

The Case for Local and Sustainable Seafood: A Georgia Example

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Abstract

Growing demand for local, sustainable food is supporting an explosion of direct marketing throughout the United States (U.S.). Despite recent scholarship on ethics and sustainability issues in seafood, these are less commonly addressed among the consumers participating in the local food movement. This paper examines the interplay between demand for local and ethically sourced foods and the implications for seafood sustainability in the U.S. south, asking: what are Georgia consumer perceptions of local and sustainable foods, to what extent do they consider seafood in the local food movement, and how can Georgia fisheries fit within these understandings and preferences? We refashion a values-based supply chain model to encapsulate consumers' preferences, and propose a three-tiered, process based model of involvement for seafood consumers. In sum, we argue that sustainable seafood deserves a more prominent place in the local food movement. [local food, sustainability, seafood, farmers markets, ethical foods, values-based supply chains]

Introduction

Across the United States, growing demand for local and sustainable food supports an explosion of farmers markets and marketing methods that emphasize ethics in food production (Hinrichs and Lyson 2009; Pojman, Pojman, and McShane 2016). There has been considerable attention by scholars to the topic of sustainability issues in seafood¹ (Stoll, Dubik, and Campbell 2015; Bolton et al. 2016; Stoll and Johnson

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2015; McClenachan et al. 2014), including food system research that examines unethical practices in seafood production (e.g., Constance and Kirk Jentoft 2011; Marschke and Vandergeest 2016; Chantavanich, Lao-dumrongchai, and Stringer 2016). However, consumers appear to have difficulty understanding the origins of the seafood products they encounter in the market, and the production issues attached to the seafood they buy. This paper examines the interplay between the demand for local and ethically sourced foods and the implications for seafood sustainability in the southern state of Georgia. We ask: what are Georgia consumer perceptions of local and sustainable foods, to what extent are they willing to consider seafood in the local food movement, and how can Georgia fisheries fit within these understandings and preferences? We present evidence from research with Georgia farmers market shoppers to demonstrate both existing interest in local seafood and limited knowledge about environmental and social justice dimensions of sustainable seafood. We propose a three-tiered model of involvement for seafood consumption, built on DuPuis and Goodman's process based approach (2005). In sum, we argue that sustainable seafood deserves a more prominent place in the local food movement.²

The Local Food Movement—Locality, Sustainability, and Values-Based Supply Chains

How can individuals and institutions satisfy ethical concerns about environmental health, human health, social justice, and economic welfare regarding seafood? How can the livelihoods of local fishers and the health of fish stocks be incorporated into the local food movement? Several components of the local food movement set the stage for incorporating seafood. We expand Stevenson and Pirog's "values-based supply chain" (2008), which features a commitment to the welfare of all participants in the supply chain, to incorporate several terms that are often used interchangeably by concerned consumers: ethical, sustainable, and local. Each is discussed below.

DuPuis and Goodman's emphasis on process is also key to the balance (2005). They argue that rather than privileging distance, environmental sustainability, or ethical and social justice concerns, in fact, thoughtful negotiation and interaction between these three concepts allows for a productive process that ultimately results in food that better captures the values of the consumer.

Local production and distribution are valued as ways to increase transparency in food production practices and to direct more profit to nearby producers (Kloppenburger, Hendrickson, and Stevenson 1996). Shortened supply chains foster face-to-face interactions between farmers and consumers, with the potential to build local community (DeLind 2003; Haney 2015). Also, a growing awareness of the distance conventional food travels—an average of 1,500 miles and six distributors—leads to increased concern about the energy embedded in food and about carbon emissions (Weber and Scott Matthews 2008). Increased desire for local food has fostered new supply chains; between 1976 and 2014, farmers markets expanded nationally from 340 to 8,669 (USDA 2016) and local food sourcing is a common goal for both individual and institutional procurement (Barlett 2011).

But, definitions of "local" vary considerably. The 2008 Farm Bill dictates local food will be "less than 400 miles from its origin, or within the state in which it is produced" (Martinez et al. 2010, 3), yet some retailers prefer a 400-mile radius (Dunne et al. 2011). Pirog and Rasmussen found that two-thirds of Americans feel that 100 miles is a useful definition of local food (2008, 3), and the Real Food Challenge campaign for sustainable food in U.S. colleges and universities adopted a 250-mile radius for plant foods and 500 miles for meat (RFC n.d., 21). Campus food projects and state-supported "buy local" campaigns, however, are often constrained to include products from the entire state, regardless of size. Depending on location, other colleges and universities target a cluster of states as a regional goal for local food procurement (Barlett 2017).

