

## RESEARCH COMMENTARIES: FOOD SYSTEMS RESEARCH PRIORITIES OVER THE NEXT 5 YEARS

### Future research approaches to encourage small-scale fisheries in the local food movement

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#### Abstract

To date, the local food system movement has focused primarily on the agri-food system. In our commentary, we suggest some ways of moving forward that may help ensure that research and

discourse in the area of sustainable food systems more actively consider the role of small-scale fisheries. Specifically, we point to the need for a more integrated food system that includes both marine and freshwater fish as part of the food system, considers food and fisheries as complex and adaptive systems, and supports cross-sector policy-making for local food systems across agriculture and fisheries systems.

#### Keywords

fisheries, freshwater, marine, sustainability

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*Note:* The authors met in 2012 as members of the Fish Conundrum Group that was established through the Sustainable Food Research Group under the leadership of Ralph Martin, Loblaw Chair in Sustainable Food Production at the University of Guelph. We view this commentary as an opportunity to share our collective ideas on research priorities to enhance small-scale fisheries as an integral part of the local food movement.

**A** movement toward more local and sustainable food systems has arisen across North America and Europe. However, this movement has focused almost entirely on the agri-food system, to the neglect of fisheries and fisheries communities. However, social-science fisheries research is pointing to similar concerns to those raised by sustainable food systems research, including corporate control of fisheries resources, industrial fishing practices, centralized governance structures, and threats to coastal communities and livelihoods (Lowitt, 2013; Lowitt, Nagy, Nelson & Bavington, 2013). Currently, in both agriculture and fisheries there are two competing approaches. One is more established and based on industrialization and commodification for export; the other, more emergent, is based on local place-based production and consumption. Similarly, both farmers and fishers are challenged to make a living unless they operate on an industrial scale. However, to date most research and policy-making across fishing and agriculture systems remain disconnected (Hall, Hilborn, Andrew & Allison, 2013). Bringing these areas of research together will be critical to understanding sustainability in food systems across local and global scales and to a more holistic view of food systems as based in terrestrial as well as marine and freshwater environments. We offer a few perspectives on how research and policy discourse in the area of sustainable food systems needs to evolve to help ensure that small-scale fisheries are better integrated into the emerging alternative local food system. Specifically, we will address the need for more integrated food systems planning that takes fisheries into account; a consideration of food systems as complex and adaptive systems; and more cross-sectorial policy-making.

There is increasing concern about how humanity will address the food needs of the planet's projected 9 billion people by 2050. While agricultural food sources often receive much attention, fish is also crucial to global food security. Fish provides nearly 20 percent of the protein intake for nearly three billion people around the world, and global demand for seafood has been rising for several decades (Food and Agriculture Organization of the United Nations (FAO), 2012). While fish resources

are crucial to the food security of developing coastal nations (Food and Agriculture Organization, 2005), fish also makes important contributions to diets in North America and Europe, and has been heralded as an important part of a healthy diet (Brunner, Jones, Friel, & Bartley, 2009; Loring, Gerlach, & Harrison, 2013). At the same time, consumers are demanding to know more about their food as awareness of health, environmental, and social-justice issues relating to food production rises (Stroink & Nelson, 2013). People are eager to know where their food comes from, how it is grown or raised, whether it is sustainable, and what potential additives it contains. This is seen not only in the realm of agriculture, such as in the form of farmers' markets, community-supported agriculture, and organic agriculture, but also more recently with community-supported fisheries and a range of sustainability certification schemes for fisheries (Ponte, 2012). In this context there is a need for research that integrates health, sustainability, and the economy within an integrated food systems approach that includes both terrestrial and fish food sources (Lowitt, 2013). While some work has focused on the linkages between agriculture and health (Story, Hamm, & Wallinga, 2009), future research also needs to consider the linkages among fisheries and health in food systems. Fostering interdisciplinary research that brings together food and fisheries researchers will be paramount to developing the knowledge and networks critical to better understand how fisheries and agriculture may provide "collective strength" to emerging alternative local food systems (Lowitt, 2013; Stroink & Nelson, 2009, p. 26).

A large and growing literature is attesting to the potential social, economic, and environmental benefits of local food systems (Blouin, Lemay, Ashraf, Imai, & Konforti, 2009; Conner & Levine, 2007; Feenstra, 2002). As suggested by Nelson & Stroink (2012), a local food system that effectively integrates health, sustainability, and the economy may support equity in food distribution, justice in access and availability of healthy nutritious foods, and ecological practices in food producing, processing, and distributing. We are recognizing that the transformation to strong local food systems integrated globally, which involve small-scale

fisheries as an integral component, may provide more opportunity for all to grow, raise, and catch food that is more resilient to local conditions and can be more adaptive to climate-change forces. This means being attentive to the range of food resources available in a community, including potential synergies among agriculture and fisheries in contributing to food systems that draw on a range of ecological niches and are thus more resilient to disturbance in either one of these realms alone.

