol number 06022015.003), and participants were compensated for their time and knowledge commensurate with local precedent. Given the nature of the information shared, interviews were not confidential, and participants consented to being credited for their words and ideas in text.



**Figure 1.** A visual approximation of Quinhagak’s subsistence cycle, as described by John O. Mark (2017) and Mary and Willard Church (2017), as well as in Rearden and Fienup-Riordan (2013, xl–xlii) and McManus-Fry (2015, 29–30). From the centre, concentric circles represent plants, berries, and types of wood; mammals and birds; and fish. Shellfish (e.g., mussels and clams) and bird and fish eggs are also harvested by Quinhagak residents, but these are not listed in the chart. \*Note that pike fishing happens in the Eek and Kuskokwim Rivers, rather than in Quinhagak proper (Willard Church, personal communication, 2020).

Quinhagak residents consider this subsistence lifestyle as continuous to their culture through time. As Lynn Church (2017) explained, subsistence “has been part of who we are and where we come from since day one.” Elder Henry Matthew noted the ubiquity of subsistence in the early twentieth century, recalling that “we hunted constantly in the past” (Rearden and Fienup-Riordan 2013, 32). Quinhagak has experienced immense change over the past 125 years from various fronts, including Moravian missionary influence beginning in 1893, an attempted incorporation of reindeer herding into the village economy from 1906 to the mid-1940s, and changes to family participation in seasonal rounds following the implementation of formal

schooling programs in the 1940s and 1950s (Rearden and Fienup-Riordan 2013, 32). Throughout these changes, subsistence traditions, in their myriad and ever-evolving forms, have remained constant. While Quinhagak is not unique amongst Yup'ik villages (Fienup-Riordan 1994; Frink 2005, 2007, 2009; Jolles and Kaningok 1991) nor those of the Arctic more generally (Berkes and Jolly 2001; Carothers et al. 2014; Dowsley et al. 2010; Guemple 1995) in demonstrating the significance of subsistence, the excavation at Nunalleq offers an unprecedented opportunity to investigate the antiquity of such practices in this locality.

Though the goal of subsistence may be acquiring resources from land, water, and air for food, medicine, fuel, and other uses, in practice subsistence fulfills much more: it provides a moral code for proper Yup'ik living. Many Quinhagak residents speak about values of cleanliness, propriety, and economy that are embedded in local subsistence practices. As Willard Church (2017) described, “in our traditional belief, we're taught that the animal...would rather give its life to someone who has things in order.” Elder Willie Mark recalled that “we should be respectful while out in the wilderness and not make a mess of it, or not make a mess of an animal we caught. Those are things they talked to us about in the past” (Rearden and Fienup-Riordan 2013, 154). Local knowledge suggests that the continued abundance of food is dependent on such diligence (Rearden and Fienup-Riordan 2013, 16, 106). Wastefulness is also frowned upon in Quinhagak subsistence teachings. Mary Church (2017) put it succinctly: “never waste food—that is the most important thing.” Careful harvesting helps ensure the economy of food resources, and Elder George Pleasant remembered his Elders' teaching that “when we gathered food, we should only gather what we will consume and finish all winter long until spring” (Rearden and Fienup-Riordan 2013, 106). Elder Joshua Cleveland similarly suggested that “not obtaining more than we will use is something that one should indeed follow” (Rearden and Fienup-Riordan 2013, 108). In Quinhagak today, people are still admonished for letting food—and particularly wild foods—go to waste.

The notion of respect—for animals, land, and one's fellow humans—is deeply inscribed in Yup'ik subsistence practice, and is emphasized in Quinhagak. In Yup'ik tradition, animals are sentient beings capable of thought, feeling, and action, and their successful acquisition requires that humans attend carefully to these relationships (Fienup-Riordan 1994). For example, in the widely known tale of “The Boy Who Went to Live with the Seals,” a young hunter's year-long experience living as a seal and observing humans from an animal's perspective teaches the importance of empathy in being a good hunter (Fienup-Riordan 1994). Human–animal transformations are a common theme in Yup'ik oral tradition. Quinhagak Elders tell the story of Atertayagaq, a boy who drifted away on sea ice for three months in the early 1900s,

encountering “compassionate” animals that transformed into humans along the way (George Pleasant in Fienup-Riordan, Rearden, and Knecht 2015, 53). Such tales remind listeners that all beings should be treated with respect, and that the Yup’ik social world extends beyond the human realm.

