

Atsalugpiaq awareness: Food agency of cloudberry subsistence to support Indigenous food sovereignty

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Abstract

This study examines food agency of *atsalugpiaq* subsistence practices in the Indigenous community of Kuinerraq, Alaska. Food agency is the capacity of individuals or communities to define and achieve food and diet-related goals. While past research literature has limited the theoretical scope of food

agency to cooking and consumption, this study expands the concept to encompass provisioning, addressing a theoretical gap in the literature. Through participatory co-developed research led by Nalaquq LLC, oral histories with Alaska Native community members identify new components of food agency: ethics, science and knowledge, and autonomy. These findings build upon and extend

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the existing framework of food agency that emphasizes individual skills, attitudes, and structural barriers, and offers a more holistic understanding of the drivers of food security in rural and Indigenous communities. Kuinerraq is committed to carrying forward *yuugnagpiallerput* (living a proper Yup'ik life) in response to environmental and social change to ensure their future generations' prosperity. The study highlights that efforts to build food security must center on supporting cultural enrichment, relational values, and lived practices rather than relying solely on externally imposed metrics and theoretical concepts.

Keywords

Rubus chamaemorus, cloudberry, food security, Yup'ik, Indigenous, Alaska Native, American Indian, participatory action research, climate change, circumpolar, foraging

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Introduction

Each summer, Alaskan Native community members from Kuinerraq on the coast of the Bering Sea steward and harvest up to 75 gallons of *atsalugpiaq* (*Rubus chamaemorus*) per household from the tundra, caringly storing them for celebratory meals during the long Alaskan winters. *Atsalugpiaq* are found across the northern hemisphere, spanning the circumpolar sub-arctic. Known in southwest Alaska as salmonberry (not to be confused with *Rubus spectabilis*, also regionally referred to as salmonberry but commonly referred to globally as cloudberry), they are vulnerable to environmental changes, including desynchronization of flowering with pollinator activity, weather patterns, and habitat changes (Herman-Mercer et al., 2020; Mulder et al., 2023). The stewardship of *atsalugpiaq* by Yupiit (plural form of Yup'ik) people of southwest Alaska is guided by *yuyyaraq* (rules to live by), which when followed hold harmony and show respect between *Ellam Yua* (the spirit of the universe), the sentient land, and humans, thus maintaining a good harvest

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the following year (Ayunerak et al., 2014; Fienup-Riordan, 1995).

Indigenous communities are strengthening foodways as a means of resistance towards globalization and environmental change, through exercising sovereignty rights, language revitalization, celebration of traditional arts and crafts, and designing new technologies to support cultural enrichment (Reo & Whyte, 2012). Native communities have practiced a subsistence lifestyle for thousands of years, adapting to the tundra environment to live in ecological balance (Lindholm, 2019). Plant subsistence involves the activities associated with procuring, post-harvest processing, storing, and cooking of culturally significant wild edible plants (Burnette et al., 2018; Fienup-Riordan et al., 2021). Subsistence is a lifestyle and not just a means to an end for providing food (Lindholm, 2019). Extensive recent documentation by Yup'it of the cultural, nutritional, and medicinal importance of plants highlights the significance of Yup'ik plant subsistence and of continuing to pass knowledge to next generations (Fienup-Riordan et al., 2021; Jernigan et al., 2015). However, nutritional colonization, the long-lasting impacts of colonization on food systems, has caused decreased participation in subsistence activities, decreased consumption of culturally significant foods, increased food-related chronic diseases, sedentary lifestyles, dependence, and diminished control of local resources (Lindholm, 2019). In response, across North America (referred to by some Indigenous people as Turtle Island) Indigenous activists are leading efforts to revitalize indigenous foodways, and building agency and capacity to enrich traditional foodways for the next generations (Gwin, 2019; Plenty Sweetgrass She-Kills-De La Cruz et al., 2025; White, 2019).

Nutritional colonization continues through the concept of food security, which encourages the cultural genocide of traditional foodways (Lindholm, 2019; Maudrie, Clyma, et al., 2024; Power, 2008). Food security is the *state* of having stable, accessibly, available, and utilizable food (Food and Agriculture Organization of the United Nations et al., 2025). However, in its pursuit many crucial dimensions of food culture have been erased (Lindholm, 2019; Maudrie, Clyma, et al., 2024; Power, 2008). Indigenous food sovereignty recog-

nizes the *right* of Indigenous peoples to choose how their food is grown, procured, processed, and cooked. To exercise and achieve food sovereignty, traditional foodways are nourished through Indigenous Knowledge (Reo & Whyte, 2012). Indigenous food scholarship; cultural, physical, emotional, and spiritual beliefs; and practices of food and nutrition rely on cultural vitality and sharing for food security (Nyholm et al., 2024; Teune & Walch, 2025).

A newer concept—*food agency*—may be a helpful way to understand food security (Ehlert & Voßemer, 2015), as it emphasizes underlying causes of food security and insecurity (Walch et al., 2018). Food agency is the *ability* of an individual, community, or nation to meet their food acquisition and preparation goals that support individual and community well-being (Morgan, 2020; Trubek et al., 2017). Agency is the capability, action, and capacity of an individual or community to take action to reach their well-being (Sen, 1999). The food agency concept recognizes that food-related behaviors do not just involve individual capacity but are also impacted by societal and institutional structures (Morgan, 2020; Trubek et al., 2017). Food agency is supported through social and cultural environments and technical and cognitive skills that support development of foodways, and the ability to meet foodway goals (Trubek et al., 2017). Food agency helps foreground underlying motivation and decision making that impact food sovereignty (Wolfson et al., 2023), such as participating in Indigenous traditional foodways, including subsistence lifestyles. Therefore, food agency is the action of realizing the *right* of Indigenous food sovereignty

Indigenous theoretical concepts specific to food sovereignty help facilitate culturally appropriate programming, education, outreach, and evaluation of cultural revitalization efforts for Indigenous scholars (Maudrie, Clyma, et al., 2024; Plenty Sweetgrass She-Kills-De La Cruz et al., 2025; Walls et al., 2019). How progress and change is measured is critical for Indigenous communities, as Western social-psychological scales do not align with Indigenous values and the ways of knowing of Indigenous communities (Walls et al., 2019). Strengths-based concepts and measurement tools are needed in food systems research for Indigenous communi-

ties (Maudrie, Caulfield, et al., 2024; Maudrie, Clyma, et al., 2024).

Food system research that focuses narrowly on consumption to try to understand Indigenous nutrition often excludes the understanding of motivation, skill set, and capacity that are involved in provisioning, thus oversimplifying Indigenous food systems (Vernon, 2015). In addition, the concept of food agency needs empirical research to understand the lived experience of food agency for individuals and communities that rely on alternative food systems and foodways (Morgan, 2020), investigating the strengths and empowerment of Indigenous food systems (Vernon, 2015). Further expansion of the conceptualization of food agency to include food acquisition and provisioning is needed (Trubek et al., 2017). Existing tools to measure and conceptualize food agency have not accurately captured the lived experience of those not participating in the dominant food paradigm (Morgan, 2020). Case studies across a breadth of specific foodways are needed to conceptually advance the term *food agency*.

In collaboration with an Alaskan Native-owned ANCSA 14(h) subsidiary, we developed a research methodology to support knowledge co-production through oral histories by weaving together Yup'ik and Western science (Gleason, Lim, Church, et al., 2023). Kuinerraq community members identified variable harvests of *atsalugbiaq* as a research priority (Gleason, Lim, Church, et al., 2023). *Atsalugbiaq* is the subsistence plant of most concern for Alaskan Natives in southwest Alaska due to its variable harvest, affected by habitat changes, weather patterns, and threats to pollination (Herman-Mercer et al., 2020; Mulder et al., 2023). Oral histories about subsistence provide an inclusive way to engage community members in research because they limit the time commitment required for stakeholder workshops and other co-production methodologies (Som Castellano & Mook, 2022) and can be used to ground Western scientific methods (e.g., remote sensing) in lived experience (Lim et al., 2021).

This study aims to advance the concept of food agency through the case study of subsistence berry picking, specifically *atsalugbiaq*, and to establish a baseline and documentation for the next gen-

eration on *atsalugbiaq* subsistence. Our research question is “How do Alaskan Natives describe and enact food agency in relation to plant subsistence?” The objectives of this research are to: (1) identify perceived barriers to meeting *atsalugbiaq* subsistence goals and (2) identify foundational elements that support food agency. In the next sections, we discuss Indigenous Knowledge, underlying motivators of subsistence, and food agency.

Literature Review

Yup'ik have stewarded the coastal tundra in *Kuinerraq* (Quinhagak), Alaska for generations. *Kuinerraq* is located on the coast of the Bering Sea in the Yukon-Kuskokwim (Y-K) Delta. There are 56 Tribes located in the Alaska Native Claims Settlement Act Calista corporation region of the Y-K Delta whose lifeblood relies on subsistence culture. Colonization, first by Moravian missionaries and then *Kussags* (white people), in *Kuinerraq* marginalized Yup'ik worldviews and eroded culture through settlement, boarding schools, and forced acceptance of capitalism in the 20th and 21st centuries, impacting Yup'ik subsistence practices or *yuyyaraq* (our way of life) (Barnhardt & Oscar Kawagley, 2005; Smith & Gleason, 2021). In *Kuinerraq* there has been an increasing dependency on store-bought supplies (e.g., mosquito spray), and changing landscape and environmental cycles are impacting *yuyyaraq* (Smith & Gleason, 2021). However, Indigenous resilience supports *yuyyaraq* through spiritual beliefs, sharing, generosity, intergenerational knowledge sharing, and respect. Supporting consumption of traditional foods relies on embracing Indigenous palates (L. Black Elk, personal communication, November 7, 2022) through developing olfactory and gustatory preferences for traditional foods (Yamin-Pasternak et al., 2014). *Yuyyaraq* has always adapted and continues to adapt, such as making *akentag* (traditional Yup'ik dish) with yogurt instead of seal oil or the colonizing replacement Crisco (Barnhardt & Oscar Kawagley, 2005; Smith & Gleason, 2021).

Indigenous Knowledge includes “physical and metaphysical” worlds linked by a moral code (Barnhardt & Oscar Kawagley, 2005), as Indigenous Knowledge is relational and strengthens our understanding of relational connection (Wilson,

2004). Indigenous Knowledge can be conceptualized in three components: ethics (values, moral code, and moral judgements), practice (skills, management systems, and techniques), and knowledge (place, biota, and ecosystems) (Reo & Whyte, 2012). Yup'ik Indigenous Knowledge is supported through the methodologies “observation, experience, social interaction, and listening to the conversations and interrogations of the natural and spiritual worlds with the mind” (Kawagley, 2006, p. 4). Yup'ik epistemologies include interbeing mobility (i.e., movement between human and animal forms), consciousness, intuition, visions, observation and spiritual interaction (Kawagley, 1990, p. 5). Yup'ik values are sharing, cooperation, respect for elders' wisdom, exploration of the natural world, family (Kawagley, 2006), and self-reliance (Kawagley, 1993). Additionally, fun and amusement (Vliet et al., 2022), future planning, intergenerational communication and skill formation, and self-determination/sovereignty (Whyte, 2018; Wilmer et al., 2024) are important components of subsistence activities (Vliet et al., 2022). Barrier or structures that impact subsistence include adopting Western dominant culture, environmental distancing, erosion of subsistence values (Alessa et al., 2010), and lack of including Indigenous viewpoints in federal resource management (Wilmer et al., 2024).

A recent development in Indigenous theory of food and nutrition is the Indigenous Nourishment Model, a strengths-based model that demonstrates

the intersection of emotional, spiritual, relational, and physical domains underlying the subdomains of belonging, intentionality, food knowledge, sharing, and ancestral foods that support a holistic nourishment of the body and mind (Maudrie, Clyma, et al., 2024). However, capabilities of subsistence practices are not the focus of this model. As subsistence activities support Indigenous well-being, life satisfaction, cultural connection, and mental and physical health (Burnette et al., 2018), a model that focuses on provisioning may facilitate the identification of drivers of food security and contribute to Indigenous scholarship on food and nutrition (Reo & Whyte, 2012). Most research has examined the *outcomes* of subsistence rather than examining the foundational supports to *practicing* subsistence activities (Burnette et al., 2018). Underlying components of subsistence activities include sense of community, culture identity, positive experiences, enjoyment, values of self-sufficiency, intergenerational learning, physical activity, and spirituality (Bersamin et al., 2007; Burnette et al., 2018; Petrusek MacDonald et al., 2013).

Food Agency

Food agency is conceptualized currently as having three components: self-efficacy, attitudes, and socio-cultural barriers/structure (Morgan, 2016; see Table 1). However, ongoing research continues to identify components of food agency. An analysis of a college-level cooking class identified care and con-

Table 1. Review of Theoretical Components of the Concept of Food Agency

Component	Subdimensions	Source
Perceived Self-Efficacy		(Karlsson et al., 2023; Lahne et al., 2017)
	Provisioning Strategies	(Morgan, 2020)
	Cooking Strategies	(Morgan, 2020)
	Provisioning Habits	(Morgan, 2020)
	Intergenerational Knowledge & Skill-sharing	(Morgan, 2020)
Food Attitudes		(Lahne et al., 2017; Karlsson et al., 2023)
Socio-Cultural Barriers		(Lahne et al., 2017; Karlsson et al., 2023)
	Physical Environment Constraints	(Morgan, 2020)
	Lack of Time or Energy	(Morgan, 2020)
Care and Connection		(Finley, 2024)
Aspirations		(Morgan, 2020)
	Hope	(Morgan, 2020)
	Future Goals	(Morgan, 2020)

nection as underlying motivators or components of food agency (Finley, 2024). Studies of low-income residents of Philadelphia and Wisconsin identified additional components, including constraints (physical environment, lack of time or energy to provision food, and lack of skill in provisioning), supports (intergenerational knowledge and skill sharing, provisioning habits, provisioning strategies, and cooking strategies), and aspirations (hope and future goals) (Brenneman, 2024; Morgan, 2020). Food agency constituents are built heterogeneously over the lifetime of an individual (Wolfson et al., 2023). Food agency helps us understand the decision-making that underlies food security, such as buying prepared food versus procuring and provisioning one's own food (Wolfson et al., 2023). As food agency is realizing the *right* of Indigenous food sovereignty, this research explores adapting the concept to Indigenous foodways. Specifically, food agency is useful for understanding how individuals set plant subsistence goals and achieve them.

Identifying key components of subsistence food agency may help relatives across Turtle Island develop enriching cultural programming and education, as well as outreach, monitoring, and evaluation efforts that will support cultural revitalization and agency related to plant subsistence.

Methods

Context

Kuinerraq, population 774 in 2020 (U.S. Census Bureau, 2025 [as Quinhagak City]), an Alaskan Native Yup'ik coastal village in southwestern Alaska, heavily relies on *atsalugpiaq* (*Rubus chamaemorus*) for its nutritional and cultural significance. In Kuinerraq, Indigenous Knowledge predicts good years for *atsalugpiaq* harvest abundance when large amounts of cottongrass flag out small mounds bearing orange-laden fruits dotting the tundra (Fienup-Riordan et al., 2021). New infrastructure projects in Kuinerraq, such as the dump, have been built to avoid disturbing the best patches nearest to the village (Fienup-Riordan et al., 2021). *Atsalugpiaq* have numerous health benefits and cultural meanings; for example, the leaves are thought to provide powers to healers and are said to dry up breast feeding mothers (Fienup-Riordan et al., 2021).

Changing environmental cycles raise concerns about the sustainability of *atsalugpiaq* harvests, impacting food security and cultural practices (Herman-Mercer et al., 2020; Mulder et al., 2023). *Atsalugpiaq* harvests in Alaska are increasingly variable due to threats to pollinators, loss of permafrost, lack of snow cover, and warmer, drier summers (Hamilton et al., 2024; Herman-Mercer et al., 2020; Mulder et al., 2023). Kuinerraq faces increasing rates of coastal erosion, impacting transportation in and out of the community and loss of valuable allotments and berry patches (Gleason, Lim, Marsden, et al., 2023; Lim et al., 2021, 2023). Currently, Kuinerraq community members must travel hours by boat in the Bering Sea in order to access large healthy *atsalugpiaq* patches, which is increasingly difficult and unsafe to do because of coastal erosion, change in ocean currents, frequency of storms, increased gas prices, inflation, high cost of living, lack of commercial fishing, fewer jobs, and unpredictable extreme weather (L. M. Church, personal communication, July 17, 2025; Mulder et al., 2023).

Due to these challenges, as well as recent failed berry subsistence seasons (e.g., 2019), village leadership and Nalaquq LLC in Kuinerraq invited the first author to co-develop a community-led monitoring program of the health of *atsalugpiaq* in the face of environmental and social change. Nalaquq LLC, a Native Alaskan-owned Kuinerraq-based company dedicated to providing technological solutions for Yup'ik communities, is leading the way for supporting citizen science (Gleason, Lim, Church et al., 2023), and facilitates community-driven inquiry through a research process co-designed with partners. Initial research questions are developed by community members; community meetings establish priorities, then Nalaquq facilitates partnerships that take action through determining the most appropriate methodologies to find solutions. Community members are involved and are paid from beginning to end of collaborative research projects (Gleason, Lim, Church et al., 2023). An initial visit to Kuinerraq led to a multi-pronged solutions-focused co-production research plan based on Nalaquq's *Caliyarapiaput* (our genuine ways of working), in which a research vision, intellectual property determination, human research ethics approval, and data sovereignty approach

were developed (Gleason, Lim, Church et al., 2023). Nalaquq LLC decided to have the first author collect oral histories of *atsalugpiaq* as a first step in a long-term collaboration in order to develop trust and rapport between Kuinerraq community members and the research project, and as a methodology to facilitate co-production of knowledge by weaving together Indigenous Knowledge throughout the ongoing natural science *atsalugpiaq* remote sensing and modeling research projects (Gleason, Lim, Church et al., 2023; Kassama, Hunter, Friedrichsen et al., in review).

Etuaptmunk (Methodology)

This is a case study of unstructured oral histories of subsistence of *atsalugpiaq*. The first author visited Kuinerraq the previous summer in 2023 before collecting data, and participated in subsistence activities related to *atsalugpiaq* during both visits. The research was approved by Nalaquq LLC, a subsidiary of an ANCSA 14(h) corporation, and by the Institutional Review Board of the University of Alaska Fairbanks (#214867). A three-step informed consent process and data sovereignty plan were developed during the initial research planning process (Gleason, Lim, Church et al., 2023). Community members were selected by co-authors, Nalaquq LLC, and through snowballing sampling methodology using the criteria of identifying individuals in Kuinerraq known for their *atsalugpiaq* subsistence knowledge. A sampling framework designed by Nalaquq LLC ensured that every family in Kuinerraq was represented. Community members ranged in age from young adults to elders. Most oral histories were collected with several family members (e.g., mother, daughter, grandmother, husband, or wife) present.

This project was led by Lynn Marie Church, Indigenous CEO of Nalaquq LLC, and Jacqueline Cleveland, Indigenous filmmaker, both fluent in English and Central Alaskan Yup'ik. With over 70 years of combined experience living, working, and practicing subsistence in rural Alaska, they provided critical theoretical, cultural and ecological insights throughout the research process. Their bilingual fluency and deep connection to the region ensured culturally responsive engagement and helped integrate

Indigenous Knowledge systems throughout the research process.

Data Collection

The interview guide was unstructured, with a preliminary list of questions and topics developed collaboratively and iteratively between co-authors. In summer 2024, 17 oral histories were audio recorded with debriefing by co-authors between interviews. Interviews were conducted in mutually agreed locations and lasted one to two hours. Data saturation was determined when no new topics further emerged from oral histories. The audio recordings are archived at the Quinhagak Heritage Foundation at the Nunalleq Museum in Kuinerraq (Hillerdal et al., 2023).

Data Analysis

The first author coded all interviews inductively and iteratively by hand, cross-comparing oral histories (Bernard & Ryan, 2010). Codes were grouped by theme, which arose through iterative conversations and discussions of the interviews and codes between co-authors during data collection and analysis (Charmaz, 2014). As part of the data sovereignty process, feedback on the manuscript was sought and consent for publication acquired for by each community member cited in the text and authorship was given to every quoted community member.

Results

The basic tenets of Yup'ik food agency support *yuungnaqpiallerput* (the genuine way to live) through subsistence of *atsalugpiaq* picking. It is getting harder for Kuinerraq community members to meet their harvesting goals of *atsalugpiaq* due to external threats to *yuungnaqpiallerput*. Additionally, *atsalugpiaq* are threatened now with extremely variable harvests due to changing environmental cycles:

Sometimes there are none [*atsalugpiaq*]; last year we had nothing. So it depends on the weather. You can't predict the weather. Some years we'll have berries and some years we won't, and some years we'll have plentiful and some years just enough to get by. Depends on the weather. (Grace Hill)

However, Yup'it preserve and continue to practice *yungnagpillerput* despite the external threats. We identified six themes that facilitate food agency of *atsalugpiaq* subsistence: sovereignty and self-reliance; knowledge and learning; mindfulness and attitudes; caring and sharing; ethics, and hands into action (Figure 1). Yet Yup'ik food agency is in jeopardy in the face of changing environmental cycles, capitalism, colonization, and globalization.

Sovereignty and Self-Reliance

Kuinerraq community members shared that sovereignty and value for self-reliance are the basis of Yup'ik food agency, and they deeply value their ability to be self-reliant and to not need to buy from stores. Willard Church shares, “We want freedom. That is what we grew up with. That is what we want for our future generations, to be able

and go out and live free, harvest freely just like we’ve been doing.”

