One Last Bite

The potential for local seafood markets in Sweden: Consumers as resource users

Dana Gilliland

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A thesis submitted in partial fulfillment of the requirements of Lund University International Master's Programme in Environmental Studies and Sustainability Science (30hp/credits)

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Lund University Centre for Sustainability Studies

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Supervisor: Sara Brogaard, LUCSUS, Lund University

Abstract

Over the past 30 to 40 years comprehensive fishery policies and certification schemes have attempted to halt the rapid decline and exploitation of commercial fish stocks. However, with seafood as one of the most globalized food commodities and the world's population increasing exponentially, most commercial stocks are thought to be on the brink of collapse. Some estimates exclaiming that all commercial stocks will be overfished by 2048, presenting challenges to ecosystems and food security. In the wake of such sustainability challenges the local food movement and sustainable seafood initiatives have surfaced as a means to address them; with burgeoning programs such as community-supported fisheries and other local seafood markets. Through a mixed methods approach this study attempts to contribute to a more holistic understanding of the potential for local seafood markets in Sweden. Three models are analyzed complimented with both qualitative and quantitative data from interviews and questionnaires of stakeholders involved in the fisheries industry. Ostrom's frameworks for common-pool resources and Social-Ecological Systems, as well as the Theory of Planned Behavior assist in this analysis; focusing on consumers as resource users, and their contribution to the sustainability of Common-Pool Resources through behavioral intention. The research study reveals that there is potential through consumer and producer interest. Community-supported fisheries present a developed model from which to draw from in the Swedish context, as do the Stockholm Fish Market and the Simrishamn South Baltic FLAG. Comprehensive analysis suggests that no one model can be used as a panacea; however, community-supported fisheries adhere to all three pillars of sustainability, encouraging a collaborative and community-based approach to mitigating the challenge of common-pool resource use. Although the study scratches the surface of an under-researched field, it represents an innovative approach to seafood valuation and the involvement of consumers in the management and use of our common fisheries resource.

***Keywords**: fisheries, local food, consumers, common-pool resources, sustainability science, community-supported fisheries*

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Abbreviations

ACFM	Advisory Committee on Fisheries Management
CFP	Common Fisheries Policy
CSA	Community Supported Agriculture
CSF	Community Supported Fisheries
CPR	Common-pool resources
EU	European Union
FAO	Food and Agriculture Organization
FEK	Fishers Ecological Knowledge
FLAG	Fisheries Local Action Group
ICES	International Council for Exploration of the Seas
MBASW	Monterey Bay Aquarium Seafood Watch
MSC	Marine Stewardship Council
SEK	Swedish Kronor (currency)
SES	Social-ecological systems
SLU	Swedish University of Agricultural Sciences
STECF	Scientific, Technical, and Economic Committee on Fisheries
SwAM	Swedish Water and Marine Management
TAC	Total Annual Catch
TPB	Theory of Planned Behavior
UN	United Nations
UNCLOS	United Nations Convention on Law of the Sea
US	United States
USD	United States Dollar (currency)

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1. Introduction

Over the past 30 to 40 years comprehensive fisheries policies and regulations have focused on the fact that commercial fish stocks are consistently and rapidly declining (Reed, Courtney, Urquhart, & Ross, 2013; Symes & Phillipson, 2009) Since the 1980s and 90s at least 75% of global fish stocks are depleted or overexploited, and several fisheries have collapsed; most commonly cited, Canada's Newfoundland cod fishery (Pauly et al., 2002; Lövin, 2012). Mounting scientific evidence suggests that most of the world's commercial fisheries could collapse within the next few decades (Costello, Gaines, & Lynham, 2008; Worm et al., 2006). This warning is emphasized by the fact that seafood is one of the most globally traded food commodities (FAO, 2013a; Pauly et al., 2002). Meaning that overfishing not only threatens the marine ecosystem and thus the sustainability of this planet, but also is a threat to food security.

The comprehensive fisheries regulations coincided with the development of neo-liberal thinking in Western Europe, along with a shift in the "geography of governance" – from national governments to European institutions (Symes & Phillipson, 2009). The European Union Common Fisheries Policy now reins over fisheries management of one of the world's biggest fishing powers, Europe (Lövin, 2012). The European Union imports 40 percent of the world's total; even excluding intra-EU-trade this still makes Europe the largest market in the world (FAO, 2013b).

Since the 1950s industrial fishing has attempted to satiate the growing demand for fish. However, the world population has doubled over the past 50 years, at the same time so has the amount of seafood consumed per capita worldwide (Jacquet et al., 2009). The neo-liberal market on which industrial fishing and globalized markets have developed informs consumers that they can have what they want; markets should be free and open, able to be privatized. In this context policies are directed towards conservation under the pretext that fish will be correctly valued if fishermen using our common resource feel regulated and sanctioned (Reed et al., 2013). Another form of conservation under the neo-liberal umbrella is certification schemes, such as the Marine Stewardship Council (MSC). The MSC is a global fishery certification program and seafood ecolabel that claims to provide 'sustainably caught seafood' to consumers. However, this paradigm has been witness to the collapse of fisheries and the depletion of fish stocks, demonstrating the 'tragedy of the commons' to its fullest (Hardin, 1968; Jacquet & Pauly, 2010). Despite the seemingly benevolent intentions of both international regulations and certification schemes the state of global fisheries is in dire need of a change.

Steins and Edwards (1999) point out that privatization and government intervention were traditionally seen as the way to deal with the 'tragedy' – but there has been a theoretical shift towards community-based management as a successful strategy in the governance of common-pool resources (Ostrom, 1990). In the face of global markets and industrial food production, local food movements have sprung up, initiated by communities of producers and consumers who envision a future of food security and environmental sustainability. Local food movements have lead the way to sustainable seafood initiatives, supporting the idea of connecting producers and consumers – not only farmers, but fishers[1] to consumers – to the community. Perhaps in this way, as suggested by Ostrom (1990), small-scale collective-action can lead to self-organization and governance and the conservation of common-pool resources.

The focus of this thesis is the potential for local seafood markets in Sweden. Three models will provide a look at developed and developing markets to determine, which, if any, are successful or applicable to coastal communities and small-scale fisheries of Sweden. Ostrom's (1990; 2009) frameworks for Common-Pool Resources and Social-Ecological Systems and the Theory of Planned Behavior (Ajzen, 1985) will guide the theoretical background, focusing on consumers. Through this study the researcher will attempt to contribute to a more holistic understanding of the potential for local seafood markets and the involvement of consumers as resource users in the sustainable management of Swedish seafood resources.

1.1 Research Questions

1. Can local seafood markets encourage sustainable management of seafood resources in Sweden?

    a) What insights can be gained from existing models that may contribute to the sustainable management of seafood resources?

    b) Based on the combination of Common-Pool Resources and Social-Ecological Systems frameworks (Ostrom, 1990; 2009) how can consumers as resource users contribute to the sustainable management of local fisheries?

[1] 'Fishers' will be used as synonym to 'fishermen', for the purpose of gender neutrality.

1.2 Reader's Guide

The following chapters will demonstrate the problem, process, theoretical framing, results and analysis, that contribute to recommendations for further research and possible steps to be taken in the development of local seafood markets in the Swedish context. Chapter 2, background information provides a deeper insight into international regulation and certification schemes, as well as the local food movement and sustainable seafood initiatives. In Chapter 3, methodology will be presented, where mixed methods contribute to the understanding and context in which local seafood markets have developed or are developing. Relevant theory is presented in Chapter 4, including Ostrom's frameworks for Common-Pool Resources and Social-Ecological Systems, as well as the Theory of Planned Behavior. Chapter 5 discusses the three models: Community Supported Fisheries will stand as the developed model from North America, with 41 operational seafood markets; and the Stockholm Fish Market and Simrishamn South Baltic FLAG illustrate two Swedish models both in development phases. The analysis and discussion of results can be found in Chapter 6, and Chapter 7 concludes the study with the main findings, reflections, and suggestions for further research.

2. Background

In this chapter background information on international fisheries regulations and certification schemes are presented, with a focus on the EU Common Fisheries Policy and the Marine Stewardship Council. Followed by a brief description of the local food movement and its relation to sustainable seafood initiatives.

2.1 International Fishery Regulations – Common Fisheries Policy

Following growing global demand for seafood and subsequent increase in fishing efforts, varying international regulations and policies have emerged with the aim of mediating the decline in fish stocks; these have prompted more sustainable management of global fisheries. According to the United Nations (UN) (1998), the oceans had long been governed by the "freedom of-the-seas doctrine" – a principle where a Nations coastline and waters were territorial seas and everything else was "free to all and belonging to none" or the high seas[2].

The role of coastal states in governing fish stocks in their surrounding waters was initially laid out in the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas (UN, 1998). This convention gave coastal states the right to implement "unilateral measures" concerning conservation of resources in the high seas adjacent to their territorial waters (Ibid.). However, the law was unclear and its rules were rarely acted upon. This lack of clarity led to much tension among nations concerning the high seas and its many resources. In 1973 the Third United Nations Conference on Law of the Sea convened and ended nine years later in 1982, with the United Nations Convention on Law of the Sea (UNCLOS) (Ibid.).

One of the most important contributions of UNCLOS has been to create a structured international regime for maritime issues, including fisheries management. However, despite this structure, there is little evidence of improved conservation or restoration of fish stocks. While the UN and Food and Agriculture Organization of the UN (FAO) have several international management strategies the European Union (EU) too has forged ahead to be a leader in international, if not global, fisheries management through the Common Fisheries Policy (CFP).

[2] High Seas – "Parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State" (UN, n.d.).

The EU's CFP attempts to address the depletion of fish stocks, support sustainable fisheries, and guarantee equal access to its member states (Reed et al., 2013). The CFP uses two types of instruments to conserve fish stocks: total annual catches[3] (TACs) and technical measures including gear regulations, closed areas and seasons, and minimum allowable sizes for individual species; in addition the policy attempts to limit fishing effort through capacity of its fleet, and days-at-sea[4] (Daw & Gray, 2005). The establishment of these measures is reached through scientific assessments of fish stocks undertaken by the International Council for Exploration of the Seas (ICES), and follows a long bureaucratic path before it reaches the member states and voting. Initial research is carried out by an ICES working team, then ICES Advisory Committee on Fishery Management (ACFM) compiles scientific advice for the European Commission, the information is then discussed and a proposal is drafted based on further input from the Scientific, Technical, and Economic Committee on Fisheries (STECF) and the European Parliament's Fisheries Committee (Ibid.). These proposals are then sent to the Council of Ministers, which is made up of national ministers of member states, who then have the final authority for negotiating fishery regulations (Ibid.). Figure 1 (below) provides a visual representation of this process.

[3] TACs – Upper limits which are set for the total amount of fish that can be landed in a particular area per year.

[4] Days-at-sea – Amount of days spent at sea fishing per year.

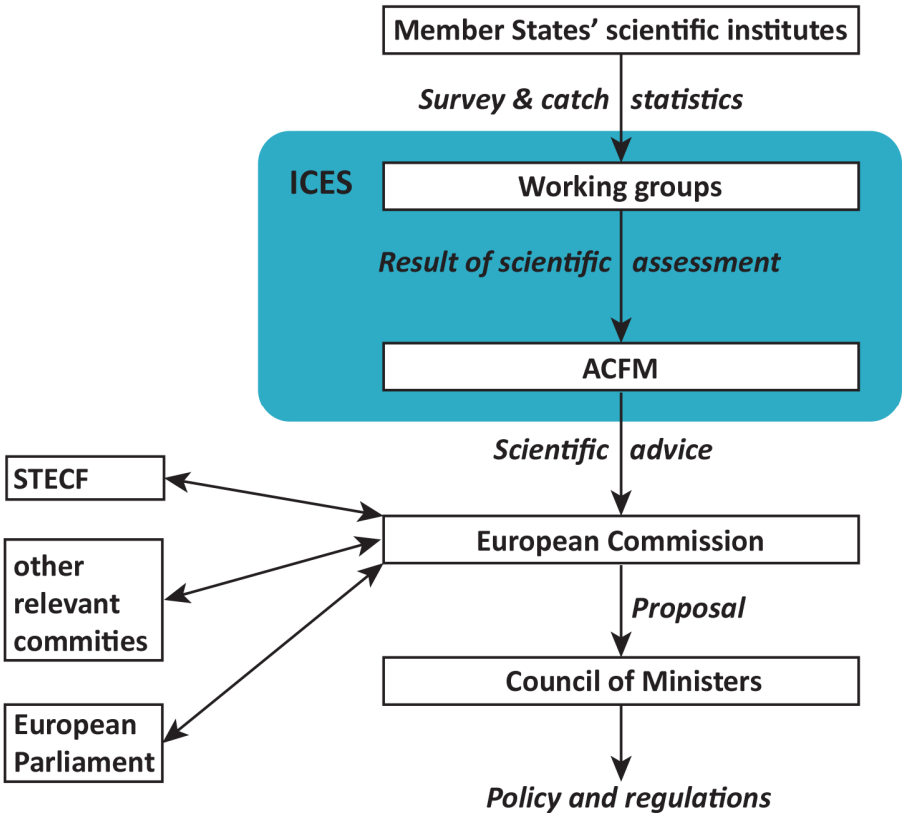

Figure 1. The implementation path of scientific research into fishery policy within the European Commission and the Common Fisheries Policy, adapted from Daw and Gray (2005).

Although the ICES provides scientific recommendations to EU member states and fisheries committees, they are rarely acted upon to the full extent. Once advice and evidence is presented to the Commission and its Ministers, it is upon them to heed scientists warnings, but more often than not they listen instead to the fishing industry; placing restrictions and limits far below what they should be in order to maintain sustainable fisheries. Daw and Gray (2005) state, that the CFP is an "international tragedy of the commons" in that no State or Minister is willing to sacrifice their chances at re-election for conservation (p.192). All in all it comes down to lack of political will.

In Isabella Lövin's book *Silent Sea*, she explores the deeply flawed 'management' of a public resource (fisheries) – focusing on Sweden and Europe – with a message that until governments legislate more responsibly, it is consumer action that is the best means to bring about change. According to Lövin (2012), "In 1945, Sweden had 20,000 fishermen living off a total annual catch of 150,000 tons of fish; all

for human consumption. In 2008, there were less than 2,000 fishermen living off an annual catch of 230,000 tons, mostly fish for animal feed" (p.42). In 2006, after a study of over 100 fishing regions, Worm et al., concluded that if present trends continue all commercially fished species will have collapsed by 2048 (Worm et al., 2006).

In March 2001, the EU published the Green Paper on the CFP, that despite "dry bureaucratic language […] was still explosive"; it stated that after 20 years of the CFP "the EU had failed miserably to establish sustainable fisheries" (Lövin, 2012, p.30; Green Paper, 2001). In 2009 another Green Paper critiques the CPF and lists five structural failings of the policy, including fleet overcapacity, short-term focus, and lack of political will and industry compliance. It states, "The fisheries sector can no longer be seen in isolation from its broader maritime environment" and addresses the need for economic and social sustainability (Green Paper, 2009, p.5). According to the FAO, each year 7.3 million tons of fish is discarded; the EU Commission reports 1.3 million tons in the North Atlantic alone (Lövin, 2012, p. 42). These numbers of waste and death are mainly due to restrictions based on allowable size, quotas, and influenced by market values (Lövin, 2012). However, in January 2013, the EU Agriculture and Fisheries Council reformed the CFP with these objectives (DEFRA, 2013):

1. Discards – end wasteful practices by focusing on catches not landings.
2. Regionalization – member states implement regional management measures, as opposed to less context specific international measures.
3. Quotas – fishermen rights managed, for long-term, stock improving planning, moving away from short-term economic gain towards social and economic sustainability.
4. Integration – include environmental policy objectives, keeping CFP in-line with scientific advice.

Only time will tell if these too are false promises; much of this depends on member state determination in ending such wasteful and self-harming practices.

Through this brief background into international fishery regulations – with focus on the EU – it can be seen that the process to arrive at diluted decisions takes far too long and the decisions made are inadequate in the sustainable management of fisheries. Fisheries management is more a game of politics than science, and is an acknowledged failure in the European context.

2.2 International Certification Schemes – Marine Stewardship Council

As the demand for seafood has risen, so too has the demand – or market – for 'sustainable seafood'. According to Jacquet et al. (2009) 'sustainable seafood' is a broad term referring to ecologically responsible fishing practices, which minimizes bycatch and other negative environmental impacts. Over the last few decades, beginning in the 1980s, certification schemes have multiplied. Certification schemes serve the purpose of providing consumers with a method of decision-making, which allows for lethargic conscious consumption.

Certification schemes (or ecolabels) have helped to reduce the gap between producers and consumers, providing consumers with information about the individual products available to them (Schumacher, 2010; Thogersen, Haugaard, & Olesen, 2010). According to Thogersen et al. (2010) ecolabeling has long been considered a path towards sustainable consumption. Schumacher (2010) found that approximately 50% of all Europeans make decisions using ecolables, showing their significant impact on consumer behavior, and thus the market. However, there are currently 435 ecolabels worldwide (Ecolabel Index, 2013), demonstrating their prevalence, but also the need for precaution. The excessive amount of ecolabels can lead to 'information overload' or ambiguity, when consumers no longer trust what they stand for or advertise (Thogersen et al., 2010; Schumacher, 2010).

The first major campaign to boycott seafood (canned tuna) was in the 1980s, which led to the first seafood ecolabel known as 'dolphin safe' in the 1990s (Jacquet et al., 2009; Kaiser & Edwards-Jones, 2006). Then in 1997 the first certification scheme know specifically for 'sustainable seafood' was founded by the World Wildlife Fund and Unilever, know as the Marine Stewardship Council (MCS) (Jacquet et al., 2009; MSC, 2013).

Since 1997 the MSC has certified 200 fisheries[5], with another 103 under assessment; together these fisheries record TAC of about 10 million metric tons, which represents over 11% of the annual global harvest of wild capture fisheries (MSC, 2013). The MSC upholds three main principles upon which fisheries must abide: 1) that fishing can continue indefinitely without overexploiting or depleting the resource; 2) that productivity of the ecosystem is maintained and preserved; and that, 3) the fishery is

[5] A 'fishery' in the MSC program may include one or more 'units of certification'. A unit of certification is usually defined by reference to one or more of the following: target fish species and stock; geographic area of fishing; fishing method, gear, practice and/or vessel type (MSC, 2013).

managed according to all local, national, and international laws (Jacquet et al., 2009; Kaiser & Edwards-Jones, 2006; MSC, 2013). Fisheries are certified by third-party certifiers and upon certification must be audited every year, and reassessed every 5 years (Goyert, Sagarin, & Annala, 2010). All parties within the supply chain, wishing to use the MSC label, must complete a detailed traceability audit against MSCs Chain of Custody standard; this ensures that only MSC certified seafood is sold with its label (Goyert et al., 2010; MSC, 2013). However, this guarantee is under debate as reports of mislabeling increase (Warner et al., 2013; BBC, 2013).

The MSC is the most widely known and represented seafood ecolabel, and continues to grow, holding deals with WalMart and Lidl, among others (Goyert et al., 2010). For this reason, and the 'price-premium' attached to products with its label, it is becoming necessary for fisheries in order to gain or maintain access to certain markets. According to Zwerdling and Williams (2013) after WalMart vowed to supply as much MSC seafood as possible in all their American stores, all other major retailers had to come on board, so as not to have WalMart look more "progressive" than they. However, the price involved for certification and complying with MSC standards leaves small-scale and developing country fisheries stranded. Goyert et al. (2010) state that such costs can be "prohibitive" – when certification for small-scale, community-based fisheries is around 20,000 USD and 300,000 USD for large-scale, industrial fisheries (p.1104). These economic barriers are important to take note of for both producer as well as consumer justice, as ecolabeled goods are often sold at a premium.

To explore more in-depth and experienced knowledge behind certification schemes, Annelie Brand former employee of MSC in Stockholm was interviewed. Through discussion it became clear that there are many struggles with certification schemes, although they do serve a valid purpose by providing consumers with a market-based voice (Personal communication 25 Feb. 2013). Concerning small-scale and developing country fisheries A. Brand said that it is something MSC is working on. Small-scale fisheries frequently use selective, low-impact techniques that are often sustainable, but make up only a small fraction of MSC-certified fisheries (Jacquet & Pauly, 2010). MSC is beginning to encourage small-scale fishers to form groups and apply for funding, as the certification money goes directly to the third-party certifier, as MSC is non-profit. However, A. Brand expressed reservations when discussing certification, as it is based on relatively weak FAO guidelines. Although A. Brand felt that MSC is the best option available to consumers (Personal communication, 25 Feb. 2013), it is clear that it could do much better. For instance MSC does not take into account 'end-use' meaning that fisheries supplying for fishmeal can be certified (Jacquet & Pauly, 2010; Zwerdling & Williams, 2013). When asked about the

potential for small-scale, local seafood markets A. Brand remarked that it is the way forward – "If everyone were to join small-scale fisheries, no one will overfish" (Personal communication 25 Feb. 2013).[6]

According to Jacquet and Pauly (2010) the MSC has failed consumers and the environment, and is in need of serious reform. This sentiment is not uncommon, as the MSC has been heavily criticized. Although certification schemes may serve a purpose by providing consumers with a market-based voice, they are often difficult to monitor and transparency becomes lost in the global supply chain.

2.3 Local Food Movement and Sustainable Seafood Initiatives

As presented in the previous sections, both international regulations and certification schemes leave much to be desired when trying to preserve fisheries and consume consciously. Over the past several decades the local food movement has gained many followers and forms, including sustainable seafood initiatives.

The local food movement attempts to reconnect consumers to the food systems on which most have become increasingly distant, thus enforcing proximate relationships (Witter, 2012). In order for consumers to make informed decisions about food, they must know its source. Not only does the local food movement connect consumers to their food and producers, but can minimize the global impact through reduced carbon footprint (Ibid.).

The local food movement and sustainable seafood initiatives follow the same vein of consumer awareness and demand. Farmers markets and Community Supported Agriculture (CSA) programs are two direct contributions of the local food movement, along with natural food stores and the increasing advertisement of 'local grown'. Sustainable seafood initiatives include, but are not limited to, certification schemes (i.e. MSC), seafood guides (i.e. Monterey Bay Aquarium Seafood Watch), and Community Supported Fisheries (CSF), changing the way producers and consumers relate to food and each other, encouraging community and sustainability within the food supply system.

However, have local markets changed the way consumers consume or the way producers produce? Do local markets have the potential to increase sustainability? Or are they simply another approach that

[6] Refer to Appendix 1 for a representation of small- versus large-scale fisheries.

will require new remedies?

According to Kerton and Sinclair (2010) "food is a powerful symbol in the struggle to transition to a more sustainable pathway" (p.401). Marketing products directly in local markets allow producers to capture a greater portion of consumers' budget meanwhile stimulating the local economy (Darby, Batte, Ernst, & Roe, 2008). Kerton and Sinclair (2010) found that linking producer and consumer – through programs such as CSA – is a powerful learning tool on the path to a more sustainable lifestyle. Participants involved in CSA programs expressed raised awareness and interest in seasonality and experimenting with local produce of which they were unaccustomed (Kerton & Sinclair, 2010; Melin, 2012). There is increasing recognition of the connection between consumer choice and social and environmental impacts, both locally and globally (Ibid.). This can be seen through the local food movement, as well as certification schemes and sustainable seafood guides that attempt to provide consumers with standards or information, allowing more educated decisions when it comes to food choice.

Roheim (2009) discusses sustainable seafood guides and the start of the sustainable seafood movement as being in the mid-1990s. Although the first seafood guide appeared in 1998, there are now over 200 guides; the most wide-spread is the Monterey Bay Aquarium Seafood Watch (MBASW) pocket guide with over 40 million distributed and nearly a million downloaded, since its inception in 1999 (MBASW, 2013; Roheim, 2009). Despite the potentially far-reaching impact of sustainable seafood guides and ecolabels, there are still significant changes that need to be made to our seafood supply chain; especially if markets are increasingly difficult to trust, due to scandals of mislabeling, as reported by Oceana (Warner et al., 2012).

Local food movements, however, could offer transparency that builds trust between local producers and consumers. All three pillars of sustainability are addressed, in that they support local communities and economies as well as ecological variety and environmental resilience. DeLind (2010) refers to a biological analogy, where grassroots movements serve as the immune system for the planet. She continues to discuss the regenerative food system and how all systems and subsystems are the sources of diversity and redundancy (DeLind, 2010), suggesting that local food movements encourage biological diversity and resilience.

However, DeLind (2010) critiques the local food movement in that it too has become a marketing strategy, no longer representing what it originally set out to achieve. Where corporations and an image of

being 'environmentally friendly' have overtaken drivers such as stagnant local economies, food deserts, and health. DeLind (2010) precautions against *locavore*[7] manifestos such as Michael Pollan's *Omnivores' Dilemma*, that lead away from regenerative and resilient societies to being lazy consumers. She states that "local food [is about] engaging in the continual creation, negotiation, and re-creation of identity, memory, and meaning" (DeLind, 2010. p.279). This suggests that local food movements and sustainable seafood initiatives must not be seen as panaceas, but should be developed depending on context. Although DeLind (2010) questions the path the local food movement has taken, she does not question the power of local democracy and participation. The local food movement and sustainable seafood initiatives offer a path for communities of consumers to take control of their own food economies potentially achieving improved food sovereignty.

[7] Locavore – A person who prefers to eat (or only eats) from within his/her own region or foodshed.

3. Methodology

This chapter describes the design and research objectives of the study, methods used for data collection and analysis, ethical considerations, and possible limitations to the research.

3.1 Research Design

The research process was iterative, in that the study's structure evolved as research was carried out. As well, the research was inductive, rather than deductive, as it aimed to offer insights gained through experience and analysis of existing models. Inductive research offers more freedom to follow the research, as it is open-ended and exploratory in nature; appropriate for a relatively new field of study, that has not been widely researched. For this reason *convenience* and *snowball* sampling were used to maximize scope and data collected[8]. This design contributed to the *mixed methods* approach, which is said to address more complicated research questions, collecting a stronger array of data (Yin, 2009, p. 63).

While applying a mixed methods approach, the research was primarily qualitative, due to the interpretive, experiential, situational, and personal nature of the study (Stake, 2010). Although some quantitative data was gathered and utilized, in particular a consumer survey concerning seafood knowledge, choice, and locality. The research aimed to uphold the following four criteria for performing sound *qualitative* research: 1) credibility, 2) transferability, 3) dependability, and 4) confirmability (Bryman, 2012, p. 49).

1. Credibility was sought through accurate documentation of participant perspectives, through interview recording and interviewee confirmation. There were 9 interviews[9] conducted with a variety of stakeholders; these were attained through snowball sampling. The interviews were semi-structured and supplemented by personal communication of other forms (i.e. Email).

[8] Convenience and snowball sampling were utilized in order to take advantage of all opportunities presented, gathering information when and where available. This method contributed to the natural and evolving form of the research, leading to a variety of respondents and viewpoints.

[9] Please refer to Appendix 2 for a complete list of interviews and other personal communications (total 9) carried out during the research period.

2. Transferability was attempted through analytical generalization; the researcher looked at findings as they pertained to the study, but also strived for transparency of documentation for possible application in similar studies.
3. Dependability of the study was strived for by thorough documentation of research design and methods used. This chapter provides most information, however, other important documents are available in the Appendix.
4. Confirmability was attempted through corroboration by the research with others; interviewees, colleagues, and the research supervisor were all consulted. As well, when writing questionnaires the information was translated and a pilot-test[10] enhanced validity.

All four criteria have been followed to the best of the researcher's abilities. Data collection and analysis were carried out using mixed methods; surveys in the form of questionnaires were used for both quantitative and qualitative information, and unstructured interviews were used for qualitative purposes (Bryman, 2012). Interviews were both *in-depth* and *focused* depending on the interviewee, and the type and amount of information needed (Yin, 2009). Using both quantitative and qualitative data, can be helpful because quantitative data is more deductive, assisting to prove theory; whereas qualitative data is inductive, meaning that it can be useful in theory generation (Bryman, 2012). Yin offers a word of advice to researchers, "design can be modified by new information or discovery during data collection" (p.62). Theory was present throughout data collection and analysis; however, as in *grounded theory* it was ever evolving (Yin, 2009).

3.1.1 Research Phases and Objectives

This section provides a brief overview of the phases and research objectives of the study, and further emphasizes Bryman's qualitative criteria.

Phase One, research and provide background information on international fisheries regulations and certifications schemes, with a focus on the EU; as well as local food movements and sustainable seafood initiatives, in order to more fully understand the context within which local seafood markets have the

[10] A pilot-test was conducted to ensure meaning and understandability of questionnaires was not lost upon translation from English to Swedish. Native Swedish speakers were used for both translation and pilot-test.

potential to evolve.

Phase two, review relevant literature and websites concerning the selected North American model (CSF) to determine sustainability measures[11], in order to assess the model itself as well as its applicability in the Swedish context.

Phase three, to conduct detailed assessment of the Swedish models through interviews and the review of relevant information. This contributed to the further understanding of the context in which local seafood markets have the potential to develop.

Phase four, determine the potential for local seafood markets in Sweden through detailed research and analysis of existing models through both qualitative and quantitative data collection. Interviews and questionnaires[12] of producers (fishers) and consumers, and individuals involved in the fishing industry assess interest and need, as well as approach to creating more sustainable seafood markets in Sweden. The questionnaires attempt to create a better understanding of consumer intention and behavior when it comes to local seafood, and fishers' perceptions of the fishing industry, policy, and regulations.

Phase five, analyze and discuss the findings within the modified Ostrom framework, in order to better determine the sustainability of common-pool fishery resources when jointly used and managed by both producers (fishers) and consumers. As well, the Theory of Planned Behavior contributes to a more thorough understanding of consumer behavior. Data from previous phases will contribute to a comprehensive understanding of the relationship between consumers, fishers, and the marine environment.

Phase six, synthesize and draw conclusions in an attempt to make suggestions or recommendations for local seafood markets in Sweden; as well as to reflect upon the research process.

[11] Please refer to Appendix 3 for a complete list of all existing CSFs in North America as of March 2013, including location, year established, reason for establishment, intended outcomes, and sustainability criteria.

[12] Please refer to Appendix 4 and 5 for complete questionnaires (English and Swedish) of both consumers and fishers.

3.2 Data Collection and Analysis

This section depicts primary data collection in the form of a table below (see Figure 2), supplemented by additional important information concerning interviews and questionnaires. Secondary data collection is also mentioned as well as ethical considerations taken into account throughout the study. *Stakeholder* refers to the category of actors interviewed, while the *Key Perspectives* point to what each stakeholder group contributed to the study.

Stakeholder	Sample Size	Method	Key Perspectives
Consumers	31	Questionnaire	Behavioral intention and habits for seafood consumption; interest in local seafood markets and contact with fishers.
Fishers	3	Questionnaire	Perception of current fishery and markets; interest in local seafood markets and contact with consumers.
Industry	4	Interview/Other personal communication	Provided background information to the fishery industry; including the development of policy and fishing equipment, and markets.
Local Seafood Market Models	3	Interview/Other personal communication	Insights into local seafood markets, through community and fishery development and the integration of consumers as resource users.
Other	2	Interview/Other personal communication	Provided background information; including contacts for further data gathering.

Figure 2. Stakeholder, sample size, method, and key perspectives of the data collection and analysis process.

The interviews were conducted with a variety of stakeholders working within the fishery industry. These interviews were obtained through snowball sampling, following a thread between contacts. The consumer questionnaires were selected based on convenience sampling, and were gathered at Havets

Hus[13] in Lysekil, Sweden a small, coastal fishing town with population 7,628 (in 2010). The consumer questionnaires were completed February 9, 2013; there were 31 respondents of which 14 were male and 17 female. The questionnaires for fishers were distributed through contacts and were anonymous due to sensitivity of subject; there were 3 respondents. Questionnaires were given in Swedish and therefore were translated from English and pilot-tested in order to ensure comprehension and validity. [14]

Data collection was also supplemented with secondary data in the form of extensive literature review, and scrutiny of various relevant sources, including websites, books, and podcasts. There were also ethical considerations taken into account when gathering and handling data. The consumer and fisher questionnaires both offered the respondents anonymity; in the case of consumers the issue was not particularly personal, however, for fishers this was important due to tensions in the industry. As well, interviewees were provided cited information for approval prior to final submission.

3.3 Limitations

This study was limited due to several factors. These were mainly due to time restrictions, because this was a rather short research period the data collection and analysis could not be extensive. Time restrictions meant that only a small number of questionnaires and interviews could be collected and that analysis was therefore constrained. As well, interviews and questionnaires could be biased for several reasons, including poorly articulated questions and responses, as well as through reflexivity (Yin, 2009). However, due to in-depth and focused interviews – lasting between an hour and months of communication – the respondents had time to become familiar with the researcher, thus reducing response bias (Yin, 2009). The questionnaires offered respondents anonymity further reducing response bias. However, despite precautions taken limitations could present themselves through the small numbers of both interviewee and questionnaire sample size.

Another limitation was the sensitive nature of fishery regulations and industry in Sweden and the EU, that response rate from fishers was very low, thereby diminishing the internal credibility of their voice in the study of seafood markets. This limitation must be taken into account in analysis of results.

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[13] Havets Hus is the local aquarium in Lysekil, Sweden.

[14] Refer to Appendix 6 for reasoning behind questionnaire samples.

In addition the selection of seafood market models may have altered the study's findings[15]. The focus of the study is on Sweden, with a model selected from North America to embellish the research; these two decisions were made (1) since the researcher was located in Sweden during the research process, and (2) North America provided a developed and interesting model of seafood markets. However, it is possible that these geographic locations have somehow biased the study's results. As well, as a relatively new field of study the interpretation and analysis of existing data was restricted due to lack of comparability and testing through other studies.

[15] See Appendix 7 for justification and sources of data for selected seafood market models.

4. Theory

In this chapter the research discusses Elinor Ostrom's Common-Pool Resources framework, which assesses the sustainability of Social-Ecological Systems through the analysis of common-pool resource management. The researcher utilizes the theory with the addition of consumers to the User subsystem. As well, the Theory of Planned Behavior assists with the analysis of consumer intention and behavior and thus consumer involvement in resource management.

4.1 Ostrom's Common-Pool Resources

Governing the Commons by Elinor Ostrom (1990) analyzes the management of common-pool resources (CPR) – i.e. inshore, small-scale fisheries – and the likelihood of resource users to organize and cooperate in an effort to conserve shared resources. Ostrom (1990) presents several examples of long-enduring CPRs and discusses what criteria contribute to success or failure of such community-initiated management.

Ostrom (1990, p. 90) formulates eight design principles that are illustrated by long-enduring CPR institutions:

1. Clearly defined boundaries
2. Congruence between appropriation and provision rules and local conditions
3. Collective-choice arrangements
4. Monitoring
5. Graduated sanctions.
6. Conflict-resolution mechanisms
7. Minimal recognition of rights to organize
8. Nested enterprises (for CPRs that are parts of larger systems)

These principles introduce a credible explanation for the persistence of some CPRs and related institutions; however, they are by no means uniform in every context. Ostrom (1990) also presents a list of questions to determine the information for net benefits of alternative rules, meaning the cost analysis Users make of a CPR to evaluate benefits of changing existing rules. The questions are as follows (Ostrom, 1990, p. 196):

1. What are the predicted average flows and the predicted values of resource units in the future under a proposed set of rules, as compared with the status quo rules?
2. How variable is the flow of resource units expected to be under a proposed set of rules, as compared with the status quo rules?
3. What quality differences will occur under a proposed set of rules, as compared with the status quo rules?
4. How long is the resource itself likely to generate resource units under a proposed set of rules, as compared with the status quo rules?
5. Will conflict be reduced, stay the same, or increase under a proposed set of rules, as compared with the status quo rules?

According to Ostrom (1990) the "ease or difficulty answering these questions, as well as the specific answers obtained, will depend on a number of situational variable, including the number of appropriators; the size of the resource system; the variability of resource units over time and space; the current condition of the resource system; market conditions; the amount and type of conflict that has existed in the past; the availability of recorded data on current conditions and historical appropriation patterns; the particular status quo rules; and the particular proposed rules" (p.196). Keep the principles, questions, and situational variable for CPRs – presented above – in mind when delving into Ostrom's (2009) framework for Social-Ecological Systems (SES)– presented below.

In Ostrom's further work on CPR she created a framework to analyze the sustainability of SESs, as an approach to understand complexity; systems must be looked at as a whole formed by several interrelated variables (Ostrom, 2009). The subsystems of an SES are as follows: resource units (RU), resource system (RS), governance system (GS), and users (U); these subsystem variables are then linked to the social, economic, and political settings (S) and the related ecosystems (ECO) (See Figure 2, adapted from Ostrom, 2009 below). Ostrom (1990) classifies the Users group as those "heavily dependent on the CPR for economic returns" (p.26); therefore in the case of fisheries, fishers. However, for the purpose of this research and from extensive literature review and analysis of existing fishery models, consumers are added to the Users subsystem. In Ostrom (2009) the Users, besides being "dependent on the RS for a substantial portion of their livelihoods", can also be those who "attach high value to the sustainability of the resource" (p.421). This is the case the research explores for the position of consumers involved in local seafood markets.

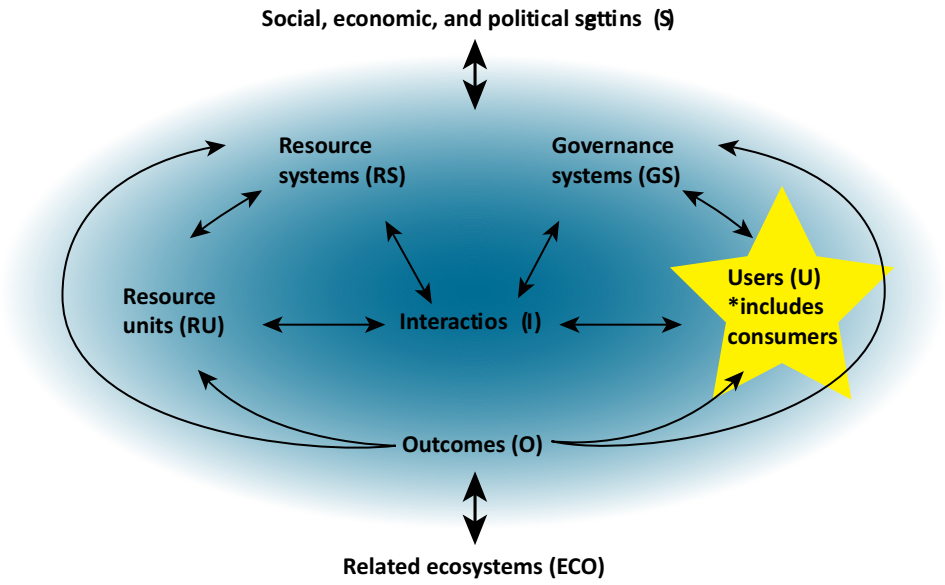


Figure 3. The core subsystems in the framework for analyzing social-ecological systems (SESs), adapted from Ostrom (2009).

4.2 Consumers as Users

Including consumers in the Users subsystem of Ostrom's (2009) SES framework, contributes to her theory in the sense that by involving consumers in the management of resources, there is more potential for the sustainable management of CPRs. When consumers are involved in the management or use of a resource, they are likely to gain awareness and dependence on the resource, thus instilling stewardship.

Ostrom (1990), "Appropriators who live near the CPR from which they appropriate and who interact with each other in many situations other than the sharing of their CPR are apt to develop strong norms of acceptable behavior and to convey their mutual expectations to one another in many reinforcing encounters" (p.206). In this case the appropriators are the 'U' and can be defined as the fishers and consumers whom interact in the co-management of the resource, but also as community members.

In the case of local seafood markets, such as Community Supported Fisheries (CSF), consumers are invited as members or 'shareholders' to partake in the risks and benefits of co-managing a fishery. Fishers and consumers maintain their original roles, except to the extent that consumers are oblivious market pawns; instead consumers are seen an interested and active members of a community striving for the

sustainable management of a CPR. This concept will be explored further in the following chapter on the background and analysis of CSFs and other local seafood market models in Sweden.

However, in the following section, the Theory of Planned Behavior is presented as a means to explain consumer intention and behavior when it comes to partaking in local seafood markets and the conservation of CPRs.

4.3 Theory of Planned Behavior and Consumers

The Theory of Planned Behavior (TPB) (Ajzen, 1985) is an extension of the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and suggests that behavior is guided by attitudes, norms, and the perception of control. The TPB is a prominent theory in Psychology, often used to explain reasons for and types of behavior, including 'green' consumerism and food choice (refer to Sparks & Shepard 1992; Shepard 1999; Arvola et al., 2008). In this case, the TPB is used to emphasize Ostrom's theory on CPR users – consumers in particular. The TPB attempts to predict behavioral intention through attitude toward behavior, subjective norm, and perceived behavioral control (see Figure 3 below). Attitude toward behavior is defined as an individual's positive or negative feelings towards a behavior and is determined through an assessment of beliefs concerning the consequences of a behavior. Subjective norm is defined by an individual's perception of how others close to them perceive the behavior; whether they think it should or should not be performed. Perceived behavioral control is defined by one's perception of the difficulty of performing a particular behavior. (Ajzen, 1985; York University, 2013).

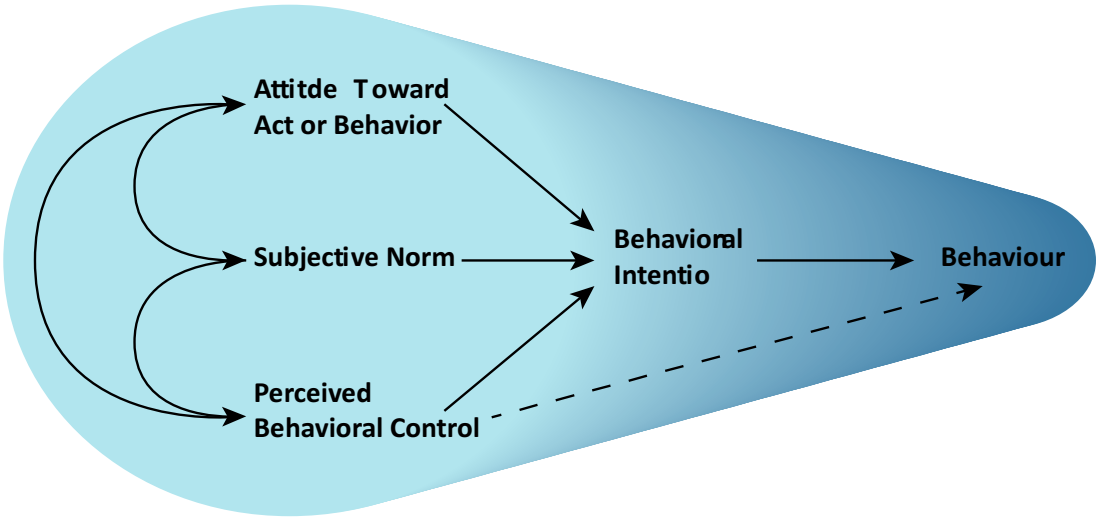


Figure 4. Graphic representation of the Theory of Planned Behavior and the flows between each component, adapted from Azjen (1985).

As the TPB is frequently used in Environmental Psychology, it is often used to investigate pro-environmental behavior (Jackson, 2005). Actions that are 'environmentally friendly' are said to carry a positive normative belief, in that sustainable behaviors are widely promoted as positive behaviors thus encouraging the behavior (see: Arvola et al., 2008). In the case of small-scale fisheries management and local seafood markets consumer behavior is of paramount importance and the TPB contributes to this understanding. Consumers are affected by individual attitudes and beliefs, but also by the opinions and behaviors of those close to them. Thus community and family behavior affect individual intention and consumption. Habit also plays an important role in understanding repetitive behavior, which in the case of consumers determines market success or failure (Honkanen, Olsen, & Verplanken, 2005).

In a meta-analysis carried out by Armitage and Conner (2001) evidence was found to support the use of the TPB for predicting intention and behavior. For the purpose of this study, the TPB is used to describe initial motivation driving interest in local seafood markets; how consumer behavior can lead to or be expected to change upon entering local seafood markets. Ostrom's theory of CPRs and her framework for the analysis of SES provide the platform from which to assess consumer behavior when it comes to pro-environmental intentions and food choice. The TPB and Ostrom contribute to one another, and to this study, through the User subsystem of Ostrom (2009) and the third-tier variable 'consumers'.

4.4 Consumers: The Link Between Ostrom and the Theory of Planned Behavior

This research focuses on consumer involvement in local seafood markets and their potential to increase sustainability of CPR use through stewardship and habit forming. Ostrom's frameworks for CPR and SES allow for an analysis of systems on a multi-level scale, including consumers into the User subsystem. The TPB contributes to a deeper understanding of consumer behavior and what influences decisions and choice. Through this connection the research attempts to demonstrate how local seafood markets provide the backdrop for collaborative CPR use, increasing sustainability by creating connections between producers and consumers.

5. Local Seafood Markets: Three Models

To address the potential for local seafood markets in Sweden, three existing models will be examined to learn how sustainable management of seafood resources can be encouraged. The first is the Community Supported Fisheries (CSF) model, a burgeoning local food movement in North America. The other two models are Swedish examples and are still in development phases, the Simrishamn South Baltic FLAG – a coastal community and fishery development program – and the Stockholm Fish Market. By analyzing these three models the research hopes to gain insights into the potentials and barriers to managing common-pool resources more sustainably, as well as determine if consumers as Users contribute to this sustainability.

5.1 Community Supported Fisheries

Community Supported Fisheries (CSF) is modeled after Community Supported Agriculture (CSA) programs, which offer direct-trade between farmers and consumers. CSFs are also a form of direct marketing where consumers make upfront payments to fishers in exchange for scheduled deliveries of local seafood.

The first CSF began in 2007 in Port Clyde, Maine (Brinson, Lee, & Rountree, 2011); there are now approximately 41 in the whole of North America. There are four characteristics of CSA programs, that, in principle, are shared by CSF programs: risk sharing, advanced payment, direct connections to producers, and increased sustainability; in general these set them apart from traditional food marketing systems (Brinson et al., 2011). Although CSFs follow a core set of operational guidelines, they are all unique and context specific. Despite these differences, the above-mentioned characteristics and the elements mentioned below, tie them together (Local Catch, 2013):

1. Establish a transparent supply chain-of-custody from boat to fork;
2. Increase access to premium, locally caught seafood;
3. Ensure fishers receive a fair price for their catch, that reflects the value of their work;
4. Engage fishers and community members in more robust, viable, local food systems; and
5. Provide a framework through which fishers and customers alike can creatively steward our marine resources.

Each CSF offers a different variety of seafood depending on location, season, fishing gear, regulations, and product type (e.g. whole fish or fillet). Some CSFs specialize in one type of seafood, while others offer 'catch of the day'. There can also be a degree of unpredictability due to inclement weather or regulatory closures; however, risk sharing is an aspect that consumers should be aware of upon joining membership (Brinson et al., 2011; Witter, 2012).

CSFs provide market benefits by shortening the chain of supply, integrating these elements into one local entity, reducing costs and thus benefitting both fishers and consumers (Witter, 2012). Brinson et al. (2011) point out that fishers often make higher revenues in CSFs for three reasons: 1) seafood receives a premium price compared to wholesale prices, 2) provides a market outlet for species that traditionally have a low value, and 3) protects against price volatility with guaranteed prices (p.544). There are also non-market values to CSFs, one of which is increased social connections between producers and consumers (Brinson et al., 2011); thus increasing consumers awareness and perhaps stewardship of the resource.

In an analysis of existing CSFs the researcher will attempt to pinpoint the underlying measures that make these local seafood markets successful and potentially sustainable. Witter (2012) determined that there are 26 operational CSFs in North America; however, as of March 2013 there are 41 operational CSFs in North America. Through analysis of table in Appendix 3 (adapted from Witter, 2012) the researcher will assess the sustainability and necessary measures that contribute to the potential development of local seafood markets in Sweden. The sustainability measures being: fishing methods used, amount of bycatch, consumer involvement, fishers knowledge incorporated into management of resource, community support and development, and other environmental impacts.[16]

5.2 Stockholm Fish Market

Over the past two years the Country Administrative Board of Stockholm has worked to explore the possibility of a fish market in Stockholm to supply regionally caught fish. The work has been done within the framework of the government's commitment to 'Sweden – the new culinary nation' (Sverige – det

[16] Refer to Appendix 3 for a complete list of all 41 CSFs as of March 2013, including sustainability measures, as assessed by the researcher.

nya matlandet). The County Board has been working in cooperation with local fishers to organize a local seafood market, with greater input from consumers. The current struggle with fish from near Stockholm is that it is often caught, then sent to Gothenburg to be auctioned and is then transported back to Stockholm to be sold. This diminishes freshness and quality for consumers and profit for fishers, as well as being environmentally backwards (Länsstyrelsen i Stockholms Län, 2013; Stockholms Fiskmarknad, 2013).

As of November 2012 the idea of a local fish market was launched to the public, and in December 2012 after the initial project's end, a group of fishers are continuing to try and make it a reality. Although the County Board initiated the project, it is not their place to start a fish market; the goal was to determine opportunity and interest, leaving the rest to a committed group of fishers. Opportunity and interest were determined in two phases: first, fisher interest and access to fish, second, by creating a brand and gauging consumer interest. In the first phase a fish stock assessment was carried out within a 25-mile radius from Stockholm, and interviews with 100 fishermen concluded that 80 of them are willing to supply 800 tons[17] of fish. Many fishers are also interested in participating in events and the marketing of fish – for instance excursions to demonstrate fishing practices. The second phase focused on consumer interest and the launch and communication of a 'brand'. Phase-two also incorporates the food industry, working to connect fishers to restaurants and chefs. The County Board determined that there is great interest and potential for such a market in Stockholm. (Personal communication, 4 Mar. 2013; Länsstyrelsen i Stockholms Län, 2013; Stockholms Fiskmarknad, 2013).

5.3 Simrishamn South Baltic FLAG

Under the European Commission Fisheries sector, Fisheries Area Network (FARNET), there are Fisheries Local Action Group (FLAG) partnerships, which bring together fisheries actors and other local private and public stakeholders to design and implement bottom-up strategies that address their area's needs with the goal to increase economic, social, and environmental welfare (European Commission, 2013). There are 320 FLAGs in Europe, with 14 in Sweden. The FLAG strategy works with the development of: new products and markets; tourism and cultural events; education, capacity building,

[17] Stockholmers consume 31,000 tons of seafood daily.

and networking; and the environment (both the marine ecosystem and sustainable fishing practices).

The South Baltic FLAG is compromised of the Swedish municipalities Ystad, Kristianstad, Sölveborg, and Simrishamn located in Skåne and Blekinge regions of Southern Sweden. The vision of the South Baltic FLAG is built on a thematic platform with the following three axes: 1) improvement of profitableness, based on higher price through added value; 2) incorporation of environmental aspects within the future fishing sector; and 3) diversification of operation (Personal communication, 5 Mar. 2013).

Following this platform all-ongoing and terminated projects associated with the FLAG partnership align themselves with these strategic objectives (Personal communication 5 Mar. 2013):

1. Establishment of processes within the local/regional fishing sector, in coastal communities as well as in other local traditional industries, to create or re-create local fishing markets as well as development of new ones (e.g. versified and refined electronic auction).
2. Increase political awareness among local decision makers (policy makers) of the possibilities that objectives may provide for the coastal communities of the future.
3. With increased political awareness strengthen the demands from local communities toward national fishing authorities to optimize the fishing management platform/concept to also favor coastal- or small-scale fisheries.

There are several ongoing projects that are interrelated in one way or another to the three thematic development axes. Some examples, which will be discussed in more detail below, include: the development of 'seal-safe' cod pots; Fishing for Litter; bio fuel project; and Home Harbor (Personal communication, 5 Mar. 2013). The development of 'seal-safe' cod pots is a research project funded by the EU through the Swedish Water and Marine Management (SwAM) agency and the Swedish Fishermen's Association to address the increasing disturbances on fisheries from the grey seal population in the Baltic. Cod pots are thought to be a more selective and sustainable way of fishing, however, research continues to develop pots that are not only selective and profitable, but 'seal-safe' – meaning that seals cannot take fish caught inside, as they do from gillnets (Personal communication, 2 Mar. 2013).

The use of more sustainable/environmentally friendly fishing practices is an important issue to address, as it is often a focus of small-scale, local fisheries. Although EU policies can be seen as quite hypocritical – allotting massive subsidies to industrial fishing, meanwhile working on coastal community development through FLAG – the SwAM agency works to develop more selective and small-scale fishing

methods, such as baited cod pots. Researchers from the Swedish University of Agricultural Sciences (SLU) and Carapax, the Swedish creel fishing supplier and manufacturer, are currently working on the development of this equipment in the Baltic Sea (Personal communication, 2 Mar. 2013).

Fishing for Litter is a project organized to improve fishermen's environmental profile by bringing ashore trash found drifting in the sea. The project on bio fuel is an attempt to decrease fishing costs and lessen the negative environmental impacts of fishing through the use of a more sustainable fuel source. The Home Harbor is an overarching project that attempts to demonstrate the opportunities of coastal fisheries on Sweden's South Coast. The aim of the project is to identify and develop effective ways to strengthen the development of the fisheries sector and coastal communities that contribute to a more diverse, economically and ecologically sustainable fishing industry. (Personal communication, 5 Mar. 2013). All of these projects within the FLAG directive work for the development and integration of fisheries and coastal-communities. The Home Harbor is of particular interest as it focuses on the development of local seafood markets and increasing awareness to small-scale fisheries.

6. Insights to Local Seafood Markets

In this chapter the results will be presented and discussed in order to synthesize the material presented above and to provide deeper understanding of the context in which local seafood markets form; as well as, their potential to contribute to resource sustainability through consumer involvement. Data and relevant literature will contribute to this analysis.

6.1 Swedish Fisheries and Coastal Communities

In the following sections insights from questionnaires and interviews will be presented along with an analysis and discussion of what these insights mean for the development of local seafood markets in Sweden. The questionnaires consist of consumer and fisher perceptions and interest in community-supported fisheries[18]. The questionnaire of fishers, although a small sample, attempts to represent the important viewpoint and understanding of the fishing industry from the inside. As well, the models presented above – Stockholm and Simrishamn – contribute to more thorough insights of Swedish coastal communities and their perceptions on local seafood markets.

6.1.1 Consumers – Lysekil, Sweden

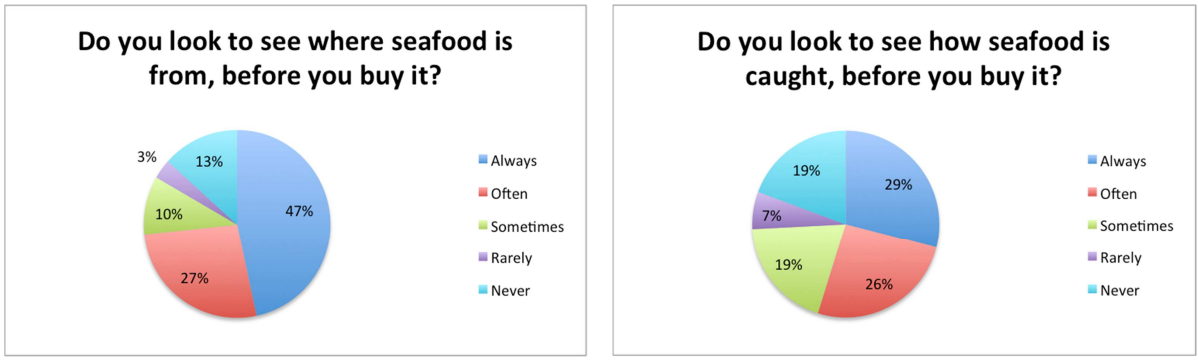
The consumer questionnaire conducted at Havets Hus in Lysekil, Sweden, of 31 respondents provides data to synthesize an understanding of consumer intent and behavior when it comes to seafood and local markets. Data is presented in order to better visualize the researcher's analysis.

The respondents' ages were distributed between 18 and 66 plus, with 10-year intervals except for 18-25, with a mode age range of 36-45. As the survey was conducted in Lysekil, the majority of respondents were from Lysekil – a small, coastal fishing town – with 8 living in other Swedish cities. The level of education was evenly distributed from high school to PhD, with a range of careers (e.g. CEO, Marine Biologist, Architect, Technician, and student) and incomes (<100,000 SEK to >400,000 SEK). However, 58% of respondents were in the higher income brackets between 300,000 SEK and greater than

[18] In this case 'community-supported fisheries' will not be referred to as CSFs, because the concept is relatively unheard of in the Swedish context; therefore the term is mentioned simply to represent the concept it describes.

400,000 SEK. The level of education and higher income perhaps suggests more educated and financially feasible decisions when it comes to purchasing ecological seafood; pointing to issues of environmental justice.

All respondents eat seafood, with 68% eating seafood 4 or more times per month; the mode response being 7 or more times per month, the second mode between 2-3. Most respondents buy seafood from a local vendor at least once a month, however, 74% of respondents less than 5 times per month. In general respondents were interested in *how* and *where* seafood was caught (see Figure 5a and 5b below) and all respondents were familiar with several different fishing methods (trawling, hooks, nets, pots, dynamite and poison). When asked to assess which fishing methods were 'more' or 'less' sustainable/environmentally friendly almost all respondents felt that hooks and pots were 'more' environmentally friendly, whereas trawling, dynamite, and poison were 'less'. Nets caused ambiguity, as it was listed an equal amount of times, as both 'more' and 'less' environmentally friendly.



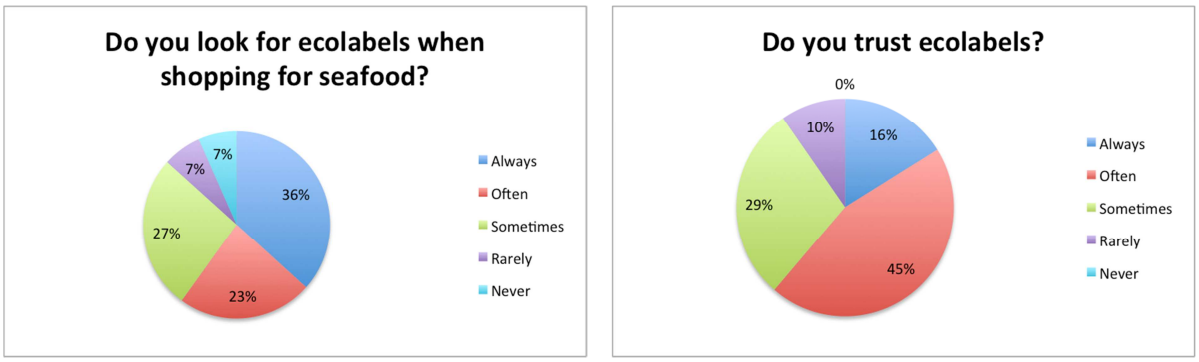
Figures 5 a & b. Results from consumer questionnaire to determine intent and habits of consumption.

When asked if there is additional information that they (as consumers) would wish for when shopping for seafood the responses centered around fishing method, area, and clarity/transparency. The respondents wanted more information about what fishing methods were used, and where the fish were caught; more specifically than is currently provided with sea/ocean codes[19]. As well, they thought that

[19] These codes refer to a very general zone of an ocean or sea, providing very little information to consumers.

information on bycatch and fish stock health should be provided. One respondent mentioned wanting more information about the fishers. There was one reoccurring suggestion concerning clarity, which was to use the red, yellow, green coding system (i.e. MBASW pocket guide).

On the questions concerning ecolabels, respondents demonstrated a high interest in ecolabels when shopping for seafood and significantly high trust in ecolabels (demonstrated in Figure 6a and 6b below). Several commented on why they 'trust' ecolabels and said that Swedes often have high trust in the government and institutions. One respondent called this 'blue-eyed' trust. Many of the respondents mentioned KRAV[20] and MSC as being ecolabels to look for. However, several also said that there is nothing else to look for, no other way to inform decisions. This last sentiment reflects frustration when it comes to the information available and being a consumer in increasingly confusing markets.



Figures 6 a & b. Results from consumer questionnaire concerning interest in and trust of ecolabels.

In general, respondents seemed interested in receiving more information than is provided through the current system of certification schemes and codes. Consumers are left curious, but skeptical, as to the traceability and sustainability of seafood. The current system lacks appropriate regulations and monitoring to ensure consumers receive accurate information. According to a report by Oceana, 1/3 of seafood products in the US are mislabeled (Warner et al., 2013); and there have been increased records of mislabeling in Europe (BBC, 2013), further increasing consumer distrust and ambiguity in markets and

[20] KRAV is a Swedish ecolabel, which certifies food products (including seafood) as being organic.

politics.

When asked, 'What does 'sustainable seafood' mean to you?' respondents answers focused on fishing method, stock health, environmental impact of equipment and transportation, as well as, no overfishing and a reduction of bycatch. One respondent answered, "Only sustainable fishing, from sustainable stocks, with the environment in focus."

It was surprising how knowledgeable respondents were when it came to fishing and sustainability; they offered many educated and concise suggestions and insights into what constituted 'sustainable seafood', leaving the researcher disenchanted with why markets do not reflect consumer demand. However, it must be kept in mind that the sample represents a small, coastal community, who are thus more likely to be aware of matters concerning the sea; increased by the fact that several respondents work with marine issues in some form.

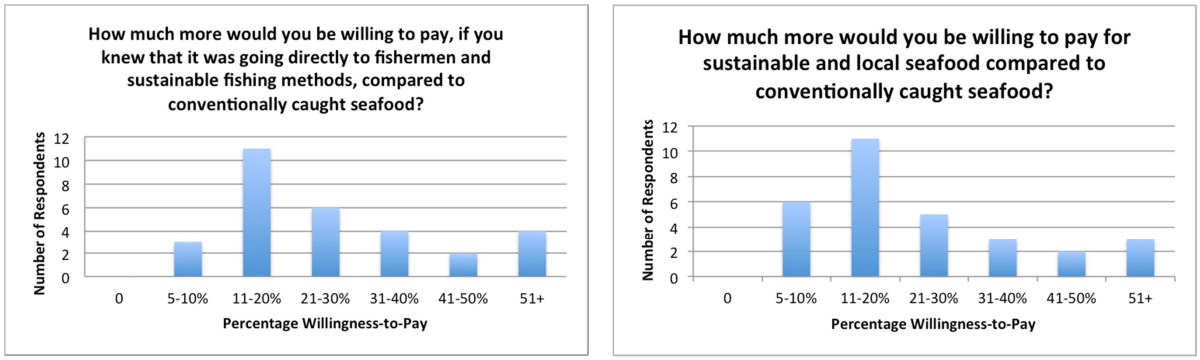
Majority of respondents said that they would like a bigger local market of seafood and would like to know more about their local fishers. Although Lysekil is a coastal, fishing community, and many of the respondents buy seafood from a local vendor several times a month there was still interest in having more opportunities and connections. Some respondents reflected that small-scale fisheries are often more sustainable because they use more sustainable fishing gear, there is less bycatch, and less 'food-miles' from transportation. When asked why they would buy local seafood many of these sentiments were repeated; additionally that it would support the local community and fishermen. As well they reflected on the supply chain and the quality of seafood, as being fresher and less processed when local.

These responses touch on all three sustainability pillars, demonstrating consumer awareness that local markets support environmental, economic, and social aspects of their communities and sustainability. While international regulations (i.e. EU-CFP) focus on economic and environmental aspects, local markets address the social side as well, suggesting a more comprehensive approach to resource management.

For the questions concerning 'local food movements' and 'community-supported agriculture' there was little knowledge of these two terms, which is to be expected since they originate in North America and have not been directly transferred to Sweden. However, when asked if interested in the basic concept of these two terms there was significant interest. Majority said they would be interested to invest in and support their local fishery, and 100% were interested in knowing *how*, *when*, and *where*

their seafood was caught; an outlier was removed for the purpose of data analysis.

In the willingness-to-pay questions (seen below in Figure 7a and 7b) the mode response was between 11% and 20% more. This indicates that the respondents are willing to pay more for seafood that is local and sustainably caught, investing in more sustainable fishing methods and local fishermen. This information can prove useful for fishers and entrepreneurs looking to assess market potential in coastal towns of Sweden.



Figures 7 a & b. Results from consumer questionnaire on willingness-to-pay.

Through the consumer surveys concerning seafood consumption habits, knowledge, and interest in local and sustainable seafood, data shows that the majority of respondents are knowledgeable and interested in continuing their habit of consuming seafood, but in a sustainable way. While the respondent sample was gathered by convenience sampling and may not be representative of the entire Swedish population; they represent the consumers who are most likely to be interested and willing to participate in the preliminary stages and implementation of small-scale, local seafood markets. In this way fishers or entrepreneurs know that there is interest, and perhaps the foundation to start a business.

6.1.2 Stockholm Fish Market

The Stockholm Fish Market's aim is to connect fishers and consumers creating a more personal and quality seafood market. It began as a project of the County Administrative Board, but has been passed on

to a group of fishers, who are working to make the market a reality.

An interview with Henrik C. Andersson, Provincial Fisheries Consultant for the County Administrative Board, gave further insight into the Stockholm Fish Market, as he formulated the idea originally. When asked the reason behind his idea for the Stockholm Fish Market, Andersson said it was a combination of many things, including – the disappearance of small-scale, coastal fisheries; overfishing; lack of good quality, local fish; and the fact that global markets do not know what Stockholm consumers want. He feels that although there is still a place for global markets and certification schemes, such as MSC, food production alienates consumers, whereas local markets encourage communication and awareness. (Personal communication, 4 Mar. 2013).

Andersson believes that there is plenty on interest from both fishers and consumers. His hypothesis is that phase one and two – mentioned previously –created an opportunity for the market; there is a committed group of fishers working to make it a reality. As well, he feels that Stockholm consumers would be 'willing to pay' to keep the small-scale fishery for both traditional, aesthetic, and dietary reasons; "they enjoy seeing the fishing boats go past their summer homes in the archipelago" and they want good quality fish, Andersson reflects (Personal communication, 4 Mar. 2013).

Since the Stockholm Fish Market is still in the development phase, the question, 'What are the barriers to such markets?' is raised. The reply is that yes there are many barriers, the biggest being access to fish – addressed by the 800 tons – another is lack of variety, which the 25-mile radius limits. Population size and market diversity present another barrier that Andersson felt limits success of such markets in Sweden; being that there are not enough inhabitants to support new, diverse markets. As well, the fishers are currently looking for a venue, a place to house the fish market; the problem is investors, someone needs to take a leap of faith. However, Andersson did not focus on the barriers, instead he said that the lack of species diversity can be seen as an opportunity to raise awareness and knowledge among consumers about local, seasonal fish species. He strongly believes that consumers are the key to change, that through raised awareness and communication between producers and consumers local markets can flourish. Andersson states, " The best market is the one owned by both producers and consumers." (Personal communication, 4 Mar. 2013).

Kerton and Sinclair (2010) find that "closing the gap between producer and consumer through direct contact [can be] a powerful learning tool in linking the consumer to a host of other environmental and social issues" (p. 401). Choices consumers make around food have profound environmental and social

impacts within their communities and globally (Kerton & Sinclair, 2010). As well, food can play a central role, for both consumers and producers, in learning that fosters sustainability (Ibid.).

Andersson and Stockholm County Governor, Chris Heister, comment on the Stockholm Fish Market and reflect optimism that although it may not be the only solution to the structural problems facing the fishing industry, it would certainly create a more sustainable fishery. They see it is a crucial aspect to the national environmental objective of maintaining a small-scale coastal fishery in the archipelago; and believe that such a market could serve as a place where fishers and consumers can meet, strengthening conditions for a more consumer-driven, small-scale fishery that increases profitability, traceability, and sustainability (Stockholms Fiskmarknad, 2013).

6.1.3 Simrishamn South Baltic FLAG

The Simrishamn South Baltic FLAG is one of 14 FLAGs in Sweden, which work for the integration and development of coastal communities and fisheries. FLAGs work to raise political awareness and community demands to strengthen fishery management to favor coastal- or small-scale fisheries. One aim of these partnerships is to create local seafood markets, increasing fishers' connection to and involvement with the community.

In an interview with Vesa Tschernij, project leader of the Simrishamn FLAG and recently appointed to manage 11 out of the 14 FLAGs in Sweden, he expressed reservations and hopes for the future of coastal community and fishery integration. Tschernij a sailor since childhood and involved in fisheries for most of his professional career – working with selective fishing gear development and owning a coastal community consultant company – he understands how important communication is for integration of the two (coastal communities and fisheries). Tschernij made sure to clarify, that although the FLAGs are working to define themselves as a network, there are still distinctions that set them apart from one another; thus his responses pertain mainly to the Simrishamn FLAG, of which he was leader initially.

Discussing the challenges facing coastal communities and the fishery sector, it became clear how vulnerable the two are to international regulations and global markets. Before the 1950s the Baltic fishing fleet was composed of small, day-boats that were largely unregulated; in the dawn of industrial fishing, politicians and scientists became involved and fishing was no longer left to intergenerational fishery knowledge. Instead ecosystem assessments, equipment modernization, and quotas began

regulating the fishing industry in an attempt to lessen the impacts determined by the scientists and passed on to the politicians. These developments have lead to the situation we are in today, mass overfishing, unemployment in the fishery sector, and big global markets that dominate and define value. According to Tschernij, there are so few buyers and market options that fishers are left with the impression that quantity and not quality is all that matters. Although many fishers are unhappy with the present situation, feeling manipulated by regulations, they no longer believe there is a better option. Tschernij mentioned the Board of the South Baltic FLAG, which is comprised of 4 municipalities and 4 representatives from the fishing industry, that discuss issues often seen from different vantage points, working to come to mutual understanding and decisions. He stated, that although the fishers involved had initial reservations, they are starting to soften and conceivably have begun to see that there is potential for change within the industry. (Personal communication 20 Mar. 2013).

Tschernij and the FLAG partnership attempt to provide a platform on which to connect the different stakeholders – local/regional politicians, fishing industry representatives, and entrepreneurs. Tschernij says that FLAGs hope to create a platform for entrepreneurs to connect with the community and consumers, but if entrepreneurs do not come, then FLAG will attempt to address this. As well, South Baltic FLAGs plan to do market research to define the potential regional market for fish consumption in Skåne; this would provide a basis for the understanding of local/regional seafood market potential. Thus providing incentive to entrepreneurs or fisheries to keep local fish local.

The Simrishamn South Baltic FLAG is considering educating fishers to 'the business way of thinking' as they often feel stuck in the system and perhaps simply need a push to create viable local markets. It is also currently working with the municipality and fishers to arrange a market, summer 2013, where local seafood can be bought directly from fishing boats in the harbor. This would be in collaboration with an existing market, simply changing location from the city center to the harbor. (Personal communication, 20 Mar. 2013).

Discussion with Tschernij brought up the important concept of fishers' ecological knowledge (FEK) termed by Johannes et al. (2000); which acts as a bridge between the fishing community and managers, strengthening fishers 'sense of ownership' of a CPR, "allowing for the development of adaptive co-management opportunities that address the immediate needs of the fishery" (Carr & Heyman, 2012, p. 118). In the case of Simrishamn FLAG, Tschernij says, the greatest difficulty is connecting fishers and politicians. Mutual understanding is needed, but there is resistance from both sides making change seem

impossible. However, according to the FAO (2012), "small-scale fishing communities [should be recognized for their] role as a provider of food, income and livelihoods as well as contributor to economic and social development" (p.5). In the case of Simrishamn, politicians claim to understand the importance of the local fishery, but do not do what is necessary to keep it alive (Personal communication, 20 Mar. 2013).

According to Symes and Phillipson (2009), fishing communities become vulnerable when their social cohesion is undermined and cultural identity challenged – and when direction, leadership, organization, and self-determination are missing. In this way, through a lack of understanding and political will fishing communities are losing their social sustainability. This is where FLAG partnerships and leaders like Tschernij enter to build social cohesion and sustainability. Tschernij expressed great interest in the prospect of the CSF model in Sweden and internationally; discussing the possibility of further research and integration of key concepts with his work in Simrishamn and elsewhere. In the section following fishers' perceptions, the CSF model will be explored in more depth.

6.1.4 Fishers Perceptions

Through questionnaires of fishers some insights into the producer side were revealed. Although the response rate was low, the responses received were affirming and repetitive. The overall perception of the fishery industry from the viewpoint of fishers is one of disillusionment and resignation. The questions[21] covered a range of topics from fishing methods used to the ideal market. Fishers were asked to be imaginative and creative in their responses, as if allowed to create their own ideal market; however, the answers were concise in their hope for a market that respects quality and producer consumer relations.

When asked if they are satisfied with the market options available to them now, fishers responded with a negative; saying that the price is too low for the quality they provide. All respondents stated that the markets they most frequently use are large distributors, exporting fish for the global market; and that although they are dissatisfied with this option, there are no others. Most fishers questioned fall into the

[21] Refer to Appendix 5 for a complete list of questions asked to fishers (both in English and Swedish).

small-scale category, using selective methods – such as hook and line – as well as low energy use with short trips and no trawling; one respondent did use trawling and said that this method is not sustainable, as it does not allow for much selectivity. According to the FAO (2012), "States should grant preferential use rights to fishery resources to fishers that employ responsible fishing practices and that are environmentally, socially and economically viable" (p. 9). However, more often huge subsidies are granted to destructive industrial fishing under the CFP. Carr and Heyman (2012) state that these "top-down systems are hindered by institutional inertia and an inability to develop adaptive strategies that results in delays in responses" (p. 129). A more comprehensive approach is suggested, one involving all stakeholders.

The fishers also stated that FEK is most definitely not used in fishery regulations, which demonstrates a great waste of invaluable knowledge; often passed down through generations. Increasingly acknowledged in literature, is the importance of cooperative and transparent research initiatives for the implementation of comprehensive fisheries management including the opinions and knowledge of all stakeholders involved (Kaplan & McCay, 2004; Carr & Heyman, 2012). According to Carr and Heyman (2012) "A more cooperative or collaborative management plan would benefit by maximizing the value of all realms of knowledge, experience, and expertise" (p.129). Another stakeholder that is commonly overlooked is the consumer, or community member, who is also an owner of the CPR fisheries.

In the fisher questionnaire respondents were asked to consider the involvement of consumers and their connection to members of their community. Positive responses were recorded for interest in building relationships with consumers, creating local markets, and receiving fair payment for high quality, sustainably caught fish. The fishers reflected that consumers can make a difference by purchasing locally and sustainably caught seafood. As can be seen in CSFs, local markets can insulate fishermen from price volatility and provide market benefits by shortening the food distribution process (Brinson et al., 2011).

In the case of small-scale versus large-scale, industrial fishing, certification schemes have been shown to favor large-scale, discriminating against small-scale. Whether intentionally or not, this marginalizes small-scale and pushes them out of markets where consumers are increasingly aware of ecolabels. According to Jacquet and Pauly (2008), although ecolabeling may provide incentives for partial improvement of industrial fisheries, it cannot contribute to the global improvement of fisheries

management if it cannot serve the needs of small-scale fisheries (i.e. the majority of fishers worldwide). Thus an emphasis on coastal- or small-scale fisheries and local markets is needed, in order to encourage comprehensive management and stakeholder involvement. Jacquet and Pauly (2008) question whether the market-based push towards sustainability has destroyed small-scale fisheries; our best option for sustainable fisheries management. A closer look at CSFs may offer insights into small-scale fisheries management through local markets and consumer involvement.

6.2 Taking a Closer Look at Community Supported Fisheries

In order to make an updated list of CSFs in North America the Local Catch website was scrutinized and note was taken of every new CSFs since the compiling of Witter's (2012) thorough analysis. Of the 41 CSFs in North America – as of March 2013 – a significant majority advertise their seafood as 'sustainably caught/harvested' or using 'sustainable fishing practices/methods'. Many of CSFs use the three pillars of sustainability as their model calling it the Triple Bottom Line (see Figure 8 below). Through this approach CSFs attempt to support environmental, economic, and social sustainability. There is much attention paid to not only environmental stewardship, in the form of sustainable fishing practices – and economic because CSF is a business model – but of social sustainability as well. This became apparent when looking into the objectives and offerings of the different CSFs (see Appendix 3). Many CSFs provide an opportunity for fishermen and consumers to form relationships at pick-up/drop-off points; however, there are also CSFs offering tours and excursions for consumers to better understand the fishing industry and ecosystem, as well as cooking classes or recipes to help expand consumers knowledge and comfort with less common, but native species. Including the community and consumers is often not only through the effort of the CSF, but is initiated because there is interest and demand for local and sustainable seafood. Through this interest CSFs have tapped a viable business model that is likely to continue to grow; as can be seen by the almost two-fold increase of CSFs in the last year (Witter, 2012; LocalCatch, 2013).

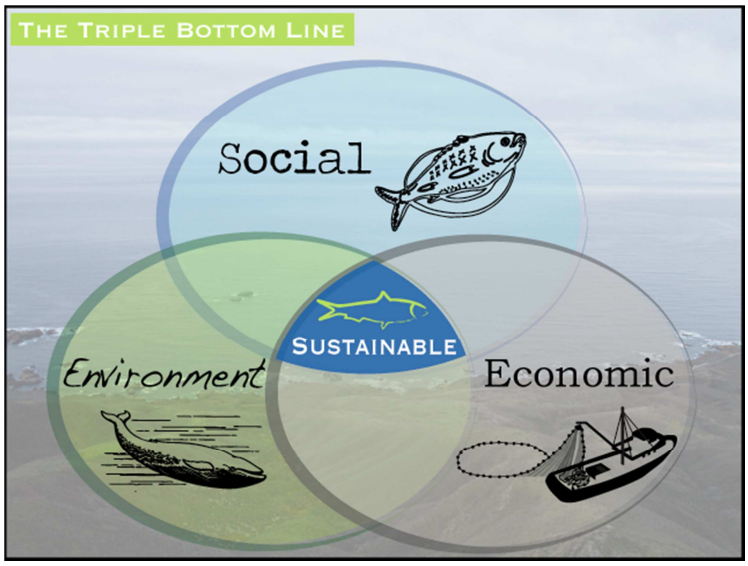


Figure 8. Social, Environmental, and Economic aspects compose the Triple Bottom Line (Three Pillars of Sustainability), each contributing to sustainable fisheries.

Source: Local Catch Monterey Bay, 2013.

While CSFs strive to meet all three sustainability pillars, it is said that local markets often support social sustainability when global markets do not (Symes & Phillipson, 2009). Not only do global markets and international regulations focus on economic and environmental agendas, they draw coastal fishing communities apart through dispersed markets; thus the transfer of "local ecological knowledge" and "social capital in the industry" are lost (Symes & Phillipson, 2009, p. 2). Symes and Phillipson (2009) attribute the decline in employment in the catching sector to modernization and changes in management that have altered what it means to be a fisherman. CSFs return the integrity to the occupation and lifestyle of being a fisherman, renewing the importance of coastal fishing communities, and encouraging social sustainability through producer/consumer contact.

In a CSF case study, conducted by Witter (2012), she found that there was improved dialogue between producers and consumers, increased public awareness of the local-seafood harvesting context, increased community engagement with fisheries management, increased consumption of local versus imported seafood, and that fishermen capture more value from the seafood supply chain (pp. 48-49). These findings emphasize the benefits of local markets and producer/consumer contact and communication. However, Witter (2012) also found challenges to the 'supply side' of CSFs including,

bringing fishermen on board, working within existing regulations, managing processing requirements, dealing with unpredictability of supply, communicating program qualities in a consistent manner to customers (pp. 58-59). While on the 'demand side', managing diverse expectations and retaining members (Witter, 2012, p. 59). Although there are challenges to supply and demand these can be managed on a case-by-case basis.

The main objective of CSFs is to preserve small-scale, local fishing jobs in the face of global markets, while spurring the local economy and providing local, sustainable seafood to local consumers. Through analysis of the 41 CSFs in North America it became evident that while the Triple Bottom Line is strived for, it is often difficult to determine if all sustainability criteria are met. The core elements that tie CSFs together certainly touch upon all three pillars, however, each case is unique and therefore uniform information is decidedly tricky to decipher.

6.3 Community Supported Fisheries a Model for Change

Through thorough analysis of CSFs and the two Swedish models – Stockholm and Simrishamn – the CSF model provides the most developed and varied approach (as assessed by the researcher) from which to draw upon in the Swedish context. However, the Swedish models lend themselves to analysis of the context within which such local seafood markets can develop.

The CSFs of North America are a burgeoning movement that although unique and varied offer characteristics and elements from which other communities, fisheries, and countries can model themselves upon. Consumers are included in CSFs through 'shareholder' agreements and through communication and raised awareness within communities and fisheries. CSFs generally begin as small endeavors, which have the potential to grow and spread. In the interview with Tschernij – project leader of 11 Swedish FLAGs – he emphasized the importance of markets starting small and gaining support, both politically and within the community, before attempting to increase reach. In the case of CSFs it can be seen, in that the CSFs with the most spread have often been in operation for the longest.

The consumer questionnaire contributes to the understanding of consumer behavior and thus their contribution to the sustainability of CPRs. The Theory of Planned Behavior (TPB) postulates that behavior is predicted through behavioral intention, which is influenced by attitudes, normative belief, and perceived behavioral control. In the case of consumers and local seafood markets the TPB can be used to

analyze what influences individuals to change behavior and make a habit of it. Through the questionnaire it became apparent that there is a strong intention to buy certified and local seafood, thus the question is what would make this behavior repetitive and habit forming? In the TPB habit is an important determinant of repetitive behavior; therefore once a behavior becomes a habit it is likewise repetitive. For many of the respondents the purchase of seafood and frequently local seafood seems to be a repetitive part of their routine. Thus a missing aspect is an organized and co-managed local seafood market for the consumers to incorporate as habit, which for both Swedish examples are in the development phases.

The Stockholm Fish Market and the Simrishamn South Baltic FLAG provide interesting and promising examples of emerging local seafood markets. The analysis of consumer and producer questionnaires through Ostrom's CPR and SES frameworks and the TPB made the potential for local seafood markets in Sweden through consumer involvement more transparent. Both Swedish examples, although still in development phases and lacking concrete data, offer promising models for the incorporation of CSF sustainability measures. In the case of Simrishamn, Tschernij demonstrated high levels of interest in exploring CSFs further, researching the applicability and transferability to the Swedish context.

6.3.1 Community Supported Fisheries and Ostrom

The chapter on theory presented five questions developed by Ostrom (1990) to determine net benefits of alternative rules, or the cost analysis Users make of a CPR to evaluate benefits of changing existing rules. In the case of small-scale resource management and local seafood markets these questions are important to revisit.

The questions focus on the predicted flow and value of a resource under proposed rules as opposed to status quo, as well as quality differences and conflict. In the case of CSFs and their means of achieving sustainable resource use, the flow, value, and quality are all increased, and conflict is decreased, thus hypothetically increasing the resource units and value over time. The reasoning for this hypothesis is as follows. In CSFs sustainable fishing practices are encouraged and increased consumer awareness and involvement increase community ties and commitment to the resource. This is then translated into an increase in resource units through increased value and previously mentioned sustainable harvesting. CSFs also generally guarantee fishers and consumers increased value due to a better quality market,

economically, socially, and environmentally. All these factors contribute to a decrease in conflict because relationships are built and community members feel valued and understood, especially fishers who are increasingly marginalized.

Ostrom presents a variety of situational variables (which are also mentioned in the section on theory) pertaining to the questions discussed above. The first variable – number of appropriators – is common in most theories of collective action and is a key determinant to the success or failure in the management of CPRs (Ostrom, 1990). However, difficulties can be offset slightly if data on the resource in question is recorded regularly (Ibid.). In the case of small-scale fisheries, fishers, scientists, politicians, and citizens, should all be involved in the management and monitoring of the fishery resource. Collective action and collaborative community involvement are central to sustainability science; which Kates et al. (2001) state is "combining different ways of knowing and learning [in order to] permit different social actors to work in concert" (p.641). In this way, the challenge is to overcome strong disciplinary boundaries through communication and a multi-level understanding of complexity (Ostrom, Janssen, & Anderies, 2007). Through Ostrom's research on CPR and SES, she encourages going beyond panaceas and illustrates the need for transdisciplinarity through repeated themes of communication, adaptive governance, and self-organization (Ostrom et al., 2007; Ostrom, 2007; Ostrom 2009).

According to Kaplan and McCay (2004) the social dimension of fishing communities and the impact of policies and regulations should be central in the management process. Sustainability science advocates transdisciplinarity, transcending boundaries of science, policy, economics, and social science, incorporating all three pillars (economic, environmental, and social). There should be increased cooperative research initiatives that increase transparency and trust between stakeholders (i.e. fishers and scientists) (Kaplan & McCay, 2004.). As can be seen from fishers' responses, their ecological knowledge is not used in the development of regulations. Local markets attempt to address these issues, however policies and regulations continue to exclude social sustainability, further decreasing transparency and trust. However, if local seafood markets such as CSFs can gain acceptance so too can the small-scale fishers and coastal communities who are being lost at sea.

6.3.2 Community Supported Fisheries and the Theory of Planned Behavior

The TPB contributes to the understanding of consumer behavior in the context of local seafood markets, such as CSFs, because evidence has been found that supports its use in predicting intention and behavior (Armitage & Conner, 2001); including 'green' consumerism and food choice. In the case of CSFs consumer behavior is important to understand because the consumers make intentioned decisions about switching to such markets and changing habit to accommodate these decisions.

According to Honkanen et al. (2005), past behavior is the strongest predictor of behavioral intention, followed by habit. This suggests that intention does not need to be reasoned, it can be habitual; thus understanding the theoretical bases of habit is important, in order to form new habits (Honkanen et al., 2005). However, Jackson (2005) states, "habitual behaviors often undermine our best intentions" (p. ix). Habits require low-cognitive effort meaning perceived behavioral control is low, thus to encourage a market there must be ease of execution. He continues to say that our behaviors are often socially constructed (Jackson, 2005). The TPB postulates that behavior is influenced by social norms (subjective norm), which are dictated by social circles and, attitude toward behavior. Therefore social circle greatly influences behavioral intention, as does the attitude held about carrying out a certain behavior. CSF consumers then believe that the action of changing seafood consumption behavior is socially acceptable – within their circle – can be carried out with relative ease, and holds a positive normative belief for them.

CSFs, or other local seafood markets, should take into consideration these aspects and incorporate them into their marketing scheme; portraying ease of adoption, social acceptance, and positive benefits of involvement. The TPB provides a means of understanding intention and behavior, proving very useful for markets and marketing. According to Brinson et al. (2011), "By focusing on marketing, the CSF model can produce, in theory, higher profits with minimal changes to inputs and outputs" (p.547). Although direct-marketing through CSFs in unlikely to replace traditional markets, it can be a valuable supplement to the operations of fishers (Brinson et al., 2011). As well, communication between local market operators and consumers is a key factor to their success; as can been seen through outreach of various CSFs, in the form of – "websites, newsletter, flyers, presentation at local events, filleting demos, tasting, the use of photography of fishing vessels and fishermen, distribution of recipes, word-of-mouth" (Brinson et al., 2011, p. 546). These forms of communication also act as important marketing mechanisms, important to attract critical mass of shareholders to achieve profitability (Ibid.).

6.3.3 Putting it all together

In the end of any study it becomes necessary to connect the 'red thread' that has been drawn through the entirety of the research; enhancing the important findings and relating them back to the big picture. It is here, before conclusions, that the research will discuss how the three models (North American CSF, Simrishamn South Baltic FLAG, and the Stockholm Fish Market), interviews, and questionnaires have contributed to the understanding of local seafood markets, and if consumer involvement influences the sustainability of CPRs.

The study began with background of the international fishery regulation and certification scheme – CFP and MSC – along with local food movements and sustainable seafood initiatives. This provided relevant information for the understanding of problems and issues relating to the area of research, situating the focus on how fisheries management and markets can be improved. Looking at the local seafood market models – both the developed and developing – it becomes clear that although they offer a viable and dynamic option, traditional markets including international regulations and certifications schemes are still needed; as demand is high and local markets cannot reach everyone. This is in part due to habit and convenience that local markets may struggle to develop and overcome. However, perhaps these top-down systems, if faced with change, will be forced to manage fisheries more sustainably.

Both the CFP and MSC seem to have heard this message, through the CFP reform of 2013 and MSC's rumored new focus on small-scale fisheries. Time will tell, but for those tired of waiting, more immediate bottom-up change can be seen through local food movements and sustainable seafood initiatives, such as CSF.

The CSF model acted as a 'model for change' in this study, as it offered the most developed and dynamic case (as assessed by the researcher). Although CSFs are based around core principles they are unique, conforming to situations and stakeholders alike. As stated by Ovando et al. (2013), "fishery cooperatives deal with CPR problems in diverse ways and in diverse settings" (p.139); nevertheless contributing to the management of CPRs, as in the long-enduring CPRs of Ostrom (1990). However, in the case of CSFs consumers are involved as 'shareholders' through built relationships and ownership.

What the CSF model has to offer in the Swedish context is experience. Although models should not be applied as panaceas, ignoring situational details, they can provide suggestions and methods for experimentation. If anything, what the interviews and questionnaires revealed, is that there is interest;

from consumers, producers, and stakeholders in the industry who are working to make it happen. Consumers want transparency and producers want proper recognition for providing quality, and both understand the benefits of a local market which supports these wants.

It is not suggested that therefore local seafood markets are simple to start, or easy to nurture; however, with the proper background research and stakeholder involvement, consumers and producers should be able to manage fishery resources sustainably.

7. Conclusion

The final chapter presents a summary of findings, reflections and insights gained from the study, and suggestions for further research.

7.1 Summary of Findings

The aim of this research study was to contribute to a more holistic understanding of the potential for local seafood markets in Sweden. But perhaps it also provides insight into how local seafood markets might fill gaps left by international fisheries policy and certification schemes by improving upon producer/consumer relations and thus Swedish seafood sustainability.

In conclusion to this study it becomes apparent that there is much more to be done; however, the main finding that can be drawn is that there is potential for local seafood markets in Sweden. There is consumer and fisher interest, as well as programs and partnerships in development phases working for their realization. The North American CSF provides a developed model from which to draw upon – in the Swedish context – keeping in mind that no one model should be used as a panacea. What CSFs contribute is six years and 41 cases, all adapting and developing in unique and diverse ways, from similar principles and business model. As well, they demonstrate a way in which local markets can include consumers in the sustainable management of fishery resources through increased engagement and stewardship.

The CSF model, but also the two developing Swedish models, contributed to this understanding and framing of fisheries, markets, and coastal communities in Sweden. The interviews and questionnaires provided mainly qualitative, but also quantitative data, demonstrating stakeholder interest. As well as, consumer intention and behavior to buy and consume local and sustainable seafood, connecting with fishers through local markets. In both Swedish cases, the Stockholm Fish Market and the Simrishamn South Baltic FLAG, fishers' expressed interest and market potential has been assessed, it is just a question of gaining proper political support and finding an appropriate model for each context.

7.2 Reflections

Local seafood markets, by focusing on supporting connections between fishers and consumers, represent an innovative means to improve seafood sustainability through increased collaboration and awareness. The CSF business model, though only six years old and varying context by context, empowers producers and consumers, re-connecting them to all three pillars of sustainability. Through increased dialogue and awareness both fishers (producers) and consumers benefit through this model; fishers receive fair prices and consumers are given a transparent market from which to make informed decisions. Through these paradigm shifts CSFs represent a model for change, a model that pushes for a shift in the way we think about the value of seafood; a model that could potentially be applicable in the Swedish and international contexts.

It is unlikely that the CSF model or the Swedish models, can replace international fishery regulations or certification schemes completely; however, they can supplement them and act as models for change influencing towards a paradigm shift that focuses on behavior. In this study, Ostrom's frameworks provided the foundation for small-scale resource management, while the TPB acted as the backbone to consumer behavior. While the theoretical framing may have focused on consumer behavior, fishers' intention is also of importance to understand the formation of local seafood markets.

In the context of overfishing, ecosystem collapse, and food insecurity, models of mitigation are of paramount importance. Sustainable resource management needs to be implemented and researched before it is too late, and sustainability science offers a pathway of transdisciplinarity to arrive at potential solutions. Local and sustainable (sea)food movements are key to increasing contact between producers and consumers, reconnecting communities to food and in this way increase awareness and stewardship of our common-pool resources. The sustainability challenges that we collectively face are too great not to include everyone.

7.3 Suggestions for Further Research

As this research touches on relatively new fields of study there are many suggestions for further research. Although CSFs have been in operation since 2007, there are few studies looking into the model (refer to Brinson et al., 2011; Witter, 2012). Further research could look into which CSFs manage their CPR most sustainably, with research done looking into the CSF model in general, especially its applicability internationally. Research could also focus on the two Swedish models, or other similar ones,

in the development phases or during implementation to assess the process, success or failure.

Research is also needed looking more closely into fishers' perceptions and interest in local markets, as well as consumer interest. Consumer intent and behavior, as in the TPB, could be looked at more in depth, perhaps even related to Ostrom's frameworks, looking at consumers as resource users. As well, research into consumer involvement and its contribution to the sustainable management of CPRs.

There is also interest and potential for more in-depth research pertaining directly to this study in which the researcher may partake. However, of paramount importance, is that research and action are taken in the sustainable management of our common-pool resource – fisheries – before its too late, and we take one last bite.

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Appendices

Appendix 1 – Comparing large-scale and small-scale fisheries

FISHERY / BENEFITS	LARGE SCALE 	SMALL SCALE 
Subsidies	$$$$$ 25-27 billion	$ 5-7 billion
Number of fishers employed	about 1/2 million	over 12 million
Annual catch for human consumption	about 30 million t	same: about 30 million t
Annual catch reduced to fishmeal and oils	35 million t	Almost none
Annual fuel oil consumption	about 37 million t	about 5 million t
Catch per tonne of fuel consumed	= 1-2 t	= 4–8 t
Fish and other sealife discarded at sea	8–20 million tonnes	Very little

**Note: All figures within the schematic are global approximations.*

Source: Jacquet and Pauly (2008).

Appendix 2 – List of Interviews and other communications

Name	Occupation/ Organization	Date	Type of Communication
Andersson, Henrik C.	Fisheries Biologist/Consultant – Länsstyrelsen i Stockholms Län	04/03/13	Phone interview
Brand, Annelie	Marine Stewardship Council (MSC) – now works at FISH	25/02/13	Phone interview
Eckeskog, Magnus	Fisheries Secretariat (FISH) – now works at Oceana	20/02/13	Phone interview
Königson, Sara	Researcher – Swedish University of Agricultural Sciences (SLU)	15/01/13 02/03/13 Multiple	Phone interview Face-to-face interview E-mail
Larsson, Jennie	Environmental Consultant – WSP Environmental	13/02/13	Face-to-face interview
Sölve	Limhamns Rökeri	13/03/13	Face-to-face interview
Tchernij, Vesa	Project Leader – South Baltic FLAG	Multiple 20/03/13	E-mail Face-to-face interview
Wiström, Viggo	Project Leader – Carapax	Multiple	Various
Witter, Allison	Graduate – IIIEE/MESPOM	Multiple	Facebook messages

Appendix 3 – List of CSFs in North America

CSF	Location & Year established	Data sources	Reason for establishment	Intended outcomes	Sustainability criteria
Abundant Seafood	Charleston, South Carolina 2009	Website and news articles	Distant seafood processing facilities Misguided fisheries management	Increase fishers income by raising awareness of sustainable seafood Educate members on the future of fish and its true value Eliminate middle-man; namely large-scale distribution centers	Sustainably caught Bones used as fertilizer Member education Keep processing and distribution local
Alaska's Own	Sitka and Juneau, Alaska 2010	Website	Alaska harvested and processed seafood rarely makes it to local supply chains To raise money for the Alaska Longline Fishermen's Association's Fishery Conservation Network	Gradually increase CSF membership subscriptions each year Expand to other cities in Alaska	Sustainable fishing practices: reduce bycatch, lower fleets carbon footprint, support whale research, etc. Member outreach (website): species info, fishermen's bios, and recipes
Big City Fish Share	Amagansett, New York 2012	Website and news articles	Imported seafood is often treated with chemical and antibiotics; mislabeling is also a big problem	Provide consumers with super-fresh, sustainably caught, and locally caught seafood Support local, small-scale producers and protect fish stocks for the future	Sustainably caught – "variety is the key for sustainability" Local market Community health

Cape Ann Fresh Catch	Chatham, Massachusetts 2009	Website	To find a more just, fair, and sustainable balance between seafood consumers, individual fishing boats and crews, local shoreside-operations, and Mother Nature	Help fishermen get a better price for their catch Directly reconnect people to the ocean by building an honest and fair relationship between fishermen and shoreside-operations, the members who help sponsor them, and the oceans	Keep all costs community-based (rejuvenate local economy) Sustainably caught Reduce carbon footprint Member outreach: online ordering, recipes, distribution sites, etc.
Cape Cod Wier Harvest	Chatham, Massachusetts 2010	Website and news articles	Provide locally caught fresh fish that is sustainably caught	Weir fishing techniques – semi-permanent structures; artisanal seasonal and sustainable method	Sustainable fishing techniques Support economic viability of local fishermen
Catch of the Season	Anchorage, Alaska 2011	Website	Bottom trawling near Kodiak island damages seafloor habitat, and Tanner crab population, and the fishermen that depend on them	Financial support and empowerment for local Tanner crab fishermen Continue to utilize selective fishing practices that minimize waste and impacts on sensitive marine habitats	Protect integrity of marine ecosystems by promoting healthy, ocean-dependent communities and selective fishing practices Community empowerment
Core Sound Seafood	Chapel Hill/Raleigh, North Carolina 2010	Website and news articles	Fishermen are increasingly leaving their livelihood due to global markets, community economic loss, rising fuel prices and decreasing buying prices	Connect fishermen to Down East Carteret County, North Carolina to a viable, local market Provide a market and fair prices to fishermen Instill awareness that small-scale fishermen are a tremendous resource	Small-scale fisheries protect and support marine ecosystems, livelihoods, and larger health of communities Member outreach (website): who caught fish and how, stories from the coast, recipes, etc.

Community Seafood CSF	Santa Barbara, California 2012	Website and news articles	Difficult to find local seafood; foreign products may not be harvested sustainably or labeled truthfully Poor wholesale prices and unpredictable foreign markets 90-95% local seafood exported	Provide community with greater access to local, sustainable seafood caught responsibly; while supporting and recognizing the value of local fishing communities	Local, sustainable seafood market; reduce exportation Responsible fishing practices Community building
Crescent City Supported Fisheries	New Orleans, Louisiana 2011	NAMA website and news articles	High demand for seafood during Lent	Provide CSF 'shares' during Lenten season Improve sales at a failing farmers market	Increase local economy, through local seafood market during important community celebrations
Cville CSF	Charlottesville, Virginia 2010	Website and news articles	Unsustainable global fishing and consequent damaging aquaculture practices	Establish a connection between consumers and small-scale aquaculturists Support small-scale farming Limit the travel distance of food	Sustainably harvested, natural seafood grown in freshwater ponds without the use of chemicals or hormones Connect consumer and producers Reduce 'food miles'
Eastman's Local Catch	Seabrook, New Hampshire 2009	Website and news articles	Disconnections between local consumers and products General public unaware of issues encountered by fishing industry Increased regulations, fuel prices, and costs	Provide local consumers with fresh catch Educate consumers about high quality seafood and local fishing industry Provide fishermen with better return for their catch	Sustain local industry Community building: increase awareness, cooking classes, family fishing outings, etc.

Fair Share CSF	San Francisco, California 2012	Website	Lack of local seafood market in Bay Area	Local sourcing, processing, and delivering Ensure healthy local economy and thriving oceans	Non-threatened species that have been sustainably caught or raised Support local economy and community
FV Rimrack	Rye Harbor, New Hampshire	NAMA website and news articles	Local fishermen and fishing rights impingement; heritage being lost	Direct sales of seasonal, local, wild caught seafood Support local fishermen and fishing rights; reclaim heritage Improve traceability	Direct sales encourage the use of more sustainable fishing methods, community building, and the local economy.
Google CSF	Mountain View, California 2011	News articles	Provide employees with local, sustainable seafood Protecting against mislabeling Reduce the need for fishermen to sell to wholesalers	Provide fishermen with a fair price and employees with local and seasonal seafood Support small, independent fisher-families	"Green Seafood Policy" Jobs for small-scale fishermen Awareness building at workplace
Guiboche Family Fresh Fish	Camperville, Manitoba	NAMA website	First inland CSF, to provide sustainable fish	?	Sustainable fishing practices
Half Moon Bay Fishermen's Association CSF	Half Moon Bay, California 2012	Website	Collaboration between community residence, local processors, and local fishing community	Helps fishermen know amount of fish to catch ahead of time Community-based costs	Sustainably fished Local economy prospers Smaller carbon footprint due to local delivery
H & H Community Supported Seafood (CSS)	Santa Cruz, California 2012	Website	Customers planted the idea at farmers markets, expressed interest in sustainable seafood	Seasonality and luck, but provide sustainably sourced imported seafood if fish do not bite	Commitment to environment, community, and consumer satisfaction

Linda Kate Lobster Coop	Falmouth, Maine 2009	News articles	Global collapse of lobster prices, together with high bait and fuel costs, has capsized the economics of Maine's signature coastal industry	Bypass dealers and fish markets Educate community about lobster industry	Community involvement: participate aboard family boats – learn about biology, ecology, equipment, and 'your' industry
Local Catch Monterey Bay	Monterey and Santa Cruz, California 2012	Website	Environmental, social, and economic issues surrounding global fisheries Disconnection between consumers and producers in well-managed Monterey Bay	Provide fishermen with fair prices for catch Increase consumer awareness of local fishermen, fishing techniques, and marine environment Sustainable seafood comes from healthy ecosystems; healthy ecosystems come from healthy communities	Increase access to local seafood Development of more sustainable fishing methods, through CSF funds Triple Bottom Line: social, environmental, and economic sustainability Who, where and how!
Maple Ridge Farm and Fishery	Yarmouth/ Portland, Maine 2010	Website and news articles	Supply wide range of farm products in conjunction with family's CSA	Preserve operations of small fishing/ farming family thorough up front payments during off season	Organic practices; sustainable harvesting gear
Mermaid's Garden CSF	Brooklyn, New York 2012	Website and news articles	Problems with global fisheries, and global markets; need for local seafood market	Super fresh sustainable seafood at a reasonable price Who, where, and how!	Low-impact fishing methods Fair compensation to fishermen Season dependent
Michelle Rose CSF	Cowichan Bay, British Columbia 2011	Website	Market consolidation and farmed fish have kept prices low. Effects of climate change on fish habitat and feeding	Have healthy and sustainable seafood year around Connect directly with the local fishing community, learn more about	Support sustainable fishery, local fishermen, local economy, and local food security.

			grounds, along with spread of farmed fish diseases has made small-scale fishing difficult. Many small-scale operations have been pushed out of business.	how sustainable fisheries work, and Help build community in the Cowichan Valley and South Island.	Ocean Wise Approved sustainably harvested seafood Community building and outreach
Ocean State Fresh	Newport, Rhode Island 2010	Website and news articles	Minimize transport for processing and distribution Community call for support	Change policy through seafood Shorter supply chain Local organization to promote Rhode Islands fishermen; committed to the distribution of fresh local seafood to local consumers	Inform consumers about the importance of buying seafood from a trustworthy, local source and making sustainable choices that are good for the local economy and environment
Off the Hook	Digby/Halifax, Nova Scotia 2010	Website	To connect a co-operative of small-scale, groundfish bottom hook and line fishermen from the Bay of Funday to subscribing customers in and around Halifax	Remove middleman from supply chain Give fishermen a fair price for their catch Allow customers to share risks with fishermen Renew connections between consumers and local fishing communities and the ocean	Sustainable fishing practices Future community building, through connections and shared risk
Port Clyde Fresh Catch	Port Clyde, Maine 2007	Website	Retain heritage of community Protect healthy fisheries and communities that depend on them	Fresh, wild caught seafood that customers can trace to the source.	Environmentally conscious fishing methods Local economy

Port Orford Sustainable CSF	Port Orford, Oregon 2012	News articles	Unique fleet situation, with dry dock, makes it so only small boats can enter water Fishermen are limited in the range of fishing grounds they can access	Sustainable fishing practices of fleet together with the traceability of the fish, allow the fishermen to earn a premium Opportunity for community to add value to resource and build stronger ties between fishermen and consumers	Sustainable fishing practices due to small-scale fleet (pots, hook and line) Sometimes use 'bycatch' in shares Build stronger traditional rooted communities and livelihoods
Salt and Sea CSF	Portland, Maine 2012	Website	Global seafood markets encourage imports and exports – with America importing 90% its of seafood Support local economy	Members participate in the responsible management of the Gulf of Maine ecosystem Local fishermen, using sustainable harvesting practices of sustainable stocks	Sustainable harvesting practices Member participation in ecosystem management
Shrimp CSF	Stonington, Maine 2009	Website and news articles	The decline of substantial fish stocks, the disappearance of a market for local seafood Shrimp – important source of income during winter	Fishermen engage with local communities Help consumers invest in well-being of eastern Maine's fishing communities	Local markets - support marine habitat conservation, drive economic development, and provide fresh, top-quality seafood to local consumers Promotes understanding and exchange
Siren SeaSA CSF	San Francisco, California 2011	Website	Connect fishermen with consumers who encourage sustainable practices	Caught or farmed using sustainable fishing and aquaculture methods along North coast Delivered to subscribers within	Sustainable fishing methods Local market meaning less 'food miles'

				48 hours of leaving the water.	
Sitka Salmon Shares	Sitka and Juneau, Alaska 2012	Website and new article	Continue heritage and support fishing communities – 'backbone of economy' 'Premium marketplace'	Provide quality salmon to the Midwest	Conservation and habitat protection Carbon offset Fair wages
Skipper Otto's CSF	Vancouver, British Columbia 2009	Website	Fishing family using sustainable methods, facing competitiveness within BC fishing industry	Provide fair price for catch, ahead of the start of season Keep fishermen afloat in a competitive industry	Sustainable fishing methods Community outreach: farmers markets, recipes, trips up coast
SLO Fresh Catch	San Luis Obispo, California 2010	Website	Founder thought East Coast idea would be interesting on the West Coast and sought out fishermen as partner/supplier	Ensure fish stocks are maintained, overfishing is eliminated, and the long-term socioeconomic benefits to the nation are achieved	Sustainable fishing practices Foster seasonal, local eating habits Local economy
South Shore Seafood Exchange Inc.	Scituate, Massachusetts 2012	Website and news articles	Increased regulations and importation After discussing with fishermen, decided to re-establish a link between local fishermen and their surrounding communities	To allow local restaurants and residents access to this fresh caught native resource Bring back interest in less popular, but sustainable native species	Less bycatch, because often sold Community awareness and support Processing, distribution, and sales kept local

The Local Catch Inc.	Point Judith, Rhode Island 2011	Website	Low wholesale seafood prices and rising fuel costs make it difficult to make a living on the water, especially for local day boat fishermen	Fishermen can invest in boat repairs and gear improvements at beginning of season due to upfront payments Opportunity to know local fishermen and hold accountable	Local fishermen stay in business, helps local economy Reduced carbon footprint of seafood Sustainable seafood
The Blue Dragon Mussel Wagon	Portland and Brunswick, Maine 2009	NAMA website and news articles	Founder saw changes in tidal environment and began rotating what he harvested	Provide wild hand collected mussels to local markets and consumers	Sustainable harvesting Local fishermen, small business, and local economy
Thimble Island Oyster Co.	Thimble Island, Connecticut 2011	Website	Desire to promote sustainable ocean-based farming in an era of wild fish stock decimation Educate about ocean ecosystem and provide blue-green jobs	Risk and benefit sharing between growers and consumers Rotational seaweed/ shellfish farming system Invasive species cooking and gardening	Restore shoreline via keystone species production (improve water quality, provide habitat, etc.) Sustainable methods Community outreach through ocean-farm tours
Trace and Trust	Rhode Island 2010	Website and news article	Wild Rhody and Trace and Trust merged to create a link between producers and chefs to provide freshness and traceability	Traceability across supply chain Fill current communication gaps between producers and chefs	Fairer prices for fishermen; stays in local economy Better relationships between sectors
Village Fishmonger NYC	New York City, New York 2012	Website and news articles	Spark interest in fish provenance and to help people become more aware of how purchasing local, sustainable fish is a better choice for	Local sources Responsible harvesting Traceability	'Three-prong approach': local, stock status, and responsibility

			them and the planet		
Virginia Natural Fish Company	Williamsburg, Virginia 2011	Website	Markets needed for aquaculture operations being started in old tobacco fields	Connect consumers directly to local fish farmers Provide guaranteed market for local fish farms Pool resources for production and marketing	Sustainable aquaculture Small business Reduce 'food miles'
Walking Fish	Durham and Raleigh, North Carolina 2009	Website	Increased regulation, aging infrastructure, reduced fish stocks, and competition with global markets Threat to region's character and independence, as stewards of the coastal waters	Link rural coastal fishermen with inland urban consumers Create long-term regionally appropriate markets for fresh, local, low-impact seafood	Triple bottom line: local economy, social improvements, environmental stewardship Natural resource-based livelihoods Community-based conservation
Yankee Fishermen's Cooperative	Seabrook Harbor, New Hampshire 2009	Website	Help independent fishermen survive in a time when changes to fishing regulations are being made by the federal government (i.e. catch share system)	Re-connect local consumers and producers of seafood	Support local fishing community Sustainably harvested seafood

Sources: Adapted from Witter (2012) and various, including CSF websites, news articles, LocalCatch.org (2013), NAMA (2013).

Appendix 4 – Questionnaire for Consumers

Questions	**Responses**
Are you?	Male/Female
What's your age?	18-25/26-35/36-45/46-55/55-66/ 66+
Where do you live?	Country/City
What's your level of education?	High school/Undergrad/Graduate/PhD
What's your occupation?	
What's your yearly income?	<100/100-200/200-300/300-400/ >400 (in thousands of SEK)
Do you eat seafood?	Yes/No
If yes, how many times a month?	0-1/2-3/4-5/6-7/7+
Do you ever buy seafood from a local fishermen or local vendor?	Yes/No
If yes, how many times a month?	0-1/2-3/4-5/6-7/7+
Do you look to see where seafood is from, before you buy it?	Always/Often/Sometimes/Rarely/ Never
Do you look to see how seafood is caught, before you buy it?	Always/Often/Sometimes/Rarely/ Never
Which fishing methods do you know of?	Trawling/Hook/Net/Pots/Dynamite and poison
Which fishing methods would you say are *MORE* environmentally friendly?	Trawling/Hook/Net/Pots/Dynamite and poison
Which fishing methods would you say are *LESS* environmentally friendly?	Trawling/Hook/Net/Pots/Dynamite and poison
Do you always find the information you are looking for?	Always/Often/Sometimes/Rarely/ Never
Is there additional information you wish there was?	Open-ended
Do you look for ecolabels when shopping for seafood?	Always/Often/Sometimes/Rarely/ Never
Do you trust ecolabels?	Always/Often/Sometimes/Rarely/ Never/Why?

What does 'sustainable seafood' mean to you?	Open-ended
Would you like a bigger market of local seafood?	Yes/No/Why
Would you like to know more about your local fishermen?	Yes/No/Why
What does 'local' mean to you?	Open-ended
Why would you buy local seafood?	Open-ended
Have you heard of 'local food movements'?	Yes/No
Have you heard of Community Supported Agriculture?	Yes/No
Would you be interested to invest in or support your local fishery?	Yes/No
Would you be interested in eating locally caught seafood every week?	Yes/No
Would you like to know *HOW* your fish was caught?	Yes/No
Would you like to know *WHERE* your fish was caught?	Yes/No
Would you like to know *WHEN* your fish was caught?	Yes/No
Would you be interested in receiving seafood you are less familiar with every week?	Yes/No
How much more would you be willing to pay for sustainable and local seafood compared to conventionally caught seafood?	0/5-10/11-20/21-30/31-40/41-50/ 51+ (in percentages)
How much more would you be willing to pay, if you knew that it was going directly to fishermen and sustainable fishing methods, compared to conventionally caught?	0/5-10/11-20/21-30/31-40/41-50/ 51+ (in percentages)

Questionnaire in Swedish

Frågar	**Svar**
Är du?	Man/Kvinna
Hur gammal är du?	18-25/26-35/36-45/46-55/55-66/ 66+
Var bor du?	Land/Stad
Vilken utbildningsnivå har du?	Gymnasium eller Folkhögskola/ Högskola Grundnivå/ Högskola Avancerad nivå/ Högskola Forskarnivå
Vad är ditt yrke?	
Vad är din årsinkomst?	<100/100-200/200-300/300-400/ >400 (tusen SEK)
Äter du fisk och skaldjur?	Ja/Nej
Om ja, hur många gånger per månad?	0-1/2-3/4-5/6-7/7+
Köper du fisk och skaldjur från lokala fiskare eller försäljare?	Ja/Nej
Om ja, hur ofta varje månad?	0-1/2-3/4-5/6-7/7+
Tittar du på var fisken kommer ifrån när du handlar?	Alltid/Oftast/Ibland/Sällan/Aldrig
Tittar du på fiskemetoden när du handlar?	Alltid/Oftast/Ibland/Sällan/Aldrig
Vilka fiskