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Potential, precarity and persistence: What British Columbia's Food Hub Network tells us about resilient food systems

Lindsay Harris [a]
University of British Columbia

Damon Chouinard [b]
Central Kootenay Food Policy Council

Sarah-Patricia Breen [c] *
Selkirk College

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Abstract

Food systems are increasingly complex and face threats from interconnected shocks with cascading effects. There is a need for strategies that increase food system resilience, including food hubs—a type of alternative food network that aims to enhance food system resilience through closer connections between producers and consumers. However, there is a knowledge gap between theory

[a] Lindsay Harris, PhD, Adjunct Professor, University of British Columbia; lindsay.harris@ubc.ca; https://orcid.org/0000-0003-0387-8305

[b] Damon Chouinard, Executive Director, Central Kootenay Food Policy Council; ed@ckfoodpolicy.ca

[c] * *Corresponding author:* Sarah-Patricia Breen, PhD, BC Regional Innovation Chair in Rural Economic Development, Selkirk College; 820 10 Street; Nelson, BC, V1L3C7 Canada; sbreen@selkirk.ca; https://orcid.org/0000-0002-7206-3866

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Disclosures

Lindsay Harris was contracted by the Kamloops Food Policy Council (KFPC) as the food policy implementation lead from 2020 to 2025, and in this role she supported the initiation and implementation of The Stir food hub. She was previously a PhD student researcher (2015–2021) and KFPC board member (2018–2020). She is a co-owner of Tapestry Collective Co-op, which was contracted by the BC Ministry of Agriculture and Food from January 2023 to March 2025 to facilitate the BC Food Hub Community of Practice.

Damon Chouinard has been contracted by the Central Kootenay Food Policy Council (also known as the Kootenay Food Council) to serve as their executive director since 2023. The council consists of members from across the Central Kootenays and includes stakeholders from Ministry and non-Ministry funded food hubs, local government, and industry. CKFPC is not a food hub, although it operates as a regional organization that interconnects various organizations and hubs through network-building activities and projects.

and practice related to the impact of alternative food networks that necessitates further study. In the Canadian province of British Columbia (BC), the emergence of the BC Food Hub Network and its atypical definition of food hubs provided a natural experiment through which to explore the roles food hubs play within regional food systems and their relationships to greater food system resilience. This paper explores how food hubs emerge with both potential and precarity, unpacking the role their aspirational potential plays in food system resilience, how the precarity of the hubs themselves can stand in the way of their success, and how their persistence is itself an expression of resilience. Our findings reveal that the role of food hubs in resilient food systems is partial, precarious, and contingent. Food hubs are not yet powerful actors within the market system, but they persist and hold aspirational potential. There is an irony inherent in this as food hubs emerge to address gaps that result from food systems not being resilient, while the food hubs themselves are not resilient and are highly precarious. This research illustrates the interplay of potential, precarity, and persistence that shapes and embodies the ongoing pursuit of food system resilience.

Keywords
food hubs, alternative food networks, resilience, food systems, Canada

Introduction

Food systems are increasingly complex and globalized, facing greater threats and vulnerabilities from a range of interconnected economic, climactic, environmental, social, and political shocks that have cascading effects through food systems at multiple scales (Davis et al., 2021). The result is an increasing need for strategies that can increase food system resilience the capacity of systems to "provide sufficient, appropriate, and accessible food, while sustaining the livelihoods of those who produce it, even in the face of unforeseen disturbances" (Lowitt et al., 2025, p. 147).

It is within this context that we have seen the rise of alternative food networks (AFNs) (Tregear, 2011), a broad term describing networks of place-based actors and organizations aiming to develop shorter, more localized, and value-driven supply chains while contributing to building more resilient food systems (Renting et al., 2003; Tregear, 2011; Zoll et al., 2024). The reorganization of food systems proposed by AFNs challenges the dominant, mainstream food system (Busch, 2018), often emerging in concert with shocks, as exemplified during the COVID-19 pandemic (Stoll et al., 2021).

However, questions have been raised in the literature surrounding the longevity, stability, and performance of AFNs, and the need for further study (Brislen, 2018; Renting et al., 2003; Zoll et al., 2024). Studies have explored various aspects of different AFNs, with cases illustrating both their persistence and their precarity (Brislen, 2018; Hoey et al., 2018; Stahlbrand, 2017), but gaps remain. The current body of knowledge on food systems resilience is small, with a large gap between theory and practice (Béné, 2020; Stoll et al., 2021).

Food hubs are an established type of AFN that aim to enhance food system resilience through closer connections between producers and consumers, albeit with inconsistencies in where and how they occur (Levkoe et al., 2018; Lowitt et al., 2025; Matson & Thayer, 2013). In 2018, the Canadian Province of British Columbia (BC) initiated the BC Food Hub Network, with the explicit goal of fostering growth and innovation in food processing, packing, and marketing (Government of British Columbia, 2018). This program funded feasibility studies and the initiation of 14 food hubs, as well as supporting a provincial community of practice (Government of British Columbia, 2024a). The emergence of the BC Food Hub Network and the Province's atypical definition and parameters of food hubs, alongside the emergence of other food hubs across the province, provided a natural experiment through which to explore the roles food hubs play within regional food systems in BC and their relationships to regional food system resilience.