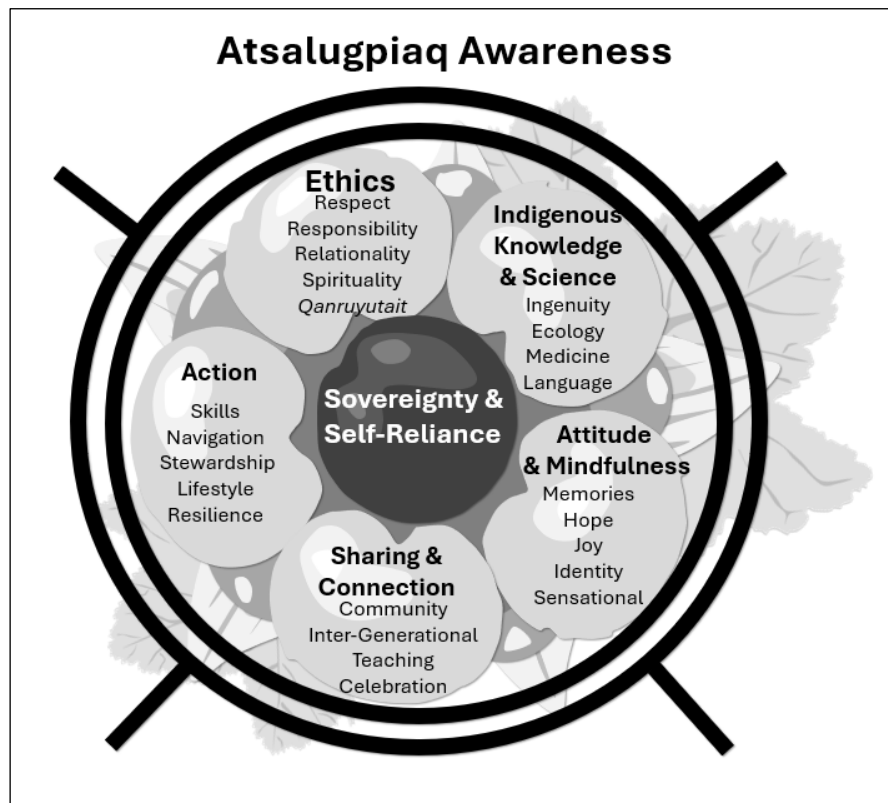
Community members shared that Yup'ik sovereignty was violently attacked by colonization through missionaries, forced settlement into villages, and boarding schools. Now, they expressed, Yup'ik sovereignty and the practice of *yungnagpiallerput* is undermined by climate change, globalization, capitalism, and gentrification of their region. Willard Church discussed how capitalism and globalization are structural barriers undermining food agency of Yup'ik people through lost sovereignty and self-reliance. Yup'ik people must fight for their right to subsistence:

The outside world is slowly coming in and taking us, changing us, molding us into what they want us to be. Re-educated. We’re living it [*yungnagpiallerput*]

but not as much as the elders have lived through it. I think that has affected the berries. There is only one solution. Leave us alone. Tell the government to stay away. ... Pretty soon you’ll see less and less natives out there, and more and more people from outside the region coming in and taking over picking spots. Then, pretty soon, there will be land disputes. ‘Don’t be harvesting berries on my land!’ Right now, we are free to go harvest where we want, even on private land and on corporation land. Maybe one day they will say you can’t do that anymore. (Willard Church)

A change in environmental cycles is causing extended periods of hot and dry weather during summer. In 2024 a wildfire burned the best berry

Figure 1. Components of Atsalugpiaq Subsistence Food Agency
 The model is based on the Yup'ik eye of awareness. The six drupelets of the berry are the components of food agency for *atsalugpiaq* subsistence. The inner ring of the eye of awareness signifies the continuance of life and the outer ring is the continuance of awareness. The spokes represent the four seasons.



patch that was near Kuinerraq. Firefighters came from Anchorage and dumped flame retardant on the most prolific and healthy berry patches to prevent the fire from spreading to the village. As a result of the flame retardant, “We have told people not to go around that area. Just not to go because they said that thing causes cancer. It would probably take forever to get it out,” shared Grace Hill as she sadly reflects on the loss of her favorite berry spot, and therefore the loss of her opportunity to harvest enough *atsalugpiaq* for the coming winter.

With policy makers far removed from Southwest Alaska, unfortunately Kuinerraq has little control over the progression of changing environmental cycles. Therefore, “We have to change. ‘Cause we cannot change this [changing environmental cycles],” said Jonathon Mark. Environmental change threatens *yugnagpiallerput*, but Yupiit will continue to adapt in the hopes that the land will continue to provide for them as it has always done. When there are years with limited *atsalugpiaq* for harvest, Yup’ik continue to make *akutaq* (a traditional Yup’ik dish), but “We just go to the store and buy blueberries, strawberries, and blackberries,” to replace *atsalugpiaq*, shares Grace Hill.

Community members expressed a deep sense of self-reliance. If they don’t participate in subsistence activities then they are not Yup’ik. In order to uphold the value of self-reliance and not depend on a wage economy to buy berries, Lynn Marie Church, CEO of Nalaquq LLC, questions if they will have to learn to be farmers in order to continue to celebrate the important moments in Yup’ik life with *atsalugpiaq*. She reached out to the co-authors of this manuscript to find ways to weave together Western science with Yup’ik science to adapt to the new challenges of globalization and capitalism and overcome the challenges of environmental change. As part of this larger research project, a remote sensing modeling technique (see Kassama et al., in review) is being developed to facilitate Kuinerraq to monitor the health of *atsalugpiaq* as a form of adaptation to support self-reliance and food sovereignty in Kuinerraq.

Community members perceived sovereignty and value for self-reliance to be the center and grounding force for Yup’ik food agency, although social-cultural barriers of changing environmental

cycles, capitalism, colonization, and globalization do tend to undermine aspirations to meet annual *atsalugpiaq* subsistence goals.

Ethics

Community members shared that Yup’ik cosmology is based on respect, responsibility, and relationality toward the land and the spiritual world. From the oral histories, the importance of Yup’ik cosmology, ethics, and moral codes as foundational elements of food agency ensure the ability to maintain harmony with the land while meeting their yearly harvest goals. Community members have faith that the land will continue to provide for them as long as the land is respected, through Yup’ik moral codes consisting of *alerquntet* (protocols), *inerquntet* (prohibitions), and *eyagyarat* (abstinence rules).

Yup’ik cosmology includes the belief that *atsalugpiaq* willingly give themselves for subsistence when people show respect toward the tundra and take great care in storing berries:

Remember one thing—don’t ask for anything. You can willingly accept when it is truly given. But you never ask for a resource. And they choose to give it to you, that is ok but never ask for it. ... There will always be enough. May not be this year or next year, maybe next year or the year after. It is just a matter of time. The world takes care of itself. The land takes care of itself. The land provides when it is ready to provide. We just need to be prepared so we’re ready to go when its time. Like the elders say. (Mary and Willard Church)

Atsalugpiaq will willingly give themselves for harvest when people show respect toward the tundra and take great care in storing berries. Respect can be shown to *Ellam Yua* (the universe) by “Not squishing around the tundra too much or don’t leave your trash. Bring back. If you go camping, bring back your trash with you. That is all I know about protecting [*atsalugpiaq*],” said Frank Roberts. Yup’ik protect *atsalugpiaq* and maintain balance and harmony with the land by taking great care in their post-harvest management. No matter how tired Yup’ik are after picking berries, Yup’ik properly

store them immediately when they come home. Dorothy Mark advised, “When we pick berries, we clean them and then put them away so that they won’t spoil or get bad. We put them in Ziplocks and put them in the freezer.” Eleanor Merrit shared, “Those peels, instead of putting them in the trash, next time you go out, throw them in the tundra. That is, that way more will grow from the peels. They will be growing [from the peels].”

Yup’ik moral codes ensure that Yup’ik not only respect and take responsibility towards the land but also towards the most vulnerable in Yup’ik communities. Yup’ik take care of their community. “We can invite them to come with us—the ones that don’t have a boat motor. And not only that! We can give them [berries] to our elders, relatives —share the stuff. That is what they [Yup’ik ancestors] always did,” shared Johnathon Hunter. *Eyagyarat* (abstinence rules) and *inerqutet* (prohibitions) prohibit going to the tundra the first year after the death of a family member, invoking other Yup’ik community members to come together and share their harvest with the family members of the person who died.