Caring for land, air, and water are also important aspects of subsistence in Quinhagak. As John O. Mark (2017), formerly of the US Fish and Wildlife Service, explained,

If you are a person that does a lot of subsistence activities, you are, for sure, also a steward of the land, and water, and the area. You want to make sure the hunting areas are clean. You want to make sure you leave no trace behind. You want to make sure you can do everything to protect the area from development, so that there may be resources for the future generations, if the practice is to be continued. You don’t want to over-harvest what is there, so that the resource will replenish itself, year after year...You have a lot of responsibility, told and untold, if you are a subsistence hunter, gatherer, or subsistence user.

Wade Church (2017) similarly noted how environmental stewardship is engrained in Yup’ik identity: “I think they’re the same: Yup’ik way of life, living off the land, respecting the land.”

The teachings that accompany successful subsistence practice in Quinhagak are not only oriented towards ensuring plentiful and healthy harvests; importantly, many of these also emphasize good interpersonal relations with one’s relatives and community. Willard Church (2017) explained how subsistence teachings are a vehicle for instilling good life lessons:

[Subsistence] helps [children] to develop good work ethic. At the same time, they get other types of benefits, like learning how to be patient, and focus, and how to persevere, and how to be steadfast about the work that they’re doing. There’s all types of different benefits to doing the activities we do because of the development of who you are as a person...It helps you develop your human qualities...and then you can apply those anywhere.

Many Quinhagak residents associate subsistence practice with joyful times spent with family. Edward Mark (2017) described subsistence as “like a reunion,” and that this “is considered family time. When you think of it, your family is working together, they’re enjoying themselves, enjoying their company, and doing what they love.” Lynn Church (2017) similarly expressed that “we were taught to work together, and that’s what keeps families strong... That’s what subsistence lifestyle taught me...how to be independent, work

hard, provide for your family.” This concept of providing enough food—through hunting, fishing, gathering, processing, and distribution amongst those in need, even beyond the family—is an essential tenet of Quinhagak subsistence. In the words of late Elder Paul Beebe, “In the past, they used to say that food is a source of joy to a person...And they’d also tell us that we should give to those without providers without asking for payment, to give them as much as we can give if they want something and not ask them to pay” (Rearden and Fienup-Riordan 2013, 110). Beebe’s statement highlights the significance of sharing food within the community, still an omnipresent practice in Quinhagak. Mary Church (2017) also emphasized this point: “The most important thing was sharing and giving, after gathering subsistence, and especially giv(ing) to Elders or widowers, and don’t expect anything in return.”

It’s clear that people in Quinhagak see subsistence as an integrated mosaic of different activities, teachings, and beliefs. John O. Mark’s (2017) expression of this is telling:

The word *subsistence* in itself...doesn’t encompass all we do—it’s just a word to describe a certain activity. It’s how we live, how we practice what our customs are, what values we hold...We have traditional knowledge for safety and survival, and understanding, and speaking the language, reading and writing it...[Subsistence is] understanding a way of thinking, of having a lot of skills...hands-on skills, mental skills, being able to understand through observation and learn through observation. So it’s all gamuts of life...A whole way of existence. There’s not one word, I don’t think, that describes all that.

## **Gender, Subsistence, and Social Roles in Yup’ik Tradition**

Evidence suggests that prior to settler contact, Yup’ik communities maintained strict economic, spatial, and ritual divisions between genders.<sup>2</sup> Adult men and women would have lived and worked separately for most of the year, with women and children occupying family homes, and adolescent and adult men relegated to *qasgiq*, or communal men’s houses. Such divisions extended to subsistence activities, with men largely performing hunting, fishing, and other acquisition tasks, while women oversaw all aspects of food processing,

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2. In interviews, Quinhagak residents suggested a binary conception of gender, and following their perceptions, I limit this discussion to roles of women and men. While it’s quite possible that third or other non-binary gender roles would have existed in this and other Yup’ik communities, this was not brought up by interview subjects. The Moravian Church has had considerable influence in Quinhagak, and may have played a role in stigmatizing non-binary gender roles in the region.



storage, and distribution. In discussing gender, Yup'ik Elders often speak of traditional proscriptions meant to physically separate women and men (see Fienup-Riordan 1994; Rearden and Fienup-Riordan 2013). Evelyn Jones (2017) remembered her grandfather Charlie Pleasant, born in 1902, speaking of strict gender separation of in terms of labour, objects, and spaces; in his time, and even in Evelyn's own girlhood, women were cautioned not to touch a man's hunting gear, except for that of one's husband, for fear that their essence would pollute these objects and bring bad luck on the tundra. This traditional gender separation is common to Yup'ik communities across the Yukon–Kuskokwim Delta and St. Lawrence Island (see Ackerman 1990 for Goodnews Bay; Fienup-Riordan 1994 for Toksook Bay and other coastal communities; Frink 2007 for Chevak; Jolles and Kaningok 1991 for Gambell), and is often presumed to have considerable time depth.

