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Field Report

Exploring the inter-connections between alternative agrifood and seafood networks for building food systems resilience

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Abstract

In the context of intensifying threats to food systems and a growing need for resilience, Alternative Agrifood Networks (AANs) and Alternative Seafood Networks (ASNs) have emerged as notable bright spots across North America. Collectively, AANs and ASNs comprise Alternative Food Networks (AFNs)—the micro, small, and medium-sized enterprises which are important, but often overlooked, actors in food systems. A critical limitation for food system resilience is that agriculture and fisheries remain chronically siloed in research, legislation, regulation, and advocacy. In this field report, we explore the opportunities and challenges of linking ASNs and AANs to build more resilient food systems. To do so, we draw on our experiences as an

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interdisciplinary group of food systems researchers and practitioners that came together in 2022 through the Agrifish Resilience project. Based on a series of reflective collaborative conversations that we held as a team, we share our key insights for building resilience across agriculture and fisheries focussing on three main themes: the role of ASNs and AANs in food system resilience; our perspectives on what resilience in food systems means; and prospects for collaboratively building resilience. We conclude by identifying productive tensions that emerged from our conversations and suggest that boundary objects may bring ASNs and AANs together, with some examples of what this looks like in practice, and the role for interdisciplinary teams like ours.

Keywords: Agriculture; alternative food networks; fisheries; food system; sustainability

Résumé

Alors que les menaces pesant sur les systèmes alimentaires s'intensifient et que croît la nécessité de la résilience, les réseaux agroalimentaires alternatifs (RAGA) et les réseaux de produits de la mer alternatifs (RPMA) ont émergé comme de remarquables points lumineux dans toute l'Amérique du Nord. Collectivement, les RAGA et les RPMA constituent les réseaux alimentaires alternatifs (RAA) : ce sont les micro, petites et moyennes entreprises, qui sont des acteurs importants, mais souvent négligés, des systèmes alimentaires. L'agriculture et la pêche sont traitées séparément par la recherche, la législation, la réglementation et la promotion, ce qui constitue une limitation critique pour la résilience des systèmes alimentaires. Dans ce rapport de terrain, nous explorons les opportunités et les défis liés à la mise en relation des RAGA et des RPMA afin de construire des systèmes alimentaires plus résilients. Pour ce faire, nous nous appuyons sur notre expérience en tant que groupe interdisciplinaire de chercheurs et de praticiens des systèmes alimentaires qui se sont réunis en 2022 dans le cadre du projet Agrifish Resilience. Sur la base d'une série de conversations réflexives menées en équipe, nous partageons nos idées clés pour renforcer la résilience dans l'agriculture et la pêche en nous concentrant sur trois thèmes principaux : le rôle des RAGA et des RPMA dans la résilience des systèmes alimentaires, nos points de vue sur ce que signifie la résilience dans les systèmes alimentaires et les perspectives de renforcement de la résilience par la collaboration. Nous concluons en faisant ressortir les tensions constructives qui ont émergé de nos conversations et en suggérant que les objets frontières peuvent rapprocher les RAGA et les RPMA, avec quelques exemples de ce à quoi cela ressemble dans la pratique, et en abordant le rôle des équipes interdisciplinaires comme la nôtre.

Introduction

In this field report, we explore the opportunities and challenges of linking Alternative Agrifood Networks (AANs) and Alternative Seafood Networks (ASNs) to build more resilient food systems through our experiences as an interdisciplinary group of food systems researchers and practitioners. We engaged in a series of reflective conversations focussed on the opportunities and challenges of ASNs and AANs working together to build more resilient food systems. We begin by situating our reflections within the broader context of food systems resilience and then describe our approach to co-creating this field report. We then outline our key insights for building resilience that emerged from this process and bridge the agriculture and seafood sectors focussing on three themes: the role of ASNs and AANs in food system resilience; perspectives and tensions on what resilience means; and harnessing collaboration to build resilience. We conclude with a discussion framed by the concept of boundary objects as a way to think about bringing ASNs and AANs together, with some examples of what this looks like in practice, and the role of interdisciplinary research teams. We also address the productive tensions that emerged from our discussions.