Yup’ik recognize that at certain times of their life they have power that can impact their relationship with the land (Fienup-Riordan, 1995). An example of such *alerqutet* were shared by Lucille Mark:

If you have your first period, you are not supposed to pick anything off of the ground. They said they’ll [*atsalugpiaq*] hardly grow any more or they will fall off or they’ll hardly grow [if we don’t follow the rule], so we have to. [One way to prevent the power of the individual from impacting *atsalugpiaq* harvest is] I had my daughter and grandchild tie one hair around a berry. And tell them that my mom used to say if you don’t tie one around a berry and you pick before your one year is up with menstrual cycle the berries will hardly grow anymore.

Following these cultural codes fosters Yup’ik ability to maintain the harmony between humans and the spiritual world.

However, if people do not follow *qanruytait*

(wise words) of Yup’ik elders, people may unintentionally create a forbidden bridge with the spiritual world, which Willard Church advised to avoid:

Make sure you’re not camping on an old shaman’s camping spot. They might come and bother you in your dreams if you camp on a shaman’s camping spot. They will visit you in your dreams. I know that for a fact. That happened a couple of times. My first cousin is still looking for the sock that he is missing. It was a nice wool sock. Disappeared in the middle of the night and he hasn’t found it to this day. A shaman was in his dream. Woke up and his sock was missing and he never found it. So don’t camp on an old shaman’s camping spot. They will bother you in the middle of the night when you sleep.

Finally, Yup’ik are intentional with their harvest, making sure to not overharvest and to share their harvest with those less fortunate. If Yup’ik are privileged to have a boat, they must travel outside the community to pick berries so that those without a boat who pick on foot can still have access to berries and harvest them within the village. Dorothy Mark sums up Yup’ik ethics:

We give thanks. We ask it, it’s your [god’s] will. Give us abundantly. Let there be berries where we go. And he does answer. After we had nothing last year, I know most of the people were praying too for the berries. I grew up with my parents praying daily... That is how I was with my children, too. The way I was brought up. What to believe, what not to believe. Most of the things they used to say when I was a little girl and what they would say like, the land will get thin. In Yup’ik, that means the land will change and the people will change. And today it’s changed, everything has changed from the way we grew up.

Yup’ik cosmology and adhering to Yup’ik moral codes ensures that they will have a good harvest of *atsalugpiaq* next year. Ethics and moral codes are essential elements of food agency. Food is culture. Ethics and moral codes ensure that har-

mony, sustainable management, and just distribution of resources are maintained so that everyone in the community can have access to food.

Knowledge and Learning

Yup'ik value observation, consciousness, and awareness of fellow beings—plants as well as animals—as the basis of their knowledge of joint existence. Yup'ik Knowledge of the topography of the land, weather cycles, biota, ecological indicators of harvest yields, soil, and ocean conditions allow them to live in symbiosis, balance, and harmony with flora and fauna to support the thriving of all beings. Knowledge and their pursuit of learning support their food agency. Through intergenerational extended families, Yup'ik youth are taught and encouraged to develop the necessary skills, land-management practices, and techniques for *atsalugpiaq* subsistence. Youth quickly value self-motivated learning to support self-reliance:

When Mary and I first started picking Salmonberries together, I didn't know where to go. I asked my late grandfather if he can go with us and show us where they pick Salmonberries up North on one of the rivers up there. He said he would do that. But he said, "I'll show you one time and one time only." And from that point on, you two are on your own. He brought us up there and showed us the different spots and where to look, different camping places. We picked. And that was one of the only times he went with us. Show you once and after that you have to learn the rest on your own. From that point on we had to remember the different routes on the river and the different branches on the river we had to take in order to get to where we're going. Sometimes it was kinda hard to do because back then we didn't use a map or GPSs, it was all based on memory. Today, the young guys can just use their GPS and set their route and follow it. (Willard Church)

As environmental cycles are changing on the Alaskan southwestern tundra, *atsalugpiaq* are becoming endangered. However, Yup'ik continue to use observation to record changes of the tundra

and their impact on the growth of *atsalugpiaq*, to adapt and be resilient:

They are getting less. That is what they used to say too. Like what we say now. There used to be lots of berries but now there is way less nowadays than what we used to have back then. And that is what my mom used to say too. I think this global warming started long ago. Because that is what some of them use to say to that, it doesn't get cold like it used to back then. (Dorothy Mark)

Not only is the quantity of *atsalugpiaq* changing but also the tundra around Kuinerraq. Kuinerraq, once a treeless grass-and moss-dominated permafrost river delta, is now a waterlogged ecosystem. Margaret and Mathew Roberts shared:

There used to be hardly any trees around the villages. Now there is lots ... '90s, I think, when she first came there was hardly any trees around the village. Now there is lots. Trees start popping up! I was thinking if they could trim those trees. [Trees make the salmonberries] smaller, gets smaller, less and less.

Yup'ik food agency is founded in never-ending curiosity and value of knowledge and learning about the environment and conditions that impact *atsalugpiaq*. Their knowledge of the medicinal qualities of *atsalugpiaq*, dedication to inculcating youth to the Yup'ik lifestyle of subsistence, and promotion of the Yup'ik language and culture through subsistence supports their self-reliance and food agency.

Attitude and Mindfulness

Yup'ik express and reinforce their cultural identity and interdependent relationship with *atsalugpiaq* through memories, culinary pleasure, and hope and optimism for the future of berry subsistence. These attitudes and the promotion of mindfulness through *atsalugpiaq* subsistence ensure Yup'ik food agency. Yup'ik share cherished memories of their childhoods, accompanying their parents and extended family to harvest *atsalugpiaq* across the tundra:

My parents would take us across the ocean, and we would spend a week or so, and we would pick 30, 40, 50 gallons at a time. ... I miss the time when we were younger when my parents were here. We would go through the ocean. Oh my gosh the boat would be so plump full of us just hanging on. And there would be how many tents too? There wouldn't just be one family there. How many families? That is how they use to do it in the older days. More families would go together. (Eleanor Merrit)

Yup'ik community members cherish memories of multi-day camping trips when families would travel by boat across the Bering Sea to reach plentiful and healthy berry patches, harvesting more than 50 gallons each visit. Yup'ik share pride in the ingenuity of Yup'ik science in the old ways of harvesting, storing, and preserving berries in grass baskets and wooden barrels that were buried in the permafrost and sunk into the cold water of nearby lakes. The Yup'ik continuance of *atsalugpiaq* subsistence is a conscious act to maintain the vitality of their identity, and their sense of freedom and autonomy from the cash economy.

Community members recall old recipes for preparing *atsalugpiaq* and excitedly share new cooking preparations, such as smoothies and cinnamon rolls. Yup'ik share memories of gastronomic pleasure, and delight with enthusiastic vocalizations of the sensory pleasure of *atsalugpiaq*. Frank Matthew shared:

They [*atsalugpiaq*] are our ice cream. They come once a year. They are definitely our dessert. ... The salmonberries, the ones that you don't pick, they will start turning white and some people like the white berries. Some people pick even the white 'cause they like them that way. And some people, me, I like them even hard and too hard, semi-hard, and soft inside.

Community members shared strong preference and opinions on berry ripeness and how to prepare berries of varying ripeness, but all Yup'ik agree that, as Jessica shared, "They are gold to us. When

you have salmonberries, it's like having gold in the freezer."