Evelyn Jones (2017) explained that Quinhagak's younger generation thinks about gender very differently from the proscriptions of the old days, and teachings are no longer followed so strictly. Even so, many Quinhagak residents continue to associate gender identities with different roles within the subsistence system. In discussions about gender in Yup'ik society in 2015, residents spoke first and foremost about subsistence rules and roles (Sloan, forthcoming). The role of “provider,” for instance, was strongly associated with men and male labour in the village (Sloan, forthcoming). While this role would traditionally comprise the acquisition of animals through hunting and fishing, in contemporary Quinhagak it may also be associated with wage labour—the idealized role of an adult man is to provide, in whatever way necessary, the resources that his family needs to survive. For traditional women's roles, Quinhagak residents point to tasks of preparing and processing the things that men catch, including butchering, food preservation and storage, cooking, skin-working, and sewing. As important as the tasks themselves is the sense of expediency that must accompany them for a woman to fulfill her role well (Sloan, forthcoming). Elder Martha Mark explained how her grandmother “used to tell me how I should work and cut fish. She said fish that aren't carefully watched and attended to spoil. These are the *qanruyutet* [teachings] she used to give. When I used to cut, dry, and smoke salmon, I used to try to watch them” (Rearden and Fienup-Riordan 2013, 110–12). This understanding of the acumen necessary for proper performance of female labour is common to Quinhagak women across a range of ages, as demonstrated by twenty-two-year-old Fannie Johnson's description of women's roles as “having to take care of men's catches before they get bad or before they spoil” (Sloan, forthcoming).

While understandings of traditional gendered divisions of labour remain potent in Quinhagak today, the actual practice of subsistence does not always fall along such strictly gendered lines. John O. Mark (2017) explained that, in terms of subsistence tasks, it's “both genders...pitching in here and there. My

wife will...teach my grandsons and granddaughters. Knowledge is passed on, shared, in whichever way is convenient.” Reflecting on gender roles, Willard Church (2017) similarly noted that

It’s more of a “we do things together” role. Whether it’s cutting fish, or plucking birds, or taking care of game animals, or skinning seal, or gathering wood—there’s no his and hers role anymore. It’s something I think that is taught, maybe from old teachings, but in our contemporary culture today, those role differences have changed considerably, to where it’s now both of their responsibility.

Though women’s and men’s subsistence contributions are portrayed as distinctive, people in Quinhagak also view these as complementary, and equal in value. Conversations about gendered labour reveal a sense of mutual respect and appreciation, with people of all genders seen as capable of making important contributions to a household. In discussing relative measures of gendered power amongst St. Lawrence Island Yupiit, Ackerman (1990, 212) cites the existence of “first food” ceremonies for both girls and boys as evidence that “the equal economic importance of men and women was recognized by the society, imbuing both with authority as a consequence.” Such “first catch” celebrations are common for both girls and boys in Quinhagak, and involve a parent (usually a mother) collecting dozens of household goods, toys, and other objects to distribute amongst the community via a “throw party”—an event where the goods are literally thrown to an eager crowd in a symbol of shared abundance. Gender is rarely a factor in judging the success of subsistence here; rather, it is the character of an individual and their ability to embody Yup’ik values of awareness, observation, respectfulness, economy, and care that determine their status in the community.

## **Gender and Subsistence at Nunalleq**

The Nunalleq archaeological site is a Thule-era Yup’ik village comprised of a large sod house complex inhabited from approximately AD 1570 to 1675, likely spanning three generations (Ledger et al. 2018). The nearly year-round occupation of the site (McManus-Fry 2015) and the remarkably well-preserved artifacts, ecofacts, and features found there allow us to explore questions of gender and social life that are often difficult to access in other archaeological contexts. Initial analyses suggest that gender and social identities were complex at Nunalleq (Rick Knecht, personal communication, 2019). Historically, subsistence roles have been a fruitful avenue for archaeological explorations of gender, and this is especially true for hunter-gatherer

communities in the Arctic. Given the centrality of subsistence to Yup'ik identity, the time depth of this lifestyle, and the interconnectedness of subsistence, sociality, and gender in Quinhagak ways of knowing, I offer here some considerations for visualizing gender at Nunalleq through the lens of subsistence practice. Knowledge from Quinhagak's Elders, especially those raised by parents and grandparents alive during the nineteenth century, may prove especially useful to understanding the gendered lifeways of the ancestors. While care is always necessary when employing ethnographic analogy, especially regarding assumptions about gender, the specific historical and cultural context of Quinhagak suggests this as a viable avenue for understanding precontact social life at Nunalleq (Sloan, forthcoming).