It has been argued elsewhere that the food system can be understood as a complex adaptive system (Stroink & Nelson, 2013). Specifically, local food initiatives and their networks of people, as well as the collective space of the local food system and the broader overall food system, can each be understood to be a complex adaptive system, nested within systems on higher scales and containing systems on lower scales, all interacting with one another in a dynamic and emerging manner. We propose that future research that develops interdisciplinary connections for the study of food and fishing systems can also benefit from the application of a complexity lens. Conceptualizing fish as an integral aspect of a more regenerative food system through this lens allows for a number of novel insights.

For example, Stroink and Nelson (2013) argue that the development of the local food system could be mapped onto the adaptive cycle (Holling, 1978). The adaptive cycle is a representation of change over time in complex adaptive systems and involves both forward and back loops. These systems tend to move through a forward loop of increasing resources and connectedness to a point, known as a rigidity trap, when the system's capital is completely consumed in the maintenance of those structures, with none available for new growth or innovation. Some of the rigidity traps that currently impede the integration of small-scale fisheries into integrated food system development include the persistence of narrow definitions of food and food systems that often exclude fish; the lack of infrastructure appropriate for supporting local fish initiatives; and the absence of integration of diet-related health and social-economic community well-being benefits of small-scale

fisheries into food systems decision-making.

The backloop is characterized by the release of some of the resources and capital tied up in the front loop to be available for the novel combining of diverse elements, innovation, and experimentation, with new structural forms for releasing innovative ways to introduce fish into the local food system. Stroink and Nelson (2013) argue that the mainstream food system is at the height of the forward loop, with local food initiatives emerging below at the end of the backward loop or very beginnings of a new forward loop. We suggest that we need to enhance the research that documents the stories of innovative backloop approaches to introducing more fish into local food systems.

This ability to move into the backward loop is critical for creating the space for the resilience central to the emergence of an integrated food system. Currently, resilience in the mainstream industrial-oriented fish and food systems dominates largely because of the persistence of policies and regulations that support an export-based, large-scale focus. We now turn to investigating the need for policy retooling that will encourage the emergence of unique blends of local resources to encourage resilient and vibrant integrated local food systems.

Policy-making that recognizes fisheries as food and as a part of food systems is central to more integrated food systems development. Presently, the structures dealing with food in Canada are widely dispersed and split across federal, provincial, and municipal jurisdictions (MacRae, 2011). For example, it is estimated that 37 federal agencies across the country are involved in food safety, with additional legislation at the provincial level for food products not covered in the federal system (MacRae, 2011). These jurisdictional divides exist in part because Canada has never had a coherent and integrated national food policy. Jurisdiction over fisheries policy is similarly split, with the federal government having jurisdiction over the management of fisheries, including licensing and quota allocations, and provincial governments retaining primary control over processing and marketing (Murphy & Neis, 2011). There are some exceptions. For example, under the Fish and Wildlife Conservation Act of 1997, the Ontario

Ministry of Natural Resources licenses inland fisheries except where controlled by federal jurisdiction of aboriginal lands and where there are binational fishing agreements, such as the Great Lakes (shared with the United States). In both cases, the “top down” approach has disempowered local and small-scale growers and harvesters.

The challenges in creating a more “joined up” food policy (MacRae, 2011) are perhaps even more evident in the case of issues related to food and fisheries. While much food policy in Canada remains focused on production, efficiency, and economic competitiveness at the expense of broader social and ecological aims (MacRae, 2011), this is particularly evident in fisheries policy, which rarely even treats fish as food. The exclusion reflects the primary focus of government agencies on the management of fish as stocks and resources for export production or inputs into other processed products. *The Future of Canada’s Commercial Fisheries* (Fisheries and Oceans Canada, 2012) contains no mention of fish as food or of fisheries communities. Likewise, most food policy documents do not consider fisheries part of the Canadian food system (Lowitt, Nagy, Nelson & Bavington, 2013). *Towards a National Food Strategy* (Canadian Federation of Agriculture, 2011) and a survey of local food initiatives (Canadian Co-operative Association, 2008) make no mention of fish or other marine protein. The Conference Board of Canada in its highly publicized work on articulating a framework for a Canadian food strategy also makes no mention of fish (Conference Board of Canada, 2013). These examples point to the need for more integrated food policy-making, including across food and fisheries realms. It shows that many of the core topics dealt with in harvest levels for difference species are also food-security issues, as they affect who can access fresh water and marine fish, how much, and the types of fish that can be eaten and sold (Lowitt, 2013). Moreover, as fish are introduced into local food systems there is a need for extensive market research surveys on mislabeling and substitution as well as for random DNA screening, while implementing a renewed and more informative retail label in order to bolster consumer awareness and recognition of what they are

eating. Thus, while fisheries policy needs to be more inclusive and consider fish as food, future food policy discussions also need to consider fisheries as a part of food systems rather than just a raw commodity or natural resource. They should also engage in a timely way with relevant debates taking place in fisheries policy.

It is our hope that this commentary will spark further thought and debate about the role of small-scale fisheries in the transformation to more local food systems. We have suggested some ways of moving forward that may help ensure that research and discourse in the area of sustainable food systems more actively consider the role of small-scale fisheries. Specifically, we point to the need for more integrated food systems development that recognizes fish as part of food systems; a consideration of food and fisheries as complex and adaptive systems; and cross-sector policy-making that supports more local food systems across agriculture and fisheries systems. 

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