As Yup'ik thoughts and conversations shift towards the reality of dwindling *atsalugpiaq* harvests—the difficulties of harvesting them in a melted permafrost landscape, and decreasing quality of berries as the consequences of climate change—they nevertheless carry with them a sense of optimism and hope for the future. "I assume there will still be berries. I hope so. I hope Washington cares about what is happening down here and not try to eliminate us," said Eleanor Merrit. Jonathon Mark shared, "My grandparents told me not to worry about the future or the past, just to live in the present. How you pick berries is how they will turn out the next year."

Mindfulness while picking *atsalugpiaq* through the rhythmized action of picking and being present in nature supports food agency, while gastronomic pleasure, good memories, and pride in Yup'ik Indigeneity ensure that *atsalugpiaq* subsistence goals are met, filling freezers each fall to feed families throughout winter.

Sharing and Connection

Berries bring together Yupiit to enrich relationships through intergenerational teaching, sharing harvests, and forming the center piece for celebratory meals. Yupiit pick *atsalugpiaq* with parents, siblings, friends, and children, cherishing the moments of togetherness. Sharing and connection through food are a foundational element of Yup'ik food agency.

Community members shared that they bring their children with them to berry patches to crawl around while they fill their berry buckets and praise their children for filling their own tiny berry buckets. Eleanor Merrit shared:

My three kids and I would pick. I would see them pick all excited, using two hands. And then when I would get home, I would have my three kids peel them for me. And this is another thing, even if you pick berries with peels, your kids will be bonding and helping you. ... So they grew up knowing what berries are. They know where to go to pick them and when, and they know to put them away right

after picking ... how to prepare them, how to eat them. So they know how to take care of the berries.

Yup'ik also celebrate their children's first harvest with an *ineqsuyulria* (first harvest celebration). Community members shared photos of their children's grinning faces after their first berry harvest.

Yup'ik celebrate each holiday with *atsalugpiaq akutaq*. They ensure that *atsalugpiaq* is shared across their community so that no one goes without the taste of berries. Although now dwindling in practice since COVID-19, the practice of "passing of bowls" is when community members bring a bowl of *akutaq* to each household in the village, returning home with their bowls filled with the taste of each household's *akutaq*. *Atsalugpiaq* are not just the food served at celebrations, but the first harvest of the year is also a time to celebrate:

After I pick my first bags, I make a big bowl of *akutaq* and I call all of my families to come in and eat. They really enjoy that. It's good to have berries. Caring and sharing. See happy faces all the time. Serve something fresh. Fresh berries. I like that. Especially when we are together and families are together. (Mary Church)

Several community members shared how they send their loved ones living in Anchorage and Fairbanks frozen berries so that they also can have a taste each year and join in the pleasure.

If you share, you get ten times more fold will come back to you. If you share, I have noticed, you'll get more stuff. ... The elders have always given you their blessing when we have share with them. They tell you that your harvest, your gathering, will increase so many fold. You'll be able to gather so much more. That is their blessing. Sometimes it is true you get so much more back. (Mary Church)

Community members shared that they pick *atsalugpiaq* with the people they most care about, traveling great distances across the Bering Sea to pick with them. In years with poor harvest in

Kuinerraq, they rely on friends and families up North to share *atsalugpiaq* with them, ensuring food agency is met even in poor harvest years.

Hands into Action

It emerged from the oral histories that directly practicing *yunnagpiallerput* (the genuine way to live) is essential to food agency. Informants shared how important *atsalugpiaq* are, remembering stories of good berry harvests and the joy of picking them, emphasizing that without directly putting their hands into action, they might lose the opportunity to pick in the future, degrading their food agency.

Cause when the berries are here, we have to go get them. They say if they are not being harvested, they will become less. They need to be used. I have heard that many times. If you are not using them, they will be less. (Willard and Mary Church)

Atsalugpiaq subsistence requires knowledge of management of *atsalugpiaq* patches, as well as techniques for picking, storing, and preparing *atsalugpiaq*. Community members shared that they have now shifted towards day trips instead of multi-day camping trips because of the need to take vacation days in order to pick *atsalugpiaq*. Adapting to a capitalistic economy demands that Yup'ik exchange time and labor for money.

To make the dangerous journeys up the coastline to better berry patches, community members shared how they rely on ocean navigation skills to manage unexpected weather conditions. Walking on the tundra requires skill and practice as well, so that they do not get stuck in the increasingly wet, muddy, and unstable landscape.

[With changing environmental cycles] there is more bog water that is affecting the tundra for the berries—can't go places with the four wheeler anymore. People get stuck. *Onyugyak*, like tundra on the top and water underneath. The ground is like water but not. There is more of those kinds now 'cause the permafrost is melting. When permafrost melts, it is making *Onyugyak* [tundra on the top with water beneath]

more. There is people out on the four wheeler that get stuck on those. There is more bugs now because there is more water. (Miles Bavilla)

Community members shared how important it is to be appropriately prepared with the right clothing, extra gas, and the mindset that they might encounter discomfort while picking. With environmental change, there are now more bugs and mosquitoes.

Yupit rely on their skillsets to read the landscape and identify indicators of good berry harvests. As winter progresses, if Kuinerraq has had enough snow without periods of freeze/thaw they know the buds have been protected from sharp cold spells sufficiently to provide good harvests in the summer. Community members also use environmental indicators to know if it will be a good berry year, “when you see the cotton growing out there, you’ll know there will be berries. If those cotton don’t grow, no berries,” shared John Hunter.

In oral histories, pride for family berry patches showed stewardship. Community members described that they must leave some berries for the wildlife so that they can reseed the berry patch. Jonathon Mark shared techniques for maintaining productivity with berry patches:

Try not to pick every single one even if they are really small because you think you won’t get any for the year, and when they come back next year, they will say there is no berries here and they will go to the other spot. There is no berries here because they picked out everything. But if you give them a few years break, everything will grow, grow ... even if I over picked. I won’t go pick those places. I don’t pick where I picked the year before. I switch it. If you over pick them while they are hard there won’t be any berries. And if you wait till they are ripe, there will still be lots the next year. Just like how the farmers wait to pick when their crops are ripe. ... The berries have a cycle if you watch them—every seven years from start to finish. So every season I pick here one year and then pick from this [other] spot one year. It’s [my berry patch] one big island where

I camp. ... That island provides almost 100 gallons a season. ... We don’t usually pick small ones but within the next year they are big. Then after even years they grow big right away. [That is] their grow cycle. That is what I learned from my grandparents.

Each community member shared how they had developed their own techniques for picking berries and preserving them for winter. Catherine shared, “I don’t like to wait until they are too ripe because then it takes forever and forever to fill your bucket. They all squish and sink.” Respect for those who have developed the talent to pick quickly was shared by Jonathon:

I usually pick in one day maybe 20 to 25 gallons. I have fast hands. Most people like to pick bent over like this. I go like this [squat position]. I move it [the bucket] right in front of me and throw them and [head up] looking around as I’m picking. I’m looking for the biggest ones. I always try to pick the biggest ones. The smaller ones they still taste like planty [*sic*] or tundra. But when they get bigger they are more, almost like ripe flavor. I don’t know how to describe the flavor but sweet crunchy, sweet, and crunchy tart.

In addition to picking techniques, co-authors have storage and preparation techniques, including how long to boil white fish for the perfect texture of *akutaq*. “My favorite [*akutaq*] is with white fish instead of Crisco. Boil the white fish for five hours to break it down completely of its muscle fibers and mush it up just like you would Crisco. ... Most people boil their white fish for an hour or a half hour but its mealy and overpowered with fish flavor,” shared Jonathon. About the berries, Jonathon Mark continued, “I pick them until they are white (really overripe). You know people stop picking them when they turn white. That is the best time to make your jam. Pick all white berries right before they start tasting like homebrew or cheap alcohol. Right before, they are good for jam.”