The ancestors at Nunalleq were avid hunters and fishers (Masson-MacLean et al. 2019). Marine mammal hunting, traditionally the realm of men, is represented through harpoon heads, sockets, toggles, float inflators, harpoon and finger rests, throwing boards, and other related technologies. Faunal evidence suggests that pinnipeds, mostly ringed and bearded seal, would have been hunted in abundance in the early spring, and the young age of these remains is suggestive of near-shore hunting strategies (McManus-Fry 2015). Fishing was clearly a significant activity at the site, and would have provided a main source of food for village inhabitants, as well as for the numerous dogs kept as traction and companion animals (Britton et al. 2018; Masson-MacLean et al. 2019; McManus-Fry 2015; McManus-Fry et al. 2018). Fishing artifacts from Nunalleq are abundant and include prongs, lures, net sinkers, and net fragments. Caribou hunting, indicated by faunal remains and by artifacts like bow staves and arrow endblades, would have occurred primarily in winter (Gigleux et al. 2019). The remains from a wide range of small fur-bearing mammals suggest that winter trapping activities were also a part of Nunalleq's subsistence cycle (Masson-MacLean et al. 2019). Artifacts like knives, scrapers, hones, drills, beaver-and porcupine-tooth carving tools, shuttles, and gauges would have been used for the manufacture and upkeep of hunting toolkits, indicating another important aspect of male labour. Nunalleq's artifacts display impeccable craftsmanship, and the care that went into making them speaks to the rules governing respectful subsistence practice that still exist today (Willard Church 2019).

The labour of women is also evident at Nunalleq through equally important household activities, which may be more visible in the residential sod house complex. Numerous artifacts from the site speak to the work of processing, preservation, cooking, and storage of food, including *uluaq* (known colloquially as "women's knives"), cutting boards, spoons and bowls, bentwood vessels, and abundant grass basketry and pottery. Traditional women's tasks of preparation and storage of food were clearly significant to Nunalleq's inhabitants—unsurprising, given the emphasis on conserving

resources in traditional Yup'ik teachings. Faunal remains suggest that seals were being processed at the site into meat, oil, and skins. Cutmarks are found frequently on seal bones, and beheading was a common strategy of butchery (McManus-Fry 2015). This technique may mirror that observed by Frink (2005) by women in Chevak who beheaded seals as part of their processing at home, and later had men return these back to the water out of respect for the animal. Lipid-residue analysis on Nunalleq pottery indicates that ceramic vessels may have been specialized for processing and storing aquatic resources such as seal oil (Farrell et al. 2014). Hide processing is evident not only through artifacts like uluaq, scrapers, awls, needles, and fragments of cut hide, but also through concentrations of fleas and lice from wild fauna identified on house floors and outdoor living surfaces (Forbes et al. 2015: 164). A number of uluaq handles are carved in the likeness of seals, perhaps suggesting their symbolic connection to this work (Willard Church 2019).

Tasks of processing and storing fish are also visible at Nunalleq. In addition to faunal and isotopic data suggesting an abundance of fish in people's diets (Britton et al. 2018), caches of fish bones, likely from whole specimens, have been found at the site (Masson-MacLean et al. 2019), some in association with grass basketry (Madonna Moss, personal communication, 2015). In their interviews with Quinhagak Elders about Nunalleq artifacts, Fienup-Riordan, Rearden, and Knecht (2015, 57) noted the identification of a *kuusqun*, a woven grass fish container, of the type that George Pleasant remembered his grandmother using to prepare frozen fish. As he explained, "they make *kuusqutet* [loosely woven grass baskets] out of grass for storing fish in fall. Our ancestors used them...they filled them with fish, with trout, with various types of fish, making frozen fish" (George Pleasant in Rearden and Fienup-Riordan 2013, 282). While the recollections of Elders don't always point to the gender of the individuals involved in this work, Frink (2009) has demonstrated that the expert labour of cutting and storing fish has been traditionally associated with women in Yup'ik society.