Context: Threats to resilient food systems

Food systems are increasingly embedded within capitalist and globalized logics, leading to significant negative implications, including increased vulnerability for many populations and decreasing resilience across multiple scales (Davis et al., 2021; Serdarasan, 2013). Today, seafood and agricultural products are the most globally traded commodities worldwide (Food and Agriculture Organization of the United Nations [FAO], 2018; Kummu et al., 2020). While international trade can confer diversity and access to remote markets, capitalist-driven globalization and power differentials have created conditions that suppress the viability of local food systems (Paolisso, 2008). In addition, it has also driven large-scale extraction of resources and erosion of rights and capital from rural and remote communities, especially Indigenous communities (Hickel et al., 2021). For many communities across the globe, the connection to terrestrial and aquatic food systems is central to their identities and ways of life (Dennis & Robin, 2020; Loring & Gerlach, 2009; Nyiawung et al., 2023). However, access to food is extremely vulnerable to climate change-driven events like fire and floods (Loucks, 2021), as well as economic and social disruptions like the COVID-19 pandemic (Cottrell et al., 2019; Gephart et al., 2016; Love et al., 2021).

Amidst the tensions and challenges facing food systems, it is a priority to identify strategies that can increase food system resilience to shocks like climate change, war, pandemics, and other global emergencies. In the context of food systems, resilience can be understood as the capacity of a food system over time and at multiple levels to provide sufficient, appropriate, and accessible food, while sustaining the livelihoods of those who produce it, even in the face of unforeseen disturbances (Loring & Whitely, 2019; Green et al., 2023; Tendall et al., 2015). The idea of resilience has roots in ecology, where it is often defined as the

capacity of a system to maintain functionality in spite of disturbances, by returning to a stable state (Holling, 1986). As resilience has been integrated into social-ecological systems thinking by social science scholars (Coulthard, 2012; Davidson, 2010; Kirmayer et al., 2011), the focus has shifted toward the potential for people to adapt and achieve positive transformations for their communities (Loring 2021; Manyena et al., 2011), and expanded to include attention to power and the equitable distribution of adaptation benefits (Cote & Nightingale, 2012).

In the context of intensifying threats to food systems and a growing need for resilience, AANs and ASNs have emerged as notable bright spots across North America. Collectively, AANs and ASNs comprise Alternative Food Networks (AFNs)—a heterogeneous category of initiatives that aim to create shorter, relationship-oriented supply chains that link small-scale farmers, fishers, harvesters, and value-added processors directly to consumers, communities, and institutional buyers (e.g., schools, hospitals) (Demmler, 2020; Nordhagen et al., 2021; Renting et al., 2003; Tregear, 2011). AANs such as farmers' markets, food hubs, cooperatives, and community supported agriculture (CSAs), are quite established in the North American context, if not yet ubiquitous (Goodman et al., 2012; Jarosz, 2008; Levkoe & Wakefield, 2014). ASNs, such as community supported fisheries (CSFs) are, by comparison, a nascent feature of the seafood system, having emerged in the last decade or so (Campbell et al., 2013). As global supply chains struggled during the onset of the COVID-19 pandemic, some AANs and ASNs successfully adapted to surges in demand in North America and worldwide (Love et al., 2021; Smith et al., 2020; Stoll et al., 2021). For example, when small-scale fishers in the US and Canada were faced with market loss because of international trade stoppages and restaurant closures, they found success retooling their businesses for direct marketing (Stoll et al., 2021). A similar trend was observed for small-scale agricultural producers in the U.S. (Thilmany et al., 2021). The pandemic, as Stoll and colleagues show (2021), was only the most recent example of several over the last century where local and food production have been important during global disruptions and crises.