Community members recognized that food is medicine, that not only are there specific medicinal properties of *atsalugpiaq* berries, but their leaves are

healthy when consumed in tea. However, the physical act of picking berries is imperative for maintaining physical and mental health. Willard Church shares how an elder continues to live a subsistence way of life:

He said it is good to eat fresh off of the land because you look forward to getting up and getting off of your bed and getting off of your chair, preparing for the day and going out to the land and gathering what you want. “It keeps me healthy that way.” He is constantly going out and hunting and fishing and gathering. Keeps him lively. He is in his 80s now. He is still going like he is in his 40s; if he put a lot of food away in the freezer he wouldn’t have to do that. Then he wouldn’t be able to get off of his chair or off his bed. Said his bones are getting old and his muscles are getting weak. But he get up every day and prepare for the day. And goes out and gather what he needs. (Willard Church)

Community members shared that their bodies might limit their ability to practice subsistence, but that they work through the pains and limitations of their physical bodies, and realize that once in motion and fully consumed by picking, they enter a state of mindfulness. That realization of one’s self-reliance and sovereignty is essential to being Yup’ik. It is as much of a medicine as any pill.

Picking skills, ocean and tundra navigation skills, management of berry patches, cooking techniques, adaptability to the changing environment, and embracing the subsistence lifestyle enable food agency through putting hands into action, supporting *atsalugpiaq* harvest aspirations.

Discussion

Kuinerraq oral histories engender an emergent novel model of subsistence food agency, which contributes to the broader generalizable theory of food agency. The model also incorporates an actor-oriented perspective of an alternative food system and the actors’ realization of food sovereignty into the concept of food agency (Ehlert & Voßemer, 2015). The emergent subsistence food agency model themes that arose from the oral histories are

similar to the Indigenous Nourishment model (Maudrie, Clyma et al., 2024). Both models assert that food consumption cannot be decoupled from culture and lifestyle. However, with challenges to the continuance of *atsalugpiaq* subsistence, it is imperative to understand the underlying subsistence capabilities and strengths contributing to Indigenous scholarship on food and nutrition (Reo & Whyte, 2012).

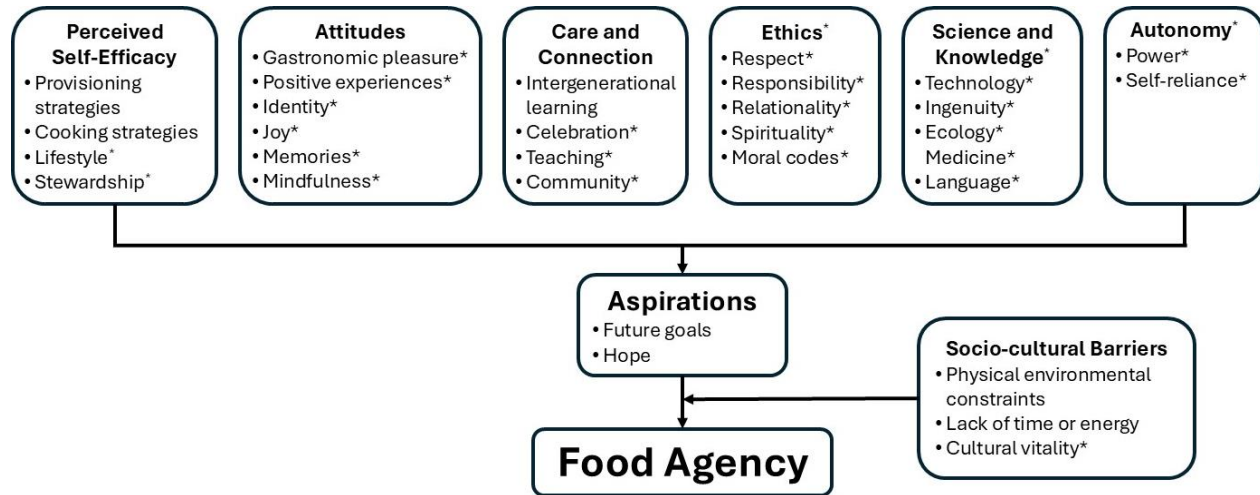
Application of Food Agency to Atsalugpiaq Subsistence

This context-specific case study of subsistence enables us to understand the generalizable theoretical concept of food agency (Figure 2). Food agency is the ability to act to procure and prepare food to meet desired diet related goals. To the existing theoretical components of food agency (perceived self-efficacy, food attitudes, socio-cultural barriers, care and connection, and aspirations), we weave in Yup’ik Indigenous Knowledge from the subsistence model to add three new components: ethics, science and knowledge, and autonomy. Additionally, subdimensions have also been woven together under each food agency component to create a holistic and generalizable conceptualization of food agency that combines Yup’ik and Western science. This research highlights the important skill sets linked to sustainable provisioning of food within the context of land stewardship of perennial wild edibles. *Kussags* (white people) can learn from the capabilities and strengths of Yup’ik people to better understand the underlying tenets of food agency. The holistic perspective of the capabilities that support food provisioning are imperative for understanding food security. To the existing components of food agency (see Table 1), we propose adding three new components to the existing conceptualization of food agency: Science and Knowledge, Ethics, and Autonomy, which are derived from the empirical Yup’ik subsistence food agency model (Figure 1).

We hope this research provides a “two-eyed seeing” approach to food agency, weaving together the strengths of Yup’ik and Western science (Bartlett et al., 2012; Yua et al., 2022) to identify the capacities that support food provisioning. From these data emerged the novel theoretical

Figure 2. Food Agency Theoretical Model

To the existing components of food agency (perceived self-efficacy, attitudes, socio-cultural barriers, care and connection, and aspirations), we weave in Yup'ik Indigenous knowledge from the subsistence food agency model to add three new components: ethics, science and knowledge, and autonomy. Additionally, subdimensions have also been woven together to create a holistic and generalizable conceptualization of food agency that combines Yup'ik and Western science.



* denotes components and subdimensions derived from the Yup'ik subsistence food agency model.

nents of science and knowledge, ethics, and autonomy, which have been previously excluded from scholarship on food agency. We recognize that the concepts of perceived self-efficacy, attitude, care and connection, aspirations and socio-cultural barriers are variants of the currently recognized components of the concept of food agency (Lahne et al., 2017; Karlsson et al., 2023). Additionally, we highlight that the Yup'ik subsistence food agency model contributes significantly to fleshing out the attitude component of food agency, to include subdimensions of pleasure, joy, and mindfulness associated with food. These novel subdimensions of the attitude component contribute to our understanding of how to develop positive attitudes for individuals who are building food agency.

Western knowledge focuses on predetermined key competencies and subdividing tasks into parts that can be objectively measured. However, Indigenous Knowledge focuses on the actualization of desired outcomes (Barnhardt & Oscar Kawagley, 2005). In the following section, we explore each of the novel emergent themes of food agency, and the context of how Yup'ik lived experiences may be helpful to conceptualizing and theorizing food agency as related to provisioning of food.

Science and Knowledge

Yup'ik people value action and learning by doing (Fienup-Riordan, 2007), which aligns with the previously identified component of food agency—perceived self-efficacy. Indigenous Knowledge often conceptually separates out knowledge from effective action (Barnhardt & Oscar Kawagley, 2005; Plenty Sweetgrass She-Kills-De La Cruz et al., 2025; Reo & Whyte, 2012). In a Western worldview, knowledge is often conceived as actionable effective skill. Breaking apart knowledge and effective action as two separate components of food agency, as Indigenous Knowledge indicates, may reduce the oversight and mismeasurement of self-efficacy and knowledge (Maudrie, Clyma, et al., 2024).