Using the case study of the BC Food Hub Network, the purpose of this paper is to explore how food hubs as AFNs emerge in regional food systems, unpacking the role food hub potential plays in regional food system resilience and how the precarity of the hubs can stand in the way of

success, and how their persistence is itself an expression of resilience. This paper begins with a summary of the current bodies of literature relevant to this research, followed by a section describing our research methods. We then present and discuss our findings, concluding with key considerations for change.

Food Hubs and Resilient Food Systems

Food hubs are increasingly being implemented by communities and regions seeking to create more resilient food systems. Examples of food hubs and corresponding studies can be found across jurisdictions, including across the U.S. (Fischer et al., 2015; Shariatmadary et al., 2023), the Canadian province of Ontario (Stroink & Nelson, 2013), and European countries like Italy and the United Kingdom (Carrieri de Souza et al., 2023; Guzman & Reynolds, 2019).

Across the literature there are many definitions that describe food hubs and the roles they play. While the purpose and structure of any single food hub is highly contextual, there are common characteristics that appear throughout the literature. One of the most often cited is that food hubs aim to provide and manage the aggregation, distribution, and marketing of locally produced products (Fischer et al., 2013; Perrett & Jackson, 2015). This characteristic is important, as it enables food hubs to move beyond the direct-to-consumer focus of many AFNs and into supply chain services (LeBlanc et al., 2014). Next is the focus on grassroots-led (bottom-up) organizations and an emphasis on values based food systems that are "socially just, economically robust, and ecologically sound" (Blay-Palmer et al., 2013, p. 524). Last is that food hubs are organizations that sit between consumers and small to medium sized producers who typically lack the capacity to meet the requirements of larger scale buyers (Feldstein & Barham, 2017; Guzman & Reynolds, 2019; Hoey et al., 2018).

Despite the above commonalities, there is substantial variation in the structure, focus, and context of food hubs (LeBlanc et al., 2014), as reflected in the 'food hub continuum' put forward by Levkoe et al. (2018). From a food system resilience perspective, there are many opportunities where food hub-led actions can be taken to reduce vulnerabilities to shocks and enhance capacity to cope, including investments in supporting infrastructure (e.g., storage), food processing strategies, and increasing cohesion among supply chain actors (Davis et al., 2021). Food hubs can serve as prefigurative spaces that demonstrate alternatives to the dominant food system, taking or supporting a range of differing pathways to affect change (Levkoe et al., 2018; Rosol et al., 2022). However, past studies illustrate challenges food hubs face in balancing the goals related to social justice, economy, and environment (Blay-Palmer et al., 2013; Hoey et al., 2018), and some hubs are forced to operate in ways that can run contrary to these aims (Perrett & Jackson, 2015).

There are also common barriers that all food hubs face, including competition with the dominant corporate and industrialized food system, hurdles building regional collaboration, and reliance on external funding, further complicated by funder expectations (Levkoe et al., 2018). Despite the range of food hubs and activities seen across the literature, there is an inherent tension as researchers and practitioners tend to default to viability and success as defined by business schools (Brislen, 2018). This is reflected across the literature as, despite successes of food hubs, they are often characterized by their vulnerability and financial unsustainability (Guzman & Reynolds, 2019; LeBlanc et al., 2014). This article further explores the link between the precarity of these organizations, their ability to contribute to systems resilience, and their persistent emergence despite their precarity.

We position our discussion within a framework that identifies the concept of resilience as an outcome and a process. Sutton et al. (2023) observed that the concept of regional economic resilience is no longer a 'fuzzy concept' and is increasingly well-developed in the literature. In their conceptual framework, resilience is a dynamic, multifaceted process that enables regional economies to absorb, adapt to, and recover from economic shocks (Sutton et al. 2023). Resilience has five key dimensions: preparation, vulnerability, resistance, response, and recoverability (Sutton et al. 2023). Following this framework, we orient our exploration of food hubs contribution to resilient food systems and the resilience of food hubs them-

selves as a multi-stage phenomenon rather than a static outcome. This process-oriented approach reframes resilience as dynamic, context-dependent, and unfolding over time.

Food Hubs in British Columbia

British Columbia (BC) is the most westerly province in Canada, with a land mass of 920,686 square km (355,479 square miles)—larger than France and Germany combined—and a population of 5,000,879 (Statistics Canada, 2022). The majority of the population lives in the southwest corner of the province, in the regions surrounding the provincial capital (Victoria) and Greater Vancouver. In terms of size and remoteness, much of BC is comparable to the American state of Alaska. BC's food system is diverse, including a range of crops and livestock as well as ocean fisheries, supplying food both domestically and internationally (Work BC, 2023). As industries, agriculture and fisheries are directly responsible for over 25,000 jobs in BC, primarily in the southwest and Okanagan regions (Work BC, 2023).

In 2017, the provincial Minister of Agriculture and Food was tasked with increasing the use of BC grown and processed foods in government facilities, while working with regional producers to grow local production and expand market access at home and abroad (Office of the Premier, 2017). The following year, the BC Food Hub Network was announced "to support the processing, packaging, and marketing of BC food products, and build links between local food processors and new technologies" (Government of British Columbia, 2018, "Feed BC," para. 4). The network was to include a food innovation center and regional food hub nodes throughout the province.