The close association between gender identities and subsistence tasks in Quinhagak's traditional teachings requires that we attend to gender in assessing subsistence at Nunalleq. While we cannot definitively know the gender of any actor represented in the site's record<sup>3</sup> (particularly given the temporal and cultural situatedness of all gender categories [see Sloan, forthcoming]), it is clear that subsistence activities traditionally associated with men and women were happening here. We would do well to consider how these specifically gendered forms of labour, expertise, and regulation have

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3. An exciting future avenue for fine-tuning our understanding of sex and gender at Nunalleq is through DNA analyses on non-mortuary human hair samples, which might provide evidence of where female and male individuals spent their time and what tasks they were involved in, amongst other factors.

contributed to the tenacity of subsistence through time, both in the context of Nunalleq and in Quinhagak today.

## **Change, Resilience, and the Sociality of Subsistence**

While much remains to be understood about the gendered social world at Nunalleq, clearer is the impact that climate and environmental change would have had on subsistence practice at the ancient village. In this sense, the world of the ancestors mirrors the reality of contemporary Quinhagak, albeit in different ways and to different degrees. Given the determining relationship between the environment and subsistence practice, and the inextricability of Yup'ik subsistence and gendered social relations, we would expect environmental changes to have social impacts both at Nunalleq and in Quinhagak. There is an increasing interest in the social impacts of climate change (Adger 2003; Berkes and Jolly 2001; Carothers et al. 2014; Dowsley et al. 2010; Shearer 2012), and although much work remains to be done in this arena, evidence suggests that changing environments, landscapes, and weather patterns can deeply affect community gender roles and relations. The same is true for other societal changes affecting subsistence, often making it beneficial to consider a “total environment of change” (Carothers et al. 2014, 31). Yup'ik Elders have their own ideas about how climate change relates to the gendered social world, many of which differ markedly from academic perspectives. The disjunctures in these knowledge sets are instructive, pointing us towards more inclusive understandings of change and resilience.

During wintertime in Quinhagak, it's clear to see that weather patterns have altered from the seasonal norm. By the end of February 2019, for instance, little snow remained on the tundra, and both the river and bay were open (Figure 2). Quinhagak residents are literally experiencing climate change from the frontlines. As Willard Church (2017) described,

With climate change, we're living it today. We have been ever since the term was coined, and we started hearing it on the news—“climate change: okay, that's what it's called!” That's why we don't get any snow anymore, and it doesn't get cold like it used to in the old days, and that's why the water levels are dropping, that's why we're seeing an abundance of certain species out there that used to be in low supply. Climate change: the weather temperature being affected, the water temperature changing, the water levels changing, the amount of snow that we're seeing annually during the winter months—it's all part of that. We see the effect that it's having on the land. Erosion has been a big issue. Our river is changing course constantly, then becoming more stable as we get less snow pack

and snow melt coming out of the mountains. And the warmer temperatures, and more lightning and thunderstorms occurring. And you look at certain species...that seem like they're becoming more abundant. It's all affected—all the different resources, since everything is interconnected, and connected to the land and the water. It's all connected, and it has a domino effect, and then that domino effect eventually comes to us.

Quinhagak residents have been keen observers of the weather for generations, and changes to the amount and quality of snow accumulations are a common source of comment. Joshua Cleveland noted that “there’s less



**Figure 2.** The Qanirtuuq River, just northwest of Quinhagak, in February 2019. In the past, ice has held fast on the river until about April, but warm temperatures this year led to an exceptionally early breakup.

[snow] now in our homeland. It has gotten thin. That’s why our rivers are emptying” (Rearden and Fienup-Riordan 2013, 178). Martha Mark similarly remarked, “there used to be a lot of snow. The shore down below our village used to be filled with snow and ice” (Rearden and Fienup-Riordan 2013, 182). Warren Jones (2017), CEO of Quinhagak’s village corporation Qanirtuuq, Inc., explained that during his lifetime, ice used to stretch about three miles out to sea, and that this ice would be thick up until about April. For the past five years, however, the ice has stayed closer to shore, making it dangerous to go further out, affecting hunting. Yup’ik Elders elsewhere note that traditional ways of predicting and knowing weather have become unreliable, with

Camilius Tulik suggesting that “the weather...has become a liar” (Fienup-Riordan 2010, 58).