However, a critical limitation for food system resilience is that fisheries and agriculture remain chronically siloed—whether in food systems research, legislation, regulation, management, or civil society advocacy and activism (Olson et al., 2014; Stetkiewicz et al., 2022; Oyikeke et al., 2024). In both the U.S. and Canada, agriculture and fisheries are governed by separate agencies and ministries, jurisdictions, and trade agreements. Despite facing similar global trends and structural challenges, such as the climate crisis, industrialization and corporate consolidation, most research, funding, and policy continues to treat fisheries and agriculture in general, and ASNs and AANs specifically, in isolation. Indeed, despite the flurry of research that was published in response to the COVID-19 pandemic (Elton et al., 2023; Hilchey, 2021; Weinkauf & Everitt, 2023), to our knowledge there are few scholarly articles that explicitly bridge these sectors.

The separation of fisheries and agriculture is reproduced in scholarly accounts of the global food sovereignty movement that asserts the "right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (Declaration of Nyéléni, 2007). While fisher people have consistently played an active role in movements (Mills, 2023), food sovereignty literature tends to focus almost exclusively on agricultural and farmer-led movements. Levkoe et al. (2017) argue, "deeper engagement between fisheries and food

sovereignty is long overdue, particularly as a growing body of research on small-scale fisheries seeks to address social-ecological relationships and issues of power that are also at the core of a food sovereignty approach" (p. 66).

By conceptualizing seafood as a natural resource rather than as part of food systems, fisheries are ensnared in the logics of resource development and sustained yield, while ignoring attention to critical food systems-related issues such as quality, access, identity, culture, and power (Olson et al., 2014). Conversely, agricultural food production has increasingly been approached as an enterprise separated and extracted from natural systems, whether through the creation of controlled growing environments, chemical amendments, or fully contained, lab-based systems (Fraser et al., 2023). A second issue is that separating agrifood and seafood creates regulatory confusion for producers and harvesters who must navigate multiple sets of policies, standards, and funding sources to bring their products to local markets (Lowitt et al., 2020a; Lowitt et al., 2020b; Advani et al., 2024). Furthermore, this ongoing siloing of seafood and agriculture limits attempts to use strategic, cross-sector policy to enhance food system resilience, which derives from the diversity in a food system, the availability of alternatives when specific foods become unavailable, and cross-sector and cross-scale interactions (Carlisle, 2014; Leslie & McCabe, 2013).

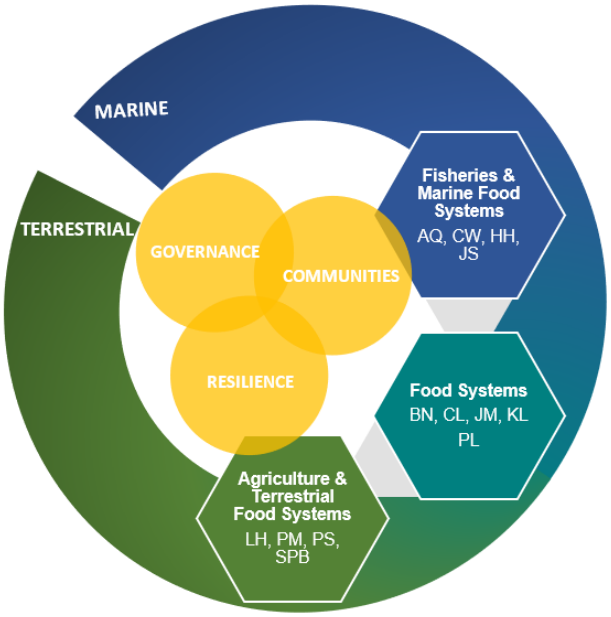
Methods

The Agrifish Resilience project was established in 2022, based on a recognition that there was substantial opportunity for collaborative learning and collective problem-solving across the agriculture and fisheries sectors to build theory and practice for food system resilience. Agrifish brings together scholars and practitioners from industry organizations, food policy councils, non-profit organizations, and post-secondary institutions across multiple locales in Canada and the US. The background, expertise, and focus of team members is diverse, spanning research, policy, and practice related to agriculture and fisheries.