Even shorter values-based supply chains have been created through community-supported agriculture (CSA). CSAs provide weekly food baskets of produce and other foods to members who sign up for annual or seasonal subscriptions. Consumers who join a CSA pay an annual fee up front, giving farmers needed capital for the growing season, and then share the risk by accepting what the harvest provides. The first American CSAs began in 1984, jumping to 12,617

by 2012 (USDA 2013). CSAs can increase consumer awareness of food quality and community sustainability (Ostrom 2007), create a greater sense of community (Brehm and Eisenhauer 2008), particularly among CSAs that foster "place-based interactions" (Haney et al. 2015), and strengthen the face-to-face relationships between consumers and producers (DeLind 2003).

Embedded within the geographical radius of local food are concerns about environmentally sustainable production. Consumer preferences for local food often include a desire for pesticide-free foods, agricultural practices that build healthy soils, robust farm ecosystems, reduced soil erosion, and cleaner runoff water (Andreatta 2005; Zander and Hamm 2010). Many farmers markets have rules about organic certification or pesticide use, supported by consumer preferences (Hughner et al. 2007). Animal welfare and pasture-focused production practices for meat often are promoted as higher quality and more ethically produced foods (Clancy 2006; Daley et al. 2010; Pollan 2006; Walker et al. 2005; Weiss 2016).

Other concerns include ethical, social justice issues, such as farm worker welfare and adequate incomes for local farmers, though they are less commonly expressed by consumers or found in institutional commitments (Barlett 2011). DuPuis and Goodman (2005, 360) refer to "unreflexive localism" as they critique both the omission of social justice concerns for farm workers, and the narrow cultural definitions that sometimes delimit the foods considered local. Often consumers assume that concern for laborers is implicit in the local label. Rebuilding a more local and sustainable agrifood system requires attention to the "climatic features, plant communities, soil types, ethnicities, cultural traditions, culinary patterns, and the like, of which foodsheds are composed" (Kloppenburger, Hendrickson, and Stevenson 1996, 309). Many local food actors seek to contribute to a moral economy based on cooperation between partners and a goal to calculate prices that take into account the necessity for living wages for those along the chain (Stevenson and Pirog 2008). By shopping locally and maintaining goods and practices within their communities, consumers engage with "civic agriculture" (Lyson, Stevenson, and Welsh 2008) and redistribute value by participating in an ethical supply chain (Renting, Marsden, and Banks 2003).

In this paper, we use the term values-based supply chain (Stevenson and Pirog 2008) to capture the

complexities of the tangled threads of meaning that lie within and between the terms local, ethical, and sustainable.

Incorporating Seafood in the Local Food Movements

The debate about an appropriate geographical radius for local food and the complexity of demands for more sustainable agricultural production methods and shared economic rewards have parallels in the challenge to create more sustainable fisheries (Olson, Clay, and Pinto da Silva 2014). National Oceanic and Atmospheric Administration (NOAA) statistics show on the one hand, that U.S. fisheries are recovering from overfishing, with rates of overfishing and overfished stocks at historic lows (NOAA Office of Sustainable Fisheries 2016a).³ Management practices also show good progress in other developed countries, as well as in a few cases in the global South (Worm et al. 2009, 582). Globally, many large fisheries are in good condition; however, smaller, often unmanaged fisheries need to be better managed (Hillborn and Ovando 2014, 1044). Unfortunately, some fishers may shift from well-managed areas to more vulnerable regions where laws and enforcement are weaker as seafood demand grows (Worm et al. 2009, 584). Furthermore, rising consumer demand may undo environmental efforts in these regions (Hillborn and Ovando 2014).

While some foreign fisheries are well regulated and provide stable incomes and fair working conditions for workers, alarming reports of coerced labor, low pay, and abusive working conditions characterize other seafood sources (Urbina 2015). Recent reports document that U.S. and Thai officials have taken new steps to prohibit coerced labor and other abuses in Thai fisheries (Urbina 2016), but questions remain about whether such regulations will be effective.