Quinhagak residents have also observed changes in regional animal migrations, with many noting the presence of new animals that have not been part of the traditional subsistence cycle. John O. Mark (2017) commented that moose were never around in the early 1900s, but have now returned to the area in force. Elder Nick Mark recalled the story of how his grandfather, Tagkayak, “was the very first person to catch a moose here in Quinhagak. He didn’t know what it was” (Rearden and Fienup-Riordan 2013, 234). Willard Church (2017) explained that the growth in the moose population is likely due to the increased availability of willow browse, brought about by warming temperatures. Other animal and plant populations are also changing in abundance and availability. Warmer water temperatures affect salmon migration patterns, with Willard Church (2017) noting that “sockeye used to be Bristol Bay species, and we used to primarily have chum here in the Kuskokwim area. But now we’re overrun with sockeye.” Warren Jones (2017) explained how geese that typically stay in the area for a few weeks have been flying by without stopping, and that there have been crane and heron sightings in nearby villages. Some Elders have been encountering types of insects that they’ve never before seen (Warren Jones 2017). In some cases, the increasing availability of these populations has been a boon for village residents. As Willard Church (2017) stated, “it creates opportunities to catch other species that maybe they haven’t used historically,” noting that women in particular are enjoying more fruitful spring and summer gathering efforts with abundant beach greens and berries. At the same time, these changes require subsistence hunters, fishers, and gatherers to be extra vigilant in observing the natural world, as the timing of migrations and harvests are no longer predictable. Accompanying the growth in prey species, predation by animals like wolves and bear is on the rise, necessitating increased safety measures both in the wilderness and in the village. Willard Church (2017) discussed how these dangerous animals will be spoken about in future oral history, suggesting that “the stories are probably going to change.”

While shifting patterns of flora and fauna provide both costs and benefits, other changes to the landscape have been unequivocally disadvantageous. Quinhagak has been affected by coastal and riverbank erosion throughout the twentieth century, moving thrice, for instance, during the lifetime of Martha Mark (Rearden and Fienup-Riordan 2013, 380). Despite their familiarity, processes of erosion are being accelerated to an unprecedented extent by climate change, affecting building safety and stability. Warren Jones (2017) noted the breadth of recent damage done in Quinhagak, describing how some buildings are sinking so much that their water connections are snapping off. As he explained, “global warming, permafrost

melting, is not good for this type of village. It's going to take a lot of money and a lot of work to get it stabilized" (Warren Jones 2017).

The impacts of climate change on Quinhagak have been severe, but these are only some of several factors affecting contemporary subsistence lifeways in the village. Starting in the 1960s and accelerating in the 1980s, sports fishing operations on the Qanirtuuq and Arolik rivers have affected fish populations and reduced the accessibility of preferred fishing locations for locals (Rearden and Fienup-Riordan 2013). Elders have noticed a difference in the fish harvest through their lifetimes, with Martha Mark noting that "there used to be a large number of fish...And the slough that is down below the housing houses used to be filled with fish, our river...It emptied, it no longer has fish." (Rearden and Fienup-Riordan 2013, 268). Interestingly, fish populations may also be affected by changes to the commercial fishing industry. For the past few years, fish buyers who typically arrive in the summer months to provide Quinhagak fishermen with enough income to last the year have been absent, causing "a huge strain" on the village economy (Warren Jones 2017). Some rivers are becoming overrun with fish as a result, likely affecting the health of these populations (Warren Jones 2017). Edward Mark (2017) explained that "nowadays people are hurting...There's no income coming in. They need money to go out fishing, hunting, gathering. That economy is no longer there, and a lot of people in the village are going to be hurting because of it." Economic hardship is an unfortunate but growing reality for Quinhagak families, and a lack of continuous income has a marked effect on subsistence practice. Remarking on the implications of subsistence for survival, Mark (2017) continued,

I mean, without subsistence gathering around here, we wouldn't even be able to survive the winters. I mean, any of the income that we get, if it's *any* kind of income that we get, would go to the electricity, so we that can keep our freezers cool, or even keep the house warm, and heating fuel, and gas to go get firewood, or even more meat...People's lights, from what I've heard, are going out. If the lights are out, what's going to happen to all the meat, berries in the freezers?