The focus and parameters of the BC Food Hub Network set them apart in the literature. Food hubs are defined by the BC Ministry of Agriculture and Food (the Ministry) as "shared-use food and beverage processing facilities that offer food and agriculture businesses access to commercial processing space, equipment, expertise and resources to support business development and growth" (Government of British Columbia, 2024b, para. 1). Although this definition is more narrowly focused on commercial processing in comparison to food hubs as broadly defined above, an important note is that food hubs in the BC Food Hub Network (the Network) are not precluded from working outside of this definition to offer resources and services based on regional needs. However, equally important to note is that these additional functions were not considered fundable activities. The Ministry funded feasibility studies in 16 communities across the province and provided implementation funding for 14 food hubs (Government of British Columbia, 2024a).

In 2023, the Ministry initiated the BC Food Hub Community of Practice (COP) with the goal of supporting the growth and success of food hubs. The COP was "designed to develop, expand, and support inclusive regional ecosystems by focusing on the operational and developmental needs of the food hubs" (Ministry of Agriculture and Food, 2022, "3.3 Scope," para. 1). Interestingly, the COP included Ministry funded food hubs as well as other emergent or operational food hubs from across BC. Over 60 BC hubs were invited to the COP, including those operating as private businesses and those operated by nonprofit organizations that secured funding through other avenues.

In the context of how food hubs have emerged and re-emerged in the province over time, the case study of British Columbia brings some unique aspects to the exploration of food hubs. Notably, this research explores the unique context set by the Province's atypical definition of food hubs as applied to a network of provincially funded food hubs alongside the diversity of hubs in the COP. Additionally, a case study approach provided an opportunity to explore if the gap between academia and practice noted in the literature persists in practice.

Methods

This research is part of a larger North American study on how AFNs respond in the face of change, the role they play in resilient food systems, and identifying factors and conditions that enable shock tolerance (Loring, 2022). Within this broader project, our BC case study aimed to explore the roles that food hubs in BC play in their regional food systems and their relationships to regional food system resilience.

A mixed-methods case study approach was used to facilitate an in-depth exploration of a complex and dynamic phenomenon that evolved in real time over the two-year duration of the project (Berg, 2021; Yin, 2018). A multidimensional inquiry was enabled through the integration of data sources (Miles et al., 2014), and a community-based research approach (also called participatory action research) was used to ensure that the research was grounded in place (Halseth et al., 2016). Research team members were embedded in different locations in the BC Food Hub Network, as members of the COP, and participating as active members in local food systems organizations. All team members were able to draw on their place- and network-specific knowledge, while leveraging discussions with other team members to guard against bias.

Data Collection

The research team participated in monthly COP meetings for its two-year duration, with data collection guided by a standardized protocol. This allowed us to understand the evolving structure and function of the COP and its member food hubs. The research team regularly validated observations through report-backs and discussions.

Two funded BC Food Hub Network food hubs were selected for further analysis, representing two different regions: The Stir in Kamloops (Thompson Okanagan Regional Hub, urban centre with surrounding rural region) and the Kootenay Farms Food Hub Innovation Centre (Kootenay Farms) in Creston (Kootenay Regional Hub, rural community in a region with no urban influence). Three rounds of semi-structured interviews were conducted, with topic guides focused on understanding the current state of the food hub, desired outcomes, challenges, needs, and connections to the resilience of the surrounding regional food system. Round one was an initial exploratory interview with key individuals associated with food hub formation and management. Round two interviews targeted food hub users, potential users, and other key regional stakeholders. Round three occurred a year after round one, revisiting key individuals associated with the hubs and discussing the hubs' evolution. A total of 35 interviews were completed over a two-year period (2023–2024), 13 specific to The Stir, 18 specific to Kootenay Farms, and four with overarching organizations relevant to both cases. Data collection was approved through the Selkirk College Research Ethics Board (#2003-007), ensuring informed consent among COP participants and interviewees.

Key documents relating to the BC Food Hub Network, community of practice, and the two selected food hubs were collected and reviewed. Additionally, historical documents on the emergence of food hubs in BC were reviewed and assembled into a timeline, providing context to the initiation and evolution of the Ministry's Food Hub Network. The research team also attended numerous food systems–related events, enabling opportunities to further explore the relationship of food hubs within broader regional food systems. The research team met regularly for the duration of the project, discussing and sharing observations of patterns and our evolving understanding, with meeting notes captured on video and automatically transcribed for reference.

Data Analysis

Interview data were coded through a multistep coding process. An initial round of coding took place in year one (2023), using NVivo qualitative analysis software. Two team members independently reviewed round one interviews, independently capturing emergent themes, which were subsequently discussed and an aligned list of emergent themes was created. In year two, three team members were tasked with reviewing all interviews within the frame of four key questions:

- What roles do food hubs play within regional food systems?
- How do food hub roles match the needs of regional food systems?
- What region-specific conditions impact the ability of food hubs to be resilient and sustainable?
- What impact have times of stress, crisis, and/or major disturbances had on regional food systems through the lens of food hubs?