Seafood Challenges: Environmental, Economic, and Technological Issues

Environmental concerns are often foremost in people's minds, but the equity and economic viability of fisheries are also important. Globally, over the last 150 years, technological advances and intensification of harvesting have led to overfishing, habitat damage, and often the displacement of small-scale fishers (Roberts 2007). Furthermore, some policies to address overfishing have led to the consolidation of wealth away from fishing communities (Tolley, Gregory, and Marten 2015; Brinson and Thunberg 2016). Some management practices that protect ecosystems create

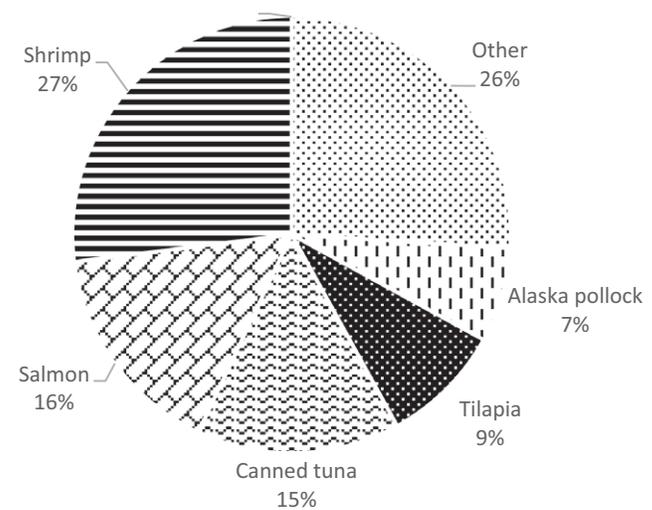
barriers to full participation by all segments of fishing communities (Copes and Charles 2004).

Bycatch (the capture of non-target species such as birds and turtles) and damage to the seabed caused by fishing gear also raise significant concern (Pelc et al. 2015). These issues are addressed with varying degrees of success through fishing gear and behavior restrictions. Examples include turtle excluder devices (Lewison, Crowder, and Shaver 2003), bycatch reduction devices (Pelc et al. 2015), mesh size limits (Bellman, Heppell, and Goldfinger 2005), and spatial limits on where fishing is permitted (Bellman, Heppell, and Goldfinger 2005).

Although these gear and behavior regulations improve fishery health, they do not return habitats or ecosystems to their original conditions. Similar to the impact of farming, decades of disturbance have fundamentally altered the marine environment. Just as we do not expect farmers' fields to return to their original state, fishers' environmental stewardship is also a balance between human benefit and ecosystem health as any harvested species is no longer in its original state.

The limited American seafood palate also affects sustainability. Between 300 and 500 species of seafood are sold in the U.S., but ten species account for 90 percent of American seafood purchases, and the top five comprise 74 percent of purchases, as shown in Figure 1 (USDA 2013). The impact of this limited palate extends

Figure 1.
Primary species of U.S. seafood consumption. (Source: NOAA Fisheries 2016b)



beyond the U.S., since over 91 percent of the seafood consumed in the U.S. is imported, with two-thirds of imports coming from China, Canada, Thailand, Vietnam, Indonesia, and Chile (NOAA Fisheries 2016b).

In addition, over 50 percent of seafood consumed in the U.S. is aquacultured (NOAA Fisheries 2016b). While American aquaculture is subject to regulation, there are no global standards, which can lead to wetland degradation, waste management issues, and overuse of antibiotics (Islam 2014). Shrimp was one of the first species to be aquacultured, and environmental and social justice concerns rapidly emerged (Stonich 1993; Stonich and Bailey 2000). Shrimp ponds were carved out of coastal mangrove and resulted in a loss of one-fifth of the planet's mangrove forests since 1980 (Doyle 2012). Local fishing communities were often displaced or disadvantaged in the process.

American Seafood

Unlike many wild-caught fisheries and aquacultures internationally, U.S. seafood benefits from stringent regulation and management strategies that are seen as exemplary among international experts (Hillborn and Ovando 2014). Federal fisheries in the U.S. (between 3–200 miles offshore) are regulated under the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA). The MSA established a system of Regional Fishery Management Councils, supported by Scientific and Statistical Committees which provide scientific advice for councils. In 1996, MSA revisions adopted a ten-year timeframe for fishstock rebuilding. Then the 2007 revisions required that any fishery that is over-fished must have a science-based recovery plan (NOAA Office of Sustainable Fisheries 2016a). Councils are “restricted from setting regional catch levels that exceed the recommendations of their primary scientific advisory committees” (Crosson 2013, 1). U.S. fisheries management is unique because maximum catch levels are based on science (Crosson 2013). Since 2007, U.S. fisheries made measurable progress; forty stocks are successfully rebuilt including king mackerel, Atlantic scallop, swordfish, and Acadian redfish (NOAA Office of Sustainable Fisheries 2016b). When reviewing fish stocks with known status, only 16 percent are overfished, with nine percent of them subject to current overfishing. All these stocks are under active rebuilding plans (NOAA Fisheries 2016a).

Despite progress in ecosystem restoration, one area of concern is the economic viability of fisheries (Tlusty

et al. 2012; Smith et al. 2010). Since the 1990s, regulatory structures have resulted in U.S. fishers experiencing severe restrictions in the volume and variety of fish species they may catch to ensure long-term ecosystem health (Shelley 2012). Simultaneously, fuel costs have increased, and fish prices often decreased, due to international competition (Stoll, Dubik, and Campbell 2015). U.S. commercial fishing has declined, and low profitability and earnings have discouraged entry of new fishers. Sustainability concerns must include appropriate prices to support commercial fishers' livelihoods during stock rebuilding. Failure to do so can result in loss of traditional knowledge and a key source of employment in coastal communities. If commercial fishing falls below a commercially sustainable level, there will be fewer sustainable American seafood options available.

Study Site and Methods

The Georgia Case

Eating local seafood presents inherent contradictions, since many consumers do not live near a coast. Less than ten percent of the U.S. continental land area is in counties that are directly on the coast, and only 39 percent of the population lives within those counties (NOAA 2016c). Thus, restricting local seafood to a mileage radius presents difficulties. Georgia offers a useful case to explore these issues. Georgia has robust fisheries along its coastline and is known for shrimp, clams, and oysters, but the state's population centers lie far from the coast. The north/south Interstate 95 allows easy transport to major northeast markets, therefore seafood distribution channels west to Atlanta and other inland cities are not well-developed. Travel by individual fishers for direct market sales to Atlanta and other inland cities would be lengthy and expensive, though less of a barrier for major distribution companies. The result is that most Georgia seafood travels out-of-state and Atlanta seafood comes from international sources.

Consumer choice and species availability also affects the Georgia seafood market in population centers. Wild seafood is seasonal and potentially unpredictable. Georgia shrimpers catch more shrimp than can be absorbed by a state-wide market, but the finfish catch is lower than could be sustainably caught, for complex reasons. Catch limits on popular fish species like red snapper and amberjack make it difficult to recruit and retain qualified captains and crew. Low

catch limits allow fish stocks to rebuild, but limit fishers' income. A sustainable seafood industry requires maintaining the fishing profession as well as fish stocks, and demand is insufficient at present to fully maintain the profession. Consumer interest in more widely available species (such as mackerel, flounder, or mullet) could support a stronger commercial fishing culture.

The production of shellfish such as clams and oysters via mariculture⁴ is common in Georgia (MAREX 2016). In contrast to conventional fish farming, which requires inputs and results in waste concentration, shellfish mariculture positively impacts surrounding waters. While mariculture involves nets on the floor of estuaries, the shellfish typically receive no added inputs. As filter feeders, mollusks screen the waters that flow past them, resulting in cleaner waters, and government tests of the waters around Southeastern mollusk farms show good water quality (DNR 2016). Mollusk mariculture thus offers a low-impact seafood protein, and there is potential for expansion in this growing industry (FAO 2016).

Consumers' Perspectives on Seafood

There is sufficient seafood produced in Georgia to feed many of the state's residents. However, getting it to consumers who are willing to pay a premium for a locally sourced product is potentially impeded by local food shoppers' unfamiliarity with seafood sourcing.

The data described below emerged as part of a larger project on the feasibility of direct marketing of Georgia seafood in Atlanta funded by Georgia Sea Grant between 2014 and 2016.⁵ This paper concentrates on shoppers at farmers markets in the Atlanta and Athens areas. Incorporating eight undergraduate researchers from Emory University over the duration of a semester-long service-learning course, we conducted intercept surveys with nearly 500 farmers market shoppers at ten different farmers markets. This small team of carefully trained and closely supervised students collected both qualitative and quantitative data alongside the first author. Each interaction began with an explanation of informed consent, and verbal consent was received. We then asked them about local food and their interest in seafood (specifically shrimp, mollusk shellfish, and finfish). Responses were recorded by hand on printed survey drafts by each student, then transferred to a Microsoft Excel code sheet within seven days of the survey. Qualitative answers were either paraphrased by the student, or written directly as spoken, and indicated as a direct quote

when appropriate through the use of quotation marks written on the survey. Qualitative answers were preliminarily coded in the semester following data collection by one of the study team. Secondary coding was performed by the first author, and responses were grouped by theme for analysis as described below. The survey included questions about local food, seasonality, sustainability, their interest in seafood, and their willingness to pay for local seafood.

Our guiding question of this research was: to what extent are consumers willing to consider seafood within the local food movement, and how aware are they of sustainability issues? In this article, we address those questions that touched on people's understandings of local food and seafood. We began by exploring shoppers' definitions of local food.

We asked each respondent "How do you define local?" and recorded their responses. This open-ended question yielded responses that prioritized mileage limits and state borders. For 34 percent ($n = 147$), local meant 100 miles or less from where they were buying. A similar number felt that local meant within the state of Georgia. Some participants also described local food as that which is "able to be driven here and delivered fresh within the state," from "the forty county area around Athens [Georgia]," and "how the farmers market defines it." This openness to a state or market-determined definition suggests that it would not be difficult to incorporate Georgia seafood into inland consumers' perceptions of local.

These same environmental concerns proved important for defining local food for about half of the Georgia farmers market consumers. Several responses conflated geographical definitions with sustainable practices, such as the respondent who defined local food as produced without GMOs (genetically modified organisms), pesticides or growth hormones, within 300 miles of the market, with careful consideration to water and soil conservation, and processed on site. Another individual was very specific that greens must come from within 100 miles, potatoes could come from further, but corn must be only three hours old—to be considered local. Relationships were important for other shoppers. Having the opportunity to establish a relationship with the producer was an important social component of local food for some.

Environmental impacts and resource conservation are also of concern to many shoppers. When asked "What do you know about how seafood is produced in other countries?" many reported concerns such as "it's

scary,” “not monitored,” and is subject to “less regulations.” They articulated that in foreign fisheries, “some [are] managed, some are not” leading many nations to “overfishing, polluting oceans,” and “bad labor practices.”

Shoppers indicated conflicting ideas about how Georgia seafood is caught, and commentary that emerged around the periphery of the surveys revealed two images of the fishing community. In one, respondents described independent, entrepreneurial fishers who love the sea and relish the challenge of fishing. At the opposite extreme, some assumed that factory ships indiscriminately trawl all living creatures off the ocean floor. Discussions of aquaculture, or farmed fish, evoked images of diseased, chemically ridden shrimp imported from Asian nations. There was little awareness of the healthier state of U.S. fisheries generally, or specifically in the Southeast or Georgia. Nor was there an understanding of the environmental benefits of shellfish mariculture. A common response that emerged outside the confines of the intercept survey was that few people realized mariculture existed in Georgia (Figure 2).

However, once consumers learned that there is an active seafood industry in Georgia, 90 percent ($n = 392$) expressed interest in purchasing Georgia seafood at their local farmers market. They were enthusiastic about familiar products. Shrimp was desired by 88 percent ($n = 383$) of the respondents and finfish by 94 percent ($n = 409$). Buyers expressed interest in other shellfish such as blue crabs (61 percent, $n = 266$), mussels (59 percent, $n = 254$), oysters (56 percent, $n = 245$), and clams (53 percent, $n = 229$). Many explained that their lower interest in some species was due to their unfamiliarity with how to prepare the items, suggesting that with education, shoppers would expand their purchases. In addition, 78 percent ($n = 337$) said they would be willing to purchase unfamiliar seafood at a farmers market. These data support the idea that farmers market shoppers who are already involved in a values-based supply chain are interested in local seafood as well. Sourcing seafood within the state or region made sense as an expansion of the local food concept to these shoppers.

We also wanted to know whether farmers market shoppers were interested in sustainably-caught or -produced seafood. We asked them “When you’re thinking about buying seafood, what concerns affect your decision?” Their responses were coded at that

Table 1.
Dimensions of Sustainable Seafood for Georgia Farmers Market Shopper

Response Themes	Number	Percent
Does not overfish or deplete resources; respects the species’ need to reproduce	191	54
Preserves the ecosystem; protects habitats	75	21
Wild-caught, not farm-raised	42	12
“Fresh” or locally caught	40	11

moment by the researcher if they fit into one of the following categories: environmental issues; food safety; cost; mercury; pesticides; antibiotic runoff; bycatch; smells bad; difficult to cook; don’t like seafood; or other. For “other” responses, the researcher wrote down their thoughts. We found that the vast majority (88 percent, $n = 383$) reported sustainability concerns when selecting seafood. The primary issues reported were overfishing or depleting resources as well as potential impacts of fishing on fish stocks and ecosystems. When asked to explain what sustainable seafood meant to them, 80 percent ($n = 348$) responded (the remaining 20 percent did not know or declined to respond) and their top four concerns are indicated in Table 1 below. Consumers answered in their own words, with as many different concerns as they preferred, and their responses were then coded into the themes shown below.

These responses demonstrate that for those active in local food purchasing, interest in local seafood exists, as well as some knowledge about seafood sustainability. The most commonly mentioned criteria (overfishing or resource depletion) were agreed upon by over half of the sample. However, there was variety in the ways that this notion was expressed. Only a few mentioned catch limits, but many understood the need for the quantity of the fish to remain high enough to ensure reproductive survival. They used explanations such as “the natural environment is being replenished” or “after what’s fished, what’s left is enough to sustain the population.” They believed that this quality also entailed “fishing the right way” so that we “don’t overfish and murder [the fish] population, so it will “still be here for our kids.”

Discussion

Seafood Choices

Our conversations with local food consumers revealed interest in Georgia seafood, but many were unsure how to assess whether seafood is sustainable. Some would consult seafood guides, such as the Monterey Bay Aquarium's Seafood Watch described below, whereas others used the guides but were not convinced that the recommendations adequately captured the complexities of fisheries. Becoming a well-informed, ethical seafood consumer can be daunting to consumers who are already working hard to make conscientious decisions about other purchases, and below we suggest an approach that addresses the concerns described by consumers we surveyed. A process approach can provide a fluid perspective on levels of engagement for consumers interested in exploring seafood in a values-based supply chain model (DuPuis and Goodman 2005). Depending on available time, knowledge, and interest, individuals (and institutions) can elect to be informed consumers, engaged consumers, or activist consumers, and all three stances can contribute to a more sustainable seafood industry. We propose the following three-tiered model as a blueprint for the local food conversation that needs to continue to build around seafood:

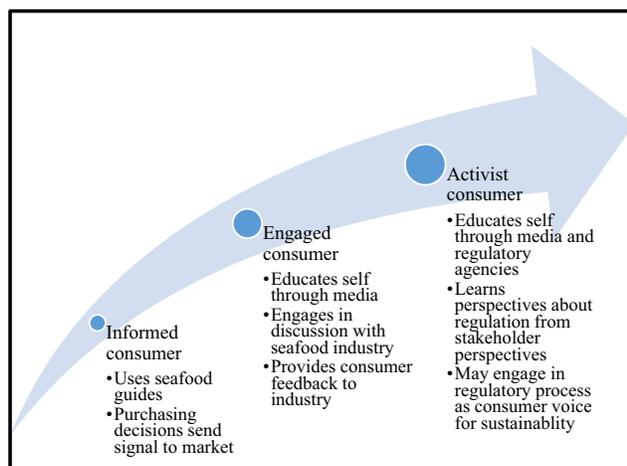
- *Informed consumers* use aids such as seafood guides and certifications to quickly obtain information and

make informed seafood purchasing decisions. These tools provide concise information for consumers about which fish are sustainable and preferable choices. The most widely used seafood guide is the Monterey Bay Aquarium's Seafood Watch, whereas NOAA's lesser-known Fishwatch offers more detailed information. The Marine Stewardship Council (MSC) certifies individual fisheries as sustainable and allows product labels to carry the MSC blue label. While over 300 fisheries are MSC-certified globally, regional availability of MSC-certified products varies significantly (MSC 2016). Interacting with these guidelines is simple, and purchasing decisions provide a market signal that sustainability is important to consumers.

- *Engaged consumers* take the next step by interacting with the seafood supply chain. They purchase from local fishers or engage in conversations with seafood providers (such as fishmongers and restaurant staff) to learn more about how their seafood was caught and other sustainability issues. The Northwest Marine Alliance suggests that consumers ask for specific criteria of the seafood they purchase, namely that it has travelled the shortest distance, is wild-caught, from a local fisherman, and preferably via a Community-Supported Fishery (CSF). CSFs are based on the Consumer Supported Agriculture model; customers pay an up-front fee to a fisher or fishing organization in exchange for a share of whatever is caught (Campbell et al. 2014). CSFs are successful in many locations (Bolton et al. 2016). Further engagement comes with self-education through reading articles about seafood and commercial fishing in local, regional, and national news media. This engagement gives additional market feedback that consumers care about values-based supply chains.
- Finally, *activist consumers* engage with the regulatory process. They receive updates from their state regulatory agency and regional councils and learn more about the impact of current regulation and the perspectives of the many different stakeholders. Activist consumers may participate in the regulatory process by attending meetings and participating in public comment as a consumer voice for environmental and social sustainability.

Each tier makes a valuable contribution, and consumers' own constraints and priorities determine the level of their action. As consumers become more involved in the processes by which fisheries decisions

Figure 2.
Tiers of ethical seafood consumption.



are made, and increasingly aware of the issues that fishers face, they engage with seafood issues on a deeper level.

Conclusions

Georgia farmers market consumers are incorporating values-based criteria in their food choices that include distance criteria, environmental concerns, and ethical issues. While many admit to being confused by available information about seafood and often fail to seek out sustainable seafood purchases, they also show a willingness to include seafood in their values-based food decision making. Thus, we propose the processual model of the Three Tiers of Ethical Seafood Consumption to guide consumer decision making, assist seafood producers in providing good advice to their customers, and to promote sustainable seafood purchasing.

Buying U.S. seafood at the state or regional level allows consumers to reward the environmental, economic, and health and safety accomplishments of U.S. fisheries management. Purchasing wild-caught American seafood and American-maricultured shellfish are choices that can support an ethical values-based supply chain in many parts of the country.

Seafood consumers seeking to support a values-based supply chain can most easily engage through the use of seafood guides to direct choices away from the most troubling seafood options. These guides and certifications bring sustainability issues to the forefront and can serve to reduce overfishing. In addition, seafood guides expand awareness around this important protein source. A second tier of effort seeks direct relationships or expanded knowledge through discussion and purchases from known suppliers (restaurants, fishmongers, farmers markets or CSF). Finally, consumers can become seafood activists through education and engagement in the regulatory process itself.⁶

Seafood is an often-overlooked component of the food system, but in many cases, is a sustainable, healthy, local foodstuff, produced in a manner that avoids human exploitation. Incorporating seafood into local food discourse broadens the knowledge base about seafood that meet ethical criteria and supports practices consistent with sustainable seafood and viable fishers' livelihoods. Connecting fishery issues with the local food movement assists fishing communities that urgently need support and offers a way to improve dietary quality. As values-based supply

chains gain momentum, sustainable seafood supports the ethical ideals—if not always the strict geographic particulars—of the local food movement.

Notes

1. "Seafood" refers to both finfish and shellfish caught and farmed in ocean waters.
2. We focus on ocean-caught and -raised seafood because there are very few wild-caught, commercial-scale, freshwater fisheries in the U.S., and most freshwater fish in the U.S. are either introduced species or aquacultured (farmed).
3. Overfishing refers to stocks for which the harvest is higher than a rate that supports maximum sustained yield. An overfished stock has a population size that is considered too low and jeopardizes the ability of the stock to produce at maximum sustained yield. Overfishing is not necessarily strictly a result of too much fishing, rather it may have other causes such as pollution and/or water temperatures.
4. Mariculture is aquaculture specifically located in the oceans, often associated with bivalve mollusks.
5. The 30-month project included participant observation, qualitative interviews, and extensive in-person and online surveys in Atlanta, Athens, and Georgia's coastal communities. Conclusions presented are also guided by interviews by Tookes and Yandle with four study populations: the fishing community and seafood producers along the Georgia coast, shoppers and managers at Atlanta and Athens area farmers markets, administrators and patrons of Atlanta area CSAs, and chefs and buyers at farm-to-fork restaurants.
6. We deeply appreciate the diligent data collection by the students of Tookes' service-learning course in Fall of 2014, and research assistance provided by Kendra Cooper of Georgia Southern University's Masters in Social Science graduate program. Research was supported in part by an Institutional Grant (NA10OAR4170098) to the Georgia Sea Grant College Program from the National Sea Grant Office, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. All views, opinions, findings, conclusions, and recommendations expressed in this material are those of the authors and do not necessarily reflect the opinions of the Georgia Sea Grant College Program or the National Oceanic and Atmospheric Administration.

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