This field report is the outcome of a structured collaborative writing project to explore points of engagement in the research and practice surrounding resilience in agrifood and seafood systems. Our aim was to bring together our diverse experiences and perspectives and share initial observations on the challenges, strategies, and opportunities for enhancing food systems resilience. We began by developing and each responding to a brief survey, which included writing our own individual narratives about why we chose to participate in this project. These narratives included a summary of our work, achievements we saw within ASNs and AANs, and perceived benefits of creating more networks between agriculture and fisheries. Despite the variation in our background, expertise, and areas of focus within food systems, we found considerable alignment among the team in terms of an interdisciplinary approach connected by several common themes. Image 1 provides a visualization of the Agrifish Resilience project team. Team members' positionalities across marine and terrestrial work are represented by the three hexagons with key overlapping foci depicted by the three circles. Our full affiliations

span eight universities, one industry association, and two non-profits across Canada and the U.S.

Image 1: Overview of the Agrifish Resilience Project Team



After the individual narratives were completed, we each read the responses provided by the other team members and held four virtual meetings to discuss and synthesize emerging themes. We then recruited a graduate student to facilitate a series of reflective collaborative conversations to ask follow-up and clarifying questions. We arranged these discussions such that the student interviewed two people at a time, in most cases, one with agrifood and one with seafood experiences. The student transcribed the discussions and conducted thematic coding. Co-authors then had an opportunity to confirm, adjust, or elaborate on their contributions. As a team, we agreed on the emerging themes and an approach to co-writing this field report. In the following sections, we present three key themes that emerged from our reflective collaborative conversations.

Prospects for building resilient food systems: The role of alternative seafood networks and alternative agriculture networks

Each participant began by reflecting on the role of ASNs and AANs in contributing to (or detracting from) food system resilience. The responses were similar in recognizing that both were a source of flexibility and innovation and could contribute to resilience to some extent. However, there is also a general understanding that AFNs are not a panacea and have nuanced relationships with the dominant food system. For example, food systems scholarship has established that greater equity—such as fair compensation for labour or access to local food—should not be a taken for granted outcome of AFNs (Agyeman & McEntee, 2014; Erwin et al., 2024). As well, AFNs exist in interaction with larger food system structures, as our following responses elaborate.

Working in isolation and silos was a key theme expressed across all participants and emerged as the core challenge spanning agriculture and fisheries. Loring attributed the problem to capitalist structures and industrial logics and approaches to organizing, explaining: "Capitalism and industrial thinking have succeeded in fracturing our communities and relationships, making us more dependent on a market that is 'out there' than on our neighbours, friends, and families. This is evident in how different aspects of our food systems and indeed household economies are parceled into different aspects of governance and the economy."

In other words, prior to the industrialization of food systems, fisheries and agriculture were much more practically intertwined, whether materially—through the use of fish waste as fertilizer—or culturally in terms of their complementary placement in seasonal food systems activities for traditional and Indigenous communities. The isolation and disconnection that capitalism has achieved for individuals, neighborhoods, and communities, both reflects and is arguably part of the same continuity as the siloing of fisheries and agriculture in modern commerce and policy systems.

Specific examples of these fractured relationships across sectors, disciplines, and geographies were elaborated by team members. For example, Lowitt explained: "Research is taking place in both the areas of small-scale farming and fisheries but it is not connected. I also believe food policy, like the Food Policy for Canada, would benefit from stronger networks between agriculture and fisheries, especially as fisheries are often not seen as 'food' and thus largely absent in food-related decision making."