Recently, increased attention is being paid to the connections between climate change and social inequality, along with the disproportionate impact that these processes have on people of color and women (Shearer 2012). This is particularly true for societies that depend on gendered subsistence labour, where women's relative power is often bound up in their complementary contributions to household production (Ackerman 1990; Jolles and Kaningok 1991, 38). For instance, Dowsley et al. (2010) studied how changes in sea ice affect the quality of seal skins that Inuit women work with to



provision their households and sell in the commercial economy, with implications for their ability to provide for their families. Changes beyond those related to climate can also have deep effects on subsistence processes and their attendant social relations. Frink (2005, 2007), for instance, has documented how colonialism affected Yup'ik women's subsistence practices, with consequences for their power and status in society. Archaeological evidence from Chevak suggests that, as subsistence systems began to incorporate commodified exchange, food storage features moved from the interior of homes—where they were controlled by women—to their exteriors, while women's control over hide production processes simultaneously diminished (Frink 2005, 2007). In places where subsistence depends on gendered forms of labour, any major societal change can have big repercussions for social identities and power.

At the same time, change offers opportunities for the enactment of social relations in ways that are potentially empowering. At Nunalleq, Masson-MacLean et al. (2019) have identified an inherent flexibility in subsistence patterns, with salmon, marine mammals, and caribou utilized to varying degrees through time, likely dependent on climate-related availability. Various techniques for effectively maintaining these harvests would have allowed the community to continue thriving during times of uncertainty: for example, storage of resources like fish and marine mammal oils would have been a buffer against scarcity, while creating warm garments from caribou skins would have guarded against changing temperatures (Masson-MacLean et al. 2019). Proper storage of foods and skin-sewing are both *women's* areas of expertise, suggesting the instrumental contributions that Nunalleq's women made to the viability of their community in the face of dramatic change.

Quinhagak Elders, experts on “the old ways” of gendered subsistence, maintain their own conceptions about the relationship between climate change and the social world. Teachings about *ella*, which translates to something between “weather, world, and universe,” are important parts of Yup'ik oral history, and changes to the weather are seen as indicative of human action or inaction (Fienup-Riordan 2010, 57). Fienup-Riordan (2010, 65–66) notes that “the Yup'ik conception of *ella* includes both natural and social phenomena,” leading to a sense amongst Elders that the weather is “following its people.” Interestingly, Elders teach that weather patterns are closely related to rules governing gendered bodies, especially those of women in marginal states of first menses, pregnancy, and miscarriage (Fienup-Riordan 1994). As Emily Friendly (2017) explained,

One of the old ladies told us [that] girls were restricted in their first year of menses...They were restricted to either the home, or the village life. They couldn't go to certain areas...they couldn't go to the beach, they couldn't run, they were supposed to wear a headdress all the time, for a

whole year...Poor weather depended on those restrictions. They could tell, if weather was strange, like now maybe...if the weather is too bad for a long, long time, or if the weather changes...it was because a young lady did what she was not supposed to do.

Elder Sophie Agimuk of Toksook Bay similarly recalled that “when women had their first menses, they didn’t allow them to walk around outdoors. It is said that people in that situation followed those customs because of their possible effect on *ella*. These days, people don’t know about those practices, and our poor world is deteriorating” (Fienup-Riordan 2010, 66). If such strict rules governed gendered behaviour at Nunalleq, climatic shifts might have had a profound impact on community perception of young women and girls at the ancient village.

Changes to world and weather may have specifically gendered impacts, but these also reverberate out to affect the broader social landscape. In communities relying on subsistence lifeways, “environmental changes are felt through social networks such as food-sharing and family relationships” (Dowsley et al. 2010, 154), like those so central to Quinhagak. As a vehicle for Yup’ik life teachings and family cohesion, Quinhagak’s subsistence lifestyle serves a significant role beyond just food provisioning. In cases where subsistence trips are curtailed or made more stressful by deteriorating or unpredictable weather conditions or by the increasing costs of gas and equipment, family life may suffer. Some Quinhagak residents have mentioned how a reduction in snow is affecting travel by snow machine; as Willard Church (2017) noted, “during the winter months especially we used to be very mobile, and go further and farther, but now we’re kind of limited to foothills travel up to the mountains, or coastal travel where you have a lot of frozen tundra and ice.” Limits on winter travel have implications for subsistence purposes and for visits with neighbouring villages, often ways of maintaining family relations with kinship networks spread across the region. This is one of many instances where climate change intersects with increasing poverty rates, with ramifications for subsistence and social life in the village and beyond.