As part of this review, notes were made on emergent and cross-cutting themes. Notes were also made on the commonalities and differences of the two selected food hubs with each other and in comparison to the notes taken from the COP meetings.

Multiple consensus-based meetings were held to discuss individual findings, comparing the lists of emergent themes and distilling our observations into a set of key findings and related implications. These discussions were supplemented by team meeting notes and observations from events. Presentations at multiple events served as an opportunity to validate and refine findings.

Results

The following section presents research results, divided into two overarching sections. The first is what we have learned from the current roles of BC Food Hubs. The second explores the challenges BC Food Hubs face to becoming sustainable.

Current Roles of BC Food Hubs

Food hubs in BC serve a wide range of roles in their regional food systems. Among the 60 organizations invited to the COP, we identified three types of food hubs based on function. Commercial single-purpose organizations (48%) primarily functioned as commercial kitchens, while mixed models (26%) blended commercial kitchen space with other community-serving functions. The remaining 26% were a range of food-related organizations with an interest in developing a food hub.

Based on COP observation as well as web searches, the most common roles across all participants were providing shared infrastructure and supporting food businesses. Shared infrastructure included physical spaces for food processing (e.g., commercial kitchen) and space for events, retail, storage, or office space. Infrastructure included access to shared equipment such as commercial dehydrators or labeling machines. Beyond providing the space and equipment to enable processing, food hubs also offered business development services, enabling small-scale business owners to move through incubation and scale-up. Food hub clients were able to receive formal and informal mentorship and guidance in navigating a complex landscape of food safety regulations. Food hubs also supported clients by reducing barriers to entry and upfront business start-up costs through access to space and equipment, creating economies of scale, product testing and research, and opportunities for sharing knowledge among food entrepreneurs.

We also observed other roles in practice across various food hubs in the provincial Network and COP. Several hubs were actively playing roles in community development and food security, providing a platform for relationship building and collaboration, and increasing community access to local foods. Examples included food hubs that supported initiatives such as food waste recovery or back yard fruit tree gleaning programs, school meal programs, or emergency meal services either directly or through partnerships. Some food hubs also played roles in aggregation and distribution, supporting clients by increasing their access to retail markets or facilitating institutional buying.

These identified roles exemplify many of the themes seen across the literature, namely that food hubs incorporate a variety of activities and focuses along a continuum (Levkoe et al., 2018). The consistency with the diversity of roles across food hubs in other jurisdictions outside BC is particularly interesting given the contrast with the uniquely targeted definition and restricted funding introduced by the Ministry.

From the data, we also identified a range of place-based community and regional needs, acknowledging the unique context of each community and region determines what is needed from each hub specifically. These included roles already provided by hubs—namely, shared infrastructure and business-specific supports. These also included aspirational roles where few hubs were currently working.

Potential: The Aspirational Roles of BC Food Hubs

A key theme from our findings is that food hubs in BC act as sites of potential, aspiring to broaden their scope of activities and take on new roles to meet identified needs. In part, the aspirational nature of food hubs is due to the early-stage nature

of many hubs in the Network and COP. However, even those more established food hubs had an aspirational orientation, either through discussing desired activities or taking steps to implement new ones. We identified four common aspirational roles that were interrelated and ranged in tangibility. These roles included improving value chains, expanding access to local food, disaster response, and building resilient food systems.

Among these aspirational roles, improving value chains was the most widely shared one that many food hubs have already begun working on. These activities include aggregation and distribution activities at food hubs and efforts to make food hubs key nodes within regional transportation and logistics networks. Food hubs may also act as sites of value-added processing and storage, as well as extension activities. Further, we also observed that hubs desired to expand market opportunities for producers and processors, including retail and institutional markets like schools and hospitals. These concrete goals regarding improved market opportunities were interrelated with the more nebulous and often less defined desire to expand local food access.

The push for higher levels of regional self-sufficiency around food was closely tied to the desire for a more resilient local and regional food system. Recent disasters and supply chain disruptions have underscored food system vulnerabilities. As a result, we observed food hubs increasingly recognizing their potential to pivot and serve as an important community asset during times of crisis. While disaster response and preparedness activities were an aspirational role, most food hubs had not yet taken concrete steps towards implementation. The path forward for food hubs to do so is not straightforward, given that emergencies by their nature have many unknown variables. There is also a lack of precedence within existing formal response protocols regarding the use of food hubs as response infrastructure. Despite the challenges, we heard examples of food hub use during times of crises. Examples included the use of the Kweseltken Kitchen (a mobile food processing trailer launched in partnership with The Stir) to feed evacuees and firefighters in Kamloops during the 2021 wildfire season and the use of New Denver's Fireweed Hub as a gathering place and support service during the 2024 wildfire season. These provide other food hubs with examples that can be learned from and built upon to move towards this potential.

Across our data, we continually observed food hubs talking about what they "will do" – both in the sense of what they intend to implement as they move through the stages of launch and early growth, and also in the sense of pivoting when desired activities have failed or not materialized. Food hubs were frequently viewed both internally and externally as much more expansive in potential than in their current state, and as flexible projects that could adapt to meet emergent needs. As one interviewee described:

> The bare bones of it is that it's a shared commercial kitchen. But it's just more expansive than that. It's like an emergent entity that is constantly shifting and evolving to just be positioned to act when we need it to act. To be a resource when we need it to be a resource. To be a community hub, when we need it to be a community hub. It is a complex network of relationships that is a true community resource. It is infrastructure that the community owns. And then it can be whatever we want it to be.