Levkoe expressed a similar perspective, suggesting that there are many lessons that could be learned from each sector, while working together would also be more impactful in terms of resilience building and food systems change.

Questions about what constitutes "alternative" also emerged from the conversations. Some participants expressed caution that by constituting certain activities as alternatives we may inadvertently reinforce their more marginal position in relation to mainstream structures. As Loring noted, being defined by difference is not, on its own, an identity but an anti-identity. This was also raised by Lowitt in the context of Indigenous food practices which are often cast as alternatives in comparison to settler colonial systems but in reality, are the foundational practices and ways of being that have constituted food systems in North America since time immemorial.

Participants recognized that interrogating notions of alterity (i.e., how we frame "alternative" food movements and in so doing recreate oppressions), is of central importance to understanding existing power structures and the hegemonic resilience of the globalized food regime. This includes not only the challenges that may face alternative practices vis-à-vis industrial food systems but, equally as important, how alternative arrangements are being practiced and thus are already imbued with power and which our collective work might reinforce. Loring expressed this in terms of the presence of subaltern practices that are reclaiming power, giving examples from the re-commoning of wild foods to so called "guerilla" grafting, where people are surreptitiously grafting fruit bearing branches onto ornamental trees in public spaces, to grey markets for food trade, whether harvested wildlife, fish, or raw milk.

The place-based changes and effects of these alternative systems, despite being often subtle and on a small scale, can be critical to promoting other ways of thinking and re-establishing relationships around food. Some participants spoke to the potential of ASNs and AANs to create a space to imagine something different from the dominant system through prefigurative power. This term, whose roots are in the political sciences, refers to the inherent ability people have through their agency and imagination to change power dynamics and initiate systemic, bottom-up change through the visioning of alternative and more desirable futures (Törnberg, 2021). An example that emerged among participants is the efforts of the community-supported fishery, Fishadelphia, to bolster culturally important food pathways for Black residents in Philadelphia in the context of broader patterns and disruptions from migration, climate change, and globalization of food sources (Erwin et al., 2024). As Levkoe reinforced, the capacity of ASNs and AANs to address place-based issues, while working with small communities and then connecting and spreading the change to others, is what makes these alternative networks a powerful tool for change.

Ultimately, the insights gleaned from the discussions shed light on the role of ASNs and AANs and their capacity for flexibility, innovation, and localized impact in shaping food systems' resilience, while also underscoring the nuanced relationship these alternative networks maintain with the dominant food system. Responses showed that, according to participants, these networks emerge not only as interrelated components but also as catalysts for reimagining and restructuring food systems towards resilience, sustainability, and social justice (Gibson-Graham & Roelvink, 2010; Trauger & Passidomo, 2012). While there was some consensus from participants that the term alternative needed to be revisited, they also agreed that it was a valuable label to connect with the scholarly literature and practitioners in the short term. These insights resonate with broader debates in the literature about what constitutes alternative and how to reconcile divides across "alternative" and "conventional" food networks (Goodman et al., 2012; Misleh, 2022).

Perspectives of resilient food systems

Participants were asked to consider their work with ASNs and AANs in respect to what it means for a food system to be resilient. While those interviewed presented common perspectives, in some instances, their answers also touched on the conceptual ambiguity found in the academic literature (van Wassenaer et al., 2021). Interest in food system resilience has grown in recent years with events like the COVID-19 pandemic forcing many scholars and practitioners to reflect on the structural challenges driving vulnerability and fragility of food systems. It is notable that in some cases, ASNs and AANs have demonstrated greater resilience than export-oriented, industrialized systems (Stoll et al., 2021; Thilmany et al., 2021).

Several participants touched on an overarching understanding of resiliency: the ability to absorb, respond, and recover from shocks (Walker & Salt, 2012). In doing so, they emphasized the importance of adaptability. For instance, Warne stated that a resilient food system is one where the different parts "adapt to those factors to affect them and overcome that problem." In a similar vein, Stoll described resilience as the "capacity for a system to respond to some type of disturbance without fundamentally changing" and Breen saw resilience from a community-based perspective as the "ability to withstand shocks and to adapt to deal with new situations."