Additionally, breaking knowledge from perceived self-efficacy allows for a holistic inclusion of the vast amount of knowledge associated with food agency beyond provisioning, and cooking knowledge. Knowledge of the ecology of the food system, food as medicine, and language support cultural vitality and an understanding of how human nutrition, culture, and mother earth are interlinked, facilitating systems thinking (Maudrie, Caulfield, et al., 2024). Recognizing science as part of knowledge highlights the adoption, innovation, and

advancement associated with food through technology development, knowledge creation, and experimentation. Ingenuity, observation, experimentation, trial and error, and problem solving are critical characteristics and skill sets valued by Yup'ik people (Fienup-Riordan, 2007). Acknowledging science and ingenuity as distinctive components of food agency may help develop programming that nurtures innovation through close observation, attention to detail, systematic knowledge creation, creative thought and critical thinking as part of food agency capacity building.

Ethics

For Yup'ik, when ethics and spirituality are lost, the sense of what to do and sense of self diminishes (Kawagley, n.d.). Subsistence of *atsalugpiaq* is supported by Yup'ik Indigenous Knowledge, which can be conceptualized as respect, responsibility, and relationship (Fienup-Riordan et al., 2021). Yup'ik Knowledge recognizes and respects the interdependences and balance between humans, flora, and fauna. Recognizing that fauna and flora are sentient (Ayunerak et al., 2014; Barnhardt & Oscar Kawagley, 2005), Yup'ik cosmology asserts that plants respond to human action and humans must take responsibility by following *qanruyutet* (wise words for living) to protect the relationships between plants and humans (Ayunerak et al., 2014; Fienup-Riordan et al., 2021; Smith & Gleason, 2021). Jonathon Mark shared that global strife and war, and severe gossiping, are two additional causes of the poor harvests of *atsalugpiaq*.

Atsalugpiaq in Southwest Alaska are used in one of the most favored *akutaqs* (traditional Yup'ik dish), and known to have rules related to their consumption and special powers (Fienup-Riordan et al., 2021). The rules are similar to food taboos or moral codes in other cultures determining how foods are grown, who can eat them, and how they can be stored to be safe and clean to eat. Culture is often ignored by Western science, or Western culture is tacitly assumed to be the dominant culture (Morgan & Trubek, 2020); however, culture and moral codes determine individuals' and communities' abilities to access resources, and how they procure foods and consume them. Even in Western culture the food system relies daily on ethics for

complex diet-related decisions that balance choices between social, political, economic, and environmental outcomes of technologies, such as biotechnologies, animal ethics, and lab-grown meat (James, 2018).

Subsistence foods offer themselves up for harvest to humans (Fienup-Riordan, 1995), and humans welcome subsistence foods into the human world through specific *alerqutet* (protocols), such as keeping the tundra clean and by taking care of the berries once they are harvested (Fienup-Riordan, 1995). *Eyagyarat* (abstinence rules), such as not picking berries after the death of a spouse, protect community members who are most vulnerable and ensure that the community comes together to support them through gifting berries during the period of abstinence. Important rules, such as not making a mess out of food, not harvesting more than can be used, not wasting food, not letting it spoil, and taking care to preserve food, maintain harmony with the land (Fienup-Riordan, 2013). The land and the berries feel pain if inappropriately cared for and not shown respect. Therefore, the next years' harvests will be diminished (Fienup-Riordan, 2013).

Food agency for an individual cannot be separated from their culture. As food taboos and dietary regulations are found in every culture, anthropologists have theorized that they play a role in resource allocation, food safety, and building social cohesion, forming group identities and belonging (Meyer-Rochow, 2009). Rules related to subsistence ensure that every person in the community is taken care of when they are most vulnerable and everyone has a way of contributing to the larger community well-being (Ayunerak et al., 2014). Ignoring these essential parts of food culture diminishes our understanding of how culture contributes to the capacity of individuals and communities to achieve their aspirations. Building food agency capacity cannot be done without a moral code or set of ethics that determines how to steward a resource responsibly, or how food is prepared and kept safe for eating. Today, in a globalized food system, food labeling, food safety laws, and cultural understanding of disgust create an ethic about what is good food, how to maintain food allocation and food safety (Negowetti, 2020).


Autonomy

Autonomy has two subdimensions as conceptualized by Kuinerraq: the ability to have control over one's food system, and the value of being self-reliant and providing for oneself. Both are conceptually critical components of food agency and align with its definition as the struggle to be independent from agribusiness capitalism (Goris et al., 2025). Bringing together sovereignty and self-reliance under the concept of autonomy may allow it to be more generalizable beyond Indigenous communities. Globalization has homogenized food culture, decoupling the people from the land and making consumers dependent on the industrialized neoliberal economy and global corporate food system (Calderon Farfan et al., 2023; Clapp & Scrinis, 2016). The concept of food autonomy, the act of exercising democratized control over the food system, originated from Indigenous scholars and political movements in Latin America (Calderon Farfan et al., 2023). The ability to operate and provide for oneself without the global food chain, creating resilient, adaptable systems, is critical today as we saw during COVID-19 (Clapp & Moseley, 2020). However, within the corporate food system we often do not have the right or ability to control how to provide for ourselves (Clapp & Scrinis, 2016), creating, for example, food apartheid (Gripper et al., 2022).

Autonomy is a critical dimension of well-being and an intrinsic motivator to support healthy habits (Deci & Ryan, 2012). Autonomy is linked to dignity within the food system (Calderon Farfan et al., 2023). Yup'ik self-worth is determined by their ability to be self-reliant and provide for their families (Fienup-Rirdan, 2013). Self-reliance is so essential to Yup'ik that it is the main determinant of where they chose their place to live—a choice based upon the availability and ease of food (Fienup-Riordan, 2007). Autonomy does not mean independence from others but supporting interdependence between community members in order to be independent from the corporate agro-indus-

trial food system (Goris et al., 2025; Jansen et al., 2022). For example, in Yup'ik culture, to celebrate a child's first berry harvest, an *ineqsnyulria* (first harvest celebration) is held with gifts given to elders and community members to ensure abundant future harvests (Fienup-Riordan et al., 2021). Indigenous food systems are based on the interdependencies and sharing of the gift economy (Kimmerer, Robin Wall, 2024; Williams & Brant, 2023). Recognizing consumer dependency on processed food and working collectively to be self-reliant and free from them is critical to the realization of food agency.

Conclusion

The act of co-producing this research study is the community of Kuinerraq taking action for the next generation to carry forward subsistence as an expression of food agency. Food agency is the ability of an individual or community to set food and diet-related goals and meet them. This study expands the missing theoretical gap in the conceptualization of food agency to include not only cooking but also provisioning. The community of Kuinerraq shares important practices that support their capacity for food provisioning through *atsalugpiaq* subsistence. Existing identified components of food agency include perceived self-efficacy, attitudes, socio-cultural barriers, care and connection, and aspirations. Oral histories demonstrate the foundational skills, values, ethics, and worldviews that support annual *atsalugpiaq* harvest. New components of food agency identified from the case study of *atsalugpiaq* subsistence include science and knowledge, ethics, and autonomy. These concepts added to food agency provide a holistic understanding of the drivers of food security and how to support capacity for individuals to be food secure. Additionally, the theoretical concept of Food agency identifies the underlying capacities that support the action of realizing the *right* of Indigenous food sovereignty. 

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