What Prevents Food Hubs from Reaching their Aspirations?

Food hubs face several challenges that hinder their ability to fully realize the potential they aspire to. As discussed above, there are a number of place-based needs and priorities that food hubs can address for their communities. However, the narrow mandate of food hubs defined by the Ministry created a new policy silo in an already siloed food policy landscape. This creates a complex and challenging landscape for food hubs to navigate, despite the broad range of local needs that cut across policy silos, such as those within and between agriculture, health, and economic development. Similarly, the complexity of multiple and overlapping jurisdictional boundaries can impact the ability of food hubs to respond to local needs within, or even to define their service area.

Across our data, financial sustainability was the most significant barrier food hubs faced. This barrier was consistent across hubs, although the influence of scale, location, and other factors shaped place-specific nuances. When the Ministry initiated the COP, the financial sustainability of food hubs in the Network was a driving concern, with a number of Ministry-funded hubs experiencing delays in construction or launch, others experiencing little or no progress towards financial sustainability, and one discontinuing operations (Government of British Columbia, 2024a). Following the launch of the COP, the Ministry issued multiple subsequent requests for proposals focused on the financial sustainability of Network food hubs, including the creation of a long term sustainability plan to support Ministry-funded hubs (Ministry of Agriculture and Food, 2023), evaluating and updating hub business plans (Ministry of Agriculture and Food, 2024), and re-organizing and managing the BC Food Hub Network to support long term viability of the Ministry-funded hubs (Ministry of Agriculture and Food, 2025). Notably, throughout this process of investing in the financial sustainability of the Network, the Ministry emphasized that operational funding to the existing Ministry-funded hubs was not being considered, despite COP discussions and interviews reflecting a near-universal gap between the costs of food hub operation and available income.

One interviewee reflected on their hub's financial viability and the impending need for further financial bridging, sharing, "I'm really torn because if I was to sit here, honestly, and say, how long is this food hub going to be here? Two more years. You know, unless we keep getting some grants or some stabilization funding."

We observed the question of financial sustainability as we tracked stages of food hub development over the two years of the COP. When comparing year one to year two, the largest decreases were to those hubs in the initiation stage and those hubs in the early growth stage. While there were increases in hubs that are sustaining, there was also an increased number with an unknown status, and a minimum of three hubs which were discontinued, including one of the Ministry-funded hubs.

What counts as sustaining was a topic of much discussion. While we acknowledge the two-year timeframe of our study limits our ability to comment definitively on whether any hubs became financially sustainable, our observations centred around the nuanced definition of sustaining and how it manifested in different ways at the level of participating hubs. We initially defined sustaining as "steady income streams, supporting clients' business growth. Responding to emerging needs as needed," a definition drawn from nonpublic guiding materials provided to and discussed at the COP by the Ministry. However, it became clear in year two of the COP that very few, if any, food hubs in BC would consistently meet this definition. That said, it was equally clear that while not meeting this original definition, several hubs had moved beyond the stages of early growth—building out clients, products, and services, and securing revenue—albeit to a level that lacks consistency, an issue for sustainability. Revisiting the characteristics, we evolved our definition of sustaining to food hubs that are stable in their structure and their capacity, adaptable in their income streams, and meeting some of the existing and emerging needs of their surrounding region. While these hubs may not yet be profitable, and may never be, they demonstrate the capacity to adapt and support continued operations.

Precarity: Understanding BC Food Hub's Challenges to Becoming Sustainable

Even with our revised definition of sustaining, we found that food hubs were predominantly precarious operations—characterized by uncertain financial capacity as well as changing functions. We identified two significant pressures that are driving how food hubs adapt and respond as they seek to become sustainable. First, they are responding to what is needed locally: the priorities and needs emerging within their communities and surrounding regions. Second, they are responding to the obligations that sustain their operations: generating revenue, meeting funder priorities, and designing services around what funding is available. While there is overlap between the two pressures, these are not the same thing.

As identified above, there is a discrepancy between what it costs to operate a food hub facility

and what food hubs can generate in revenue, particularly in rural areas where the potential user base is smaller and unpredictable as businesses move through the stages of incubation. If food hubs were to set user fees high enough to fully cover operating costs, they would likely price out the small-scale, emerging food businesses they aim to support. As one interviewee shared: "It's hard to charge what we need to charge to people to keep it going. And then the onus falls on these small businesses that are just trying to scrape by, you know?"

We observed hubs making efforts to reach financial sustainability by broadening their scope. The targeted, focused definition of a food hub implemented by the Ministry pushed hubs toward commercial kitchen rental revenues as their sole or primary revenue source. However, food hubs across the COP shared the recognition that the commercial kitchen rentals were not sufficient to reach sustainability, and that the hubs need further diverse sources of revenue to survive. Various revenue generation activities were considered, with examples ranging from food retailing (online stores, pop-up vendor events, curated food boxes) to business services (food photography, product development and testing, office rentals), to consulting services.