Others identified the components that support adaptability, with Stephens and Loring both highlighting diversity and redundancy as cornerstones of resilience. Systems that are characterized by the opposite—uniformity and efficiency—have been shown to be vulnerable to external shocks. For instance, monocultures, which lack ecological diversity tend to heighten the risk of disease and pest outbreaks. Similarly, the long, efficiency-driven, and highly concentrated supply chains associated with the industrialized food system, demonstrated their vulnerability during the pandemic (Clapp, 2020). Loring elaborated by reasoning that different components of the food system must be linked through responsive relationships. Without these relationships, characteristics like diversity and redundancy become irrelevant. Harrison raised the issues of accessibility and appropriateness in upholding food system resilience. Appropriateness supports accessibility in the sense that foods must align with the cultures and culinary and knowledge traditions of a place so that people can engage in a way that is life enhancing. In her view, these are critical for supporting people's ability to respond and adapt to shocks.

Several participants cautioned against viewing resilience as inherently positive and emphasized the need for an equity dimension. Lowitt brought up the questions of resilience to what, and for whom. Stoll pointed out that he pairs his thinking about resilience with social and environmental change in the sense that he considers how a system can be transformed to become more equitable rather than just one that can withstand disturbances. Without this focus on equity, he explained that resilient systems run the risk of enforcing deep structural inequalities. Levkoe similarly highlighted the risk of uncritically relying on the concept of resilience asking "ultimately, what are we bouncing back to?" For him, resilience can mask issues like unjust exploitation of labour and land, white supremacy, and settler colonialism. Levkoe argued that rather than bouncing back to a problematic food system, growers and harvesters should continue to organize, resist, and work to collectively change things. This is in line with Stoll's discussion of resilience as transformation. These perspectives elicited among our

team are useful to critically interrogating and building resilient food systems, especially when navigating the different perspectives and needs that emerge in linking agriculture and fisheries.

Envisioning change towards resilient food systems

Participants were asked to reflect on how the siloing of ASNs and AANs might be addressed to contribute to future prospects for enhanced resilience. Key strategies identified include enhanced social learning, better communication, and connecting around shared issues.

Lowitt spoke to the potential for greater social learning across sectors involving both theory and scholarship as well as on the ground social movement organizing and practice. Breen commented that language, terminology, and communication is key to overcoming silos and realizing the type of social learning that Lowitt emphasized: "[you] have to simultaneously know where you're working, the confines of that, but how it relates to everything outside of the scope that you're working on. And I think that we can do that through even better communication around what we're talking about and what we mean and naming problems and just naming words."

Levkoe similarly elaborated how terminology and naming concepts are important, not only in terms of promoting learning and engagement across ASN and AAN practitioners and scholars, but also in terms of developing a common language for policy change that can then give governments a language to talk about food as interconnected.

Participants also identified issues that may span divides between terrestrial and aquatic systems including livelihoods, climate change, and community well-being. For example, Stoll summarized our team work as ultimately being about healthy communities and wellbeing. Opportunities to work together to catalyze systemic thinking and address issues of shared concern to both ASNs and AANs emerged clearly across our narratives. For example, Warne raised the issue of labour in fisheries: "One issue that the commercial fishing industry suffers with in Ontario is finding enough skilled labour like captains and crew members and processors. These positions require training and there is a great amount of turnover, meaning there is a good deal of lost resources trying to staff processing facilities and boat crews. I know that this is an issue also for the agrifood sector as well, so there is potential to collaborate on solutions to the problem."