Even so, it is these very social-subsistence systems affected by change that may contribute most profoundly to Yup’ik cultural resiliency. Adger (2003, 388) has argued that a society’s capacity for adapting to climate change is “bound up in their ability to act collectively,” and that this is especially true of “resource-dependent” communities, like those that rely on subsistence activities for food. Berkes and Jolly (2001, 19) note that flexible social relations and food-sharing practices observed amongst Inuit cultures likely developed as a necessity of ecological adaptation, suggesting that these social systems are well-suited to changing circumstance. In such societies,

resilience can be manifested in opportunistic hunting based on new species availability, detailed environmental and landscape knowledge, food sharing within community networks, and intercommunity trade (Berkes and Jolly 2001), all strategies utilized in Quinhagak today. Flexibility in gendered labour roles, of the sort observable in contemporary Quinhagak (despite a continued conceptual separation between women's and men's spheres), would be a good addition to this list. Given these factors, it seems that Yup'ik society is particularly resilient in the face of change, a pattern perhaps observable in Nunalleq's material continuity with descendant communities, and the cultural ties that villages like Quinhagak still experience with these ancient places. It's possible, too, that this is why Elders are so adamant that traditional teachings about subsistence and sociality continue to be spoken, honoured, and passed to future generations—within them is contained a particularly Yup'ik recipe for successful survivance in uncertain times.

## Conclusion

As an archaeological site that catalogues change over generations, Nunalleq offers Quinhagak a unique opportunity to learn how the ancestors adapted to shifting environmental and social worlds. Such information may prove instructive to the village in thinking towards a future that feels uncertain on many fronts. Combined with knowledge from the Elders—who, Quinhagak residents have noted, often speak with prophetic accuracy about things to come—Nunalleq becomes a powerful resource for both understanding the past and looking towards the future with pride. As Lynn Church (2017) expressed, the Nunalleq site “proves that the Yup'ik people adapted through the changing environments throughout the years, and continue to be strong with that lifestyle. Subsistence is a part of our identity and it will always be there for us.” Mike Smith (2017) noted how isotopic analyses of non-mortuary human hair (as in Britton et al. 2018) were helping the village to understand past diets during periods of climate change, information he feels will help locals better know what to expect in future periods of change. As Adger (2003, 387–88) suggests, “there is an urgent need to learn from past and present adaptation strategies” so that communities on the forefront of subsistence changes can be best prepared to deal with new circumstances. The importance of “culture- and place-specific research” (Adger 2003, 400) is also apparent, given the particularity of local ecologies (see also Berkes and Jolly 2001, 18). Such considerations only compound the value of sites such as Nunalleq for communities like Quinhagak, where resiliency throughout periods of change can be observed not only in its cultural and environmental situatedness, but also with time depth.

At the same time, it is the words of the Elders that really reinforce those Yup'ik values that have contributed most to cultural resiliency. Through teachings and stories, Elders speak to the significance of sharing, respectfulness, and proper stewardship of land, animals, and one's fellow humans. Central in this knowledge is the interconnectedness of subsistence to the social world in all its many facets—gender identity, family togetherness, community responsibility. The continuity of such teachings is visible through the words of adults and young people who, though living less strictly by these doctrines, still find them familiar and valuable.

Apparent in the words of Quinhagak residents spanning multiple generations is a sense that maintaining a subsistence lifestyle, and all its social complexities, is absolutely crucial to Yup'ik identity. As Willard Church (2017) stated, "I think [subsistence is] a gift. I think it's a gift that we don't realize as a gift sometimes...I think it's engrained in us, engrained into our psyche, engrained into our spirit, engrained into our life, and something that embodies us completely, and is passed on to our kids...I think subsistence is who we are." Despite periods of change, subsistence and its social scaffolding have remained constant in the lives of Quinhagak residents. In the midst of contemporary uncertainties, subsistence knowledge becomes a way of moving forward with confidence. There is a sense of survivance at the heart of all this, made clear in the way that the Quinhagak community speaks of its hopes for things to come. Mike Smith (2017) expressed this well: "As someone who grew up in the village and stayed in the village, I just want to keep it going, one way or another."

## **Acknowledgements**

I owe a great debt of gratitude to the residents of Quinhagak, Alaska, who have shared their knowledge with me over the years, including the people cited in this paper, as well as many others. Warren Jones and Mike Smith were instrumental in helping to organize this research. John O. Mark and Willard Church provided invaluable edits on Figure 1. I am grateful to Rick Knecht, Charlotta Hillerdal, and Kate Britton of the University of Aberdeen, Scotland, for helping to facilitate my project. In addition, I'm thankful to Madonna Moss for providing mentorship throughout the research and writing process. I also thank the anonymous reviewer who provided feedback to strengthen this text. This project was funded by a National Science Foundation Doctoral Dissertation Improvement Grant (#2006F0), and by a research grant from the Center for the Study of Women in Society (CSWS) at the University of Oregon.

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