Despite the above ideas of revenue generation, food hubs also frequently relied on grants to offset the discrepancy created by shortfalls in revenue. However, grant funding can shape how food hubs operate and behave. Grant funding is generally short-term and project-specific, rather than long-term and operational. This can restrict hubs from acting in a manner that is strategic and considers the long-term. Additionally, competition for limited grants pits hubs against one another, reducing opportunities for collaboration. In many cases, local needs may not align with available grant funding, which can lead hubs to shift or expand their scope to meet funder priorities. Scope expansions can take food hubs beyond the limits of their financial and human capacity, and lead them in an unnecessary direction, potentially further away from fulfilling local needs. Funding impacts what food hubs can achieve, forcing hubs to make choices based on what is the most financially viable, rather than what may be the most efficient, or the best fit for the community.

We observed a deep tension within the underlying vision for BC's food hubs. Certain actors see food hubs primarily as a vehicle for economic development. This is consistent with the Ministry's initial vision, as the stated vision for the BC Food Hub Network is that it will be "Leading the world in food and beverage processing and innovation" (Government of British Columbia, 2021, "Vision"). Furthermore, the stated mission was that the Network is "Helping BC's food and beverage businesses grow, innovate and commercialize" (Government of British Columbia, 2021, "Mission"), including a desire to see small and medium-sized processors scale to reach export markets. There was a clear expectation that because food hubs were able to generate revenues through commercial kitchen rentals to business clients, they should become self-sustaining operations following the significant upfront investment by the Ministry—an expectation that was not executed.

Other actors held strongly to the position that food hubs are primarily vehicles to address community needs (e.g., food security, support for producers), providing a valuable public service worth ongoing operational investment. While the BC Food Hub Network is unique in its focus on commercial food processing, this tension echoes the hybridity observed in food hubs in the US, in which "food hubs are not driven primarily by social mission *or* monetary incentives, but rather those two dimensions of food hub activities are inseparable and co-productive of each other" (Brislen 2019, p. 196).

These tensions were reflected in our observations of the COP, in conversations, and in interviews with hub managers and users. As one interviewee said, "That's what a taxpayer-funded thing should be focused on, is like, providing service to the community. Not because you've made the best business case you possibly could for the project itself." Another interviewee commented on the tension inherent in supporting entrepreneurs while running your own enterprise, noting, "Being able to charge rent at a rate that helps the businesses who are renting the space or the groups that are renting the space, while also helping keep the

[Food hub name] itself up and running is a challenge."

Some interviewees even questioned the purpose and effectiveness of the hubs, highlighting the inefficiencies of nonmarket initiatives. As observed by one interviewee, "Ah, well to be direct, the non-funded ones tend to have a stronger business model and, and go into it a little bit more market savvy, I guess for lack of a better way to put it, are more prepared to, have put together something that is a model that is stronger."

Taken together, these observations point to an inherent issue that comes from expecting market competitiveness from initiatives that have arisen as alternatives to the market, to address nonmarket needs that are fundamental to community thriving and resilience. Many food hub actors inhabit this contradictory space, criticizing the hubs' lack of financial sustainability while also investing immense creative efforts to keep them afloat. One interviewee shared: "I'm compassionate, I'm passionate. And I'm determined. But it's a tough gig. Like, you know, really, if you were looking at this as an independent business, you'd be selling everything closing the doors and walking out."

Discussion

The following section discusses the above results, moving beyond the current state of and challenges facing food hubs, to discuss their value as sites of potential, their persistence over time, and connection to resilient food systems.

The Value of Food Hubs as Sites of Potential

BC food hubs, as well as food hubs in other jurisdictions and AFNs more generally, are confronted with navigating local needs for more resilient food systems and delivering a spectrum of activities to address those needs, often with insufficient resources. Our findings reflect food hubs as particularly apt examples of the tensions observed in the literature between the transformative potentials of AFNs and their co-optation by dominant market-based food regimes (Harris, 2021). The essential challenge of food hubs is to "grapple with the complexity of how to simultaneously engage in market and non-market economic activities in meaningful and transformative ways" (Brislen, 2018, p. 198). Using BC as a case study allowed us to observe in real time how a cohort of similarly initiated hubs engage with that challenge. Our observations of the different responses across the cohort reinforce the position that there are no simple binaries between alternative and conventional food networks; rather, the food hubs reflect what Tilzey (2018) refers to as gradations of resistance.

In this study, some hubs fell into an activist, prefigurative orientation, while others are oriented toward providing pragmatic alternatives within existing market systems. For example, the role of the Kamloops Food Policy Council (KFPC) as an organization with a prefigurative orientation was reflected in our interviews, as well as documentation of the values and expansive vision that formed the underpinnings of The Stir dating back to the formation of the KFPC in 1995 and organizing efforts in the years preceding (Harris, 2021). With its vision to build a local food system that is "regenerative, sovereign, and just," the KFPC is invested in collective organizing towards initiatives that "represent the collectivized desires for possible futures, and in fact have enrolled many new people and partners into those passionate interests" (Harris, 2021, p. 142).

In contrast, the food hub in Creston was primarily working as part of the existing market system, as it is integrated with established agricultural producers in the region. The origins of what became the Kootenay Farms Food Hub Innovation Centre was initiated from Creston Valley's Economic Action Strategy, where agriculture is one of the five pillars. There was an explicit direction to explore opportunities for "collective marketing, processing and distribution for CV-KL agricultural operators" (Economic Action Partnership, 2018, p. 57), including exploring a food hub. As a result, the food hub initially focused on achieving economic development goals by providing these producers with the equipment and resources to diversify or scale.

In both cases, however, the hubs resist simple binaries and are rooted in "complex networks of actors with multiple beliefs and motivations" (Tregear 2011, p. 423). Both hubs are navigating the complexities of engaging in market and non-market activities in their local contexts. Bonanno and Wolf describe the "localization of resistance"

as the "tendency to focus on local efforts to produce new ways of food provisioning" (2018, p. 217) that becomes a way to entrench the domination of corporate food systems, by downplaying or ignoring the connection between local efforts and the surrounding system. While these hubs, like other AFNs, cannot transcend market relations, there remains much space for potential.

Our observations of the COP point to food hubs as sites where multiple and diverse community champions can come together to articulate and negotiate different (and sometimes contradictory) goals, and work to bring those aims into reality. Likewise, there is significant value in clustering these hubs within a cohort, as the COP provided space where hubs can encounter the different approaches and negotiations taking place in peer organizations. In doing so, it becomes more difficult for individual hubs to ignore the broader structural issues facing local food systems, and they are continually confronted with the diversity of approaches and aims taken by their peers.

Food hubs have the potential to be important assets, locally and provincially, but they must overcome a complex and multifaceted set of barriers before they can meet this potential. Nonetheless, we argue there is value in food hubs as a repository of potential; their continual orientation to creating alternative futures is an important aspect of resilience. Leaning into the solidarity of the network of food hubs while resisting fragmentation across different approaches may prevent them from undermining their effectiveness.

Persistence: The Emergence and Re-emergence of BC Food Hubs

There is an irony inherent in food hubs, and AFNs more broadly, emerging to address gaps that result from systems not being resilient and aiming to enhance resilience in systems, while the food hubs themselves are not resilient and are highly precarious. Given this, it is interesting to explore not just how and why food hubs emerge, but why they emerge so *persistently* despite their precarity. In the case of the BC Food Hub Network, its implementation was driven by government-led desires for increased commercialization in the food processing sector in conversation with diverse local desires to meet community needs. However, our study revealed the development of food hubs independent of funding or direction from the BC Government, as well as evidence that some hubs were not the first iteration of a food hub or related initiatives in their communities. Instead, they emerge, persistently, in cycles of resurgence, a result of compelling, place-based needs.

For example, in the case of The Stir, the implementation of the food hub was preceded by numerous related initiatives over 25 years of community organizing, including a Good Food Box (a collective buying initiative) in 1997, the Kamloops Organic Food Co-operative Association in 1998, Heartland Foods (a producer cooperative) in 2007, and Popcycle (a social enterprise creating products from gleaned fruit) in 2017 (Harris, 2021). While none of these precursors was identical to the more recent iteration of The Stir, they reflect community members' understanding of the deep, recurring community needs and their commitment to meeting those needs. The desire to build a facility with commercial kitchens, dry and cold storage, and aggregation and distribution capabilities had emerged through a grassroots collective impact process facilitated by the KFPC in 2018, prior to the Ministry announcing its food hub initiative (Pletsch & McLean, 2019). Although the Ministry's focus solely on commercial kitchens did not map exactly onto the community needs, the opportunity was still welcomed by participants with the hope that it could be leveraged into meeting additional needs as the hub was implemented.

In the case of Creston, the food hub was preceded locally by partnerships and activities aimed at supporting and enhancing the food and farm sector. This included the founding of a nonprofit organization (Fields Forward), which piloted a mobile juice press program as well as an online ordering platform (Farm Food Drink et al., 2018)—both of which no longer exist in their original format, but which provided foundations for the current food hub. Additionally, due to the size and physical geography of the Kootenay region, multiple food hubs or similar activities have started and continue to exist in the region (Farm Food Drink et al., 2018). These initiatives have emerged consistently over years, responding to place-

specific needs. And while many have been unsuccessful, the continued emergence or evolution—like what occurred in Creston—illustrates persistent local needs.

We observed and heard anecdotes of these cycles of resurgence in other cases as well. For example, in BC's Comox Valley, the Ministry funded a food hub feasibility study in 2021 exploring the opportunity for a shared-use food and beverage processing facility (Warren, 2021), not dissimilar to a shared-use commercial kitchen study completed in the Comox Valley in 1999 (Campbell River Employment Foundations Society, 1999). While Comox Valley did not receive Ministry funding for a hub, the Lush Valley Food Action Society initiated the creation of a commercial kitchen in the region with support from another funder (Island Coastal Economic Trust, 2023). More broadly in BC, there is a history of local and provincial action related to food systems dating back to the 1970s in response to social, political, and economic change (Levkoe et al., 2012).

Our participatory research produced four recommendations to the Network and COP, aimed specifically at practitioners within food hubs, including (a) explore diverse pathways to financial sustainability; (b) expand potential roles at the right pace; (c) prioritize collaboration; and (d) be based in place. While these recommendations are ultimately well-meaning, we acknowledge the way they feed into the narrative that if food hubs cannot succeed, or become financially sustainable within dominant market logics, that failure is the food hub's fault. This narrative neglects to recognize the inherent struggle that food hubs face, the complexities of limits in human and financial capacity, policy barriers, and place-based and, in many cases, rural challenges. This narrative also risks positioning those few food hubs that do become self-sustaining as exceptional actors whose success is attributed to their unique circumstances or champions, which can overlook factors like the impact of restrictive funding and the local value of services without a viable business case. Instead, we point to the importance of the struggle itself as an essential component of resilience in hubs and their local food systems. In doing so, we follow Levkoe and Wakefield's (2011) analysis of The Stop Community Food Centre, which similarly resists the urge to position the organization as an "exceptional actor" and concludes that "what makes The Stop CFC an exciting model for food system transformation is the way that it has struggled, within a particular context, to work to transform the food system" (pp. 264–265). These findings reflect the ongoing and persistent gap between academia and practice noted in the literature, highlighting a need for better connections between research and practice, the importance of linking policy with on-the-ground realities, and sharing research that speaks directly to the needs of practitioners.

The persistence of food hubs emerges in the space where needs, aspirations, and capacity overlap. Hubs are persistent precisely because the local needs that drive them are persistent. Local and global food systems fail to provide resilient outcomes to communities. Just because food hubs are not always self-sustaining does not mean the community needs that drove food hubs go away. There is something essential to note about this cycle of failure and repetition. AFNs often struggle to survive, yet they continue to resurface, likely the needs that bring them into existence are strong and unwavering, yet also at direct odds with the dominant food system.

Resilience and Persistence

Given the potential, precarity, and persistence of the hubs in the BC Food Hub Network, what can we conclude about their contribution to the resilience of regional food systems?

The BC Food Hub Network shows that resilience is partial, precarious, and contingent. Food hubs are not yet powerful actors in the market system, but they persist and hold aspirational potential. Their resilience is not guaranteed; rather, it is actively being negotiated as a process not a static outcome.

Resilience is by nature a multidimensional concept. One interview participant described it as:

> To me [resilience], it means anti-fragile, and it means the ability to bounce back from impact, and that means a bunch of things, in the sense of being resilient here, [it] means that we have the human networks in place, but also the agri-

> cultural systems that can handle more challenge and there's response mechanisms in place for improving and building upon things. So when I think about a resilient regional food system, I think about a system that is collaborative, involved in conversation, has the ability to be flexible and adaptive and is also not overly externalized, like we can only be so resilient right now, because the reality is, is that we, you know, our food system is externalized for the most part.

As this participant affirms, resilience is not a binary trait (i.e., resilient or not), but a developing set of capacities that food hubs are actively trying to build. In particular, the quote's emphasis on building systems that are collaborative, flexible, and not overly externalized frames food hubs as expressions of resilience in motion—not because they control or resist the market system, but because they make a regional food system more capable of evolving, responding, and caring under pressure.

Returning to Sutton et al.'s five dimensions of resilience (preparation, vulnerability, resistance, response, and recoverability), food hubs could be understood as critical infrastructure and organizational actors that operate across all stages of resilience (2023). Their potential contribution is not only in supporting recovery after shocks but also in shaping adaptive capacities and long-term transformations in regional food systems. This lens of resilience as a multidimensional process supports researchers and practitioners invested in navigating the contradictions inherent in alternatives that are perennially co-opted by the dominant market food system or caught in repeated cycles of failure and resurgence. This is illustrated in the following quote from a member of our research team who has also been embedded as a member of one of the case study food hubs:

> The actual market share of alternative networks is like, this is so tiny compared to the global food system. But I am thinking about adding in more resilience, redundancy, diversity and power into whatever alternative food system we're creating. Like, yeah, it's in parallel to a bigger system. But … are the decisions that we're making in the parallel structure that we're building things that could give us real power in a disaster? Like having a huge kitchen like this? If there's another massive wildfire evacuation, having a shared kitchen like this is a huge asset. That's community. I can pivot immediately. We're like, kick all the businesses out. Get people in there cooking food, to give to evacuees. Yeah, it's still operating in that super tiny market share, alternative food network, doesn't have an appreciable impact on the corporate monopoly, whatever. But it is an asset. And it could evolve and pivot and change and grow and develop as it needs to. And like, every time you add an asset like that, you're growing in your power and your resilience.

This quote reflects a process-oriented perspective on resilience by emphasizing how food hubs build the capacity to anticipate, adapt, reconfigure, and support communities in moments of disruption, regardless of their scale in the larger system. It supports the idea, emerging in the resilience literature and mapped by Sutton et al. (2023), that resilience is not just about recovery, but about the ongoing cultivation of assets, relationships, and practices that enable systems to respond and transform over time. It provides an embodied, on-the-ground expression of the broader argument in this article, namely, that food hubs illustrate resilience. This resilience is observed everyday practices, capacities, and decisions that make adaptation and care possible in times of disruption, rather than simply measurable outcomes. The case of the BC Food Hub Network illustrates how food hubs are hopeful and vulnerable nodes in regional food systems. They represent a complex interplay of potential, precarity, and persistence that not only shapes but also embodies the ongoing pursuit of food system resilience.

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