Breen and Harris observed that the newly formed British Columbia (BC) Food Hub Community of Practice creates a promising opportunity for enhanced collaboration across agriculture and fisheries. They spoke to the driving role that inter-organizational relationships and trust have played in supporting development of Food Hubs across BC, and the capacity for relationship building to be scaled out to include not only actors across agriculture (e.g., plant based, meat based), but also non-agricultural food providers, such as small-scale fishers and processors, as the structure continues to grow.

The importance of working with those directly affected by and pursuing food system resilience activities on the ground clearly emerged and expresses the scholar and practitioner composition of our

research team. Here, the importance of cross-scalar grassroots action also arose. For example, Levkoe explained how several civil society and Indigenous-led food systems initiatives have been working to build the groundwork for broader scale change and how these have been supported by transnational networks of solidarity and action. Key examples include the People's Food Commission (1980) and Food Secure Canada (2011) which emerged as part of global efforts like food sovereignty (Levkoe & Sheedy, 2017) and global justice movements such as La Via Campesina (Desmarais, 2006), the World Forum of Fisher Peoples (WFFP) and the World Forum of Fish Harvesters and Fish Workers (WFF) (Mills, 2023). Similarly, Stoll noted the bipartisan efforts taking place in the United States to establish more diverse seafood and aquaculture supply chains in the wake of the COVID-19 pandemic. Key documents and initiatives that can provide a framework for shortened supply chain initiatives include Executive Order 14017 on Securing America's Supply Chains (2021), the Marine Fisheries Advisory Committee's report "Establishing a National Seafood Council" (2020), the Maine Climate Council's "Climate Action Plan" (2020), and the Alaska Food Systems' "Alaska Food Security and Independence Task Force" report (2022).

Overall, increased political and social capital, distributing knowledge and resources, and more effective policy advocacy and mobilization were identified as potential long-term benefits of overcoming isolation and silos across agriculture and fisheries. Resilience literature likewise indicates that working across boundaries is central to supporting the capacity of communities to learn, adapt, and share knowledge, as we elaborate in the next section on boundary objects.

AFNs as boundary objects for enacting resilience

Discussions among participants revealed deeper insights into how we categorize issues, use vocabulary, and envision changes in food systems. The concept of boundaries helps to further frame our collective thinking of the barriers and opportunities for linking agrifood and seafood within complex food systems. Shared concepts or lenses can be described as boundary objects in terms of mechanisms that can contribute to flows and movement across different spaces (Dumez & Jeunemaître, 2010). A considerable body of scholarship points to boundaries as key sites of innovation and change by enabling disparate communities to come together in a shared space (Akkerman & Bakker, 2011; Star, 2010). As Hernes (2004) explained, "boundaries are not 'by-products' of organization, but rather organization (defined broadly, ranging from informal groups to formal organizations) evolves through the processes of boundary setting" (p. 10). These may involve combinations of physical (material space/formal rules and regulations), social (group identity, bonding) and mental (ideas/concepts) boundaries with varying degree of "tightness" or permeability (Hernes, 2004).

Consideration of boundary properties is useful for understanding how actors (including practitioners, policy makers, and researchers) are or are not interacting across AANs and ASNs. Increasingly, scholarship points to boundaries as sites of learning, innovation, and knowledge exchange (Akkerman & Bakker, 2011). Boundary objects are receiving attention

across many disciplines and areas of practice in terms of concepts, frameworks, or issues that can enable diverse and disparate groups of collaborators to make sense of and act together in a shared space (Star, 2010).

Resilience is well-established as a boundary object (Brand & Jax, 2007; Baggio et al., 2015); it brings a sensible coherence that enables cross-silo or cross-disciplinary engagement, while also being sufficiently malleable to take on robust forms depending on the area of theory or practice taking it up, whether engineering, ecology, sociology, or psychology. This diversity of perspective is reflected in our team narratives.

Our discussions about resilience also highlighted tensions about which system aspects should be resilient: the dominant system addressing structural issues like inequality, the dominant system resisting change, or a new system free of structural inequities. For AFNs, tensions arose from their roles within the dominant food system: as components, as innovators with potential for systemic change, or as entities outside the dominant system. The term "silo" also revealed tensions in our conceptualization of food system resilience. Despite efforts to promote holistic thinking, communication, and networks, siloing persists in policy and practice, often perpetuated by our team's own framing of discussion questions like "what sector do you work in." This analysis underscores the importance of clarity in using terms like resilience and AFNs. Building theory and practice around food system resilience requires ongoing communication and discussions about our visions for the future.

A consideration of boundaries and boundary crossing via concepts like resilience leads us to questions such as: How are AANs and ASNs distinguishing themselves within food systems? What physical/social/mental boundaries exist between AANs and ASNs and how strong are these? If some level of cooperation is desirable and necessary, how do we start working together across these boundaries and what are the implications? Through our reflective collaborative conversations, we have offered insights on some of the boundaries that may be limiting interaction across ASNs and AANs and potential benefits of greater collaboration. With these reflections in mind, we now draw attention to promising boundary objects our team is exploring as mechanisms for collaborating across these sectors of the food system.

Basic income in the food system is one example of a boundary object. While different terms are used, in broad terms a basic income is a cash payment from governments to individuals that ensures everyone, regardless of work status, can meet their basic needs with dignity (Coalition Canada, 2023). A key premise behind a basic income is that numerous societal challenges, from food insecurity to psychological, physical, and community well-being, derive at least in part from poverty and inequality. A guaranteed basic income (GBI) is a systemic intervention that, rather than treating the symptoms of these problems individually, aims to correct the root cause by increasing people's ability and autonomy to build the lives they want (Lade et al., 2017). As a social innovation, a GBI overlaps with many of the economic and social problems in both the seafood (Lowitt et al., 2022) and agrifood sectors (Dale et al., 2023). Some members of our team have written about a GBI as a policy tool for a just transition in the food system (Lowitt et al., 2024) and, through a series of workshops, are exploring ways that a GBI can catalyze transformational change that affects not just individual livelihoods but also that promotes more resilient and sustainable food systems.

Food hubs are another example of a boundary object, bringing diverse actors together around flexible interpretations about what a food hub is and how hubs

can serve communities and regions. The BC Ministry of Agriculture and Food defines food hubs with a narrow focus on shared-use commercial processing facilities for food and agriculture businesses; however, in practice, participation within the BC Food Hub Community of Practice spans small and medium-scale food and beverage processing business, plant/crop agriculture and related value-added production, small scale meat production and processing, and fisheries. Food hubs are inclusive of a wide array of additional strategies and services, such as community food insecurity support, food recovery, skills training, food retailing and marketing, and support for food aggregation and distribution networks. Through participatory action research in Community of Practice gatherings, some members of Agrifish are exploring how food hubs might grow their capacity to create transformative changes in their regions through deepening collaboration across these diverse goals.

Ultimately, boundary objects can be powerful and important in this specific context because they bring a degree of interpretive flexibility to conversations, creating space for people to exert their prefigurative power while allowing diverse actors to feel that they are sharing the same ethical space for food system transformation. In other words, they enable collaboration without requiring consensus—facilitating their application to bridge across typically siloed areas like fisheries and agriculture.

Conclusion

This field report is the first collective output from the Agrifish Resilience research project that explores opportunities for learning and knowledge sharing across the agriculture and fisheries sectors, specifically toward a goal of building theory and practice surrounding food system resilience.

At present, agrifood and seafood operate in separate spheres of policy, research and practice. However, a fundamental goal of both AANs and ASNs is to reorganize our food systems in an effort to reconfigure not just the technologies of food production, but the relationships that bind them. It is precisely for this reason that we see bridging the separation between the two as potentially transformative. Through our work on boundary objects, as well as our own collaborations across disciplines, we hope that the Agrifish Resilience project reveals new opportunities for collaboration, sharing, and learning in service of building resilient food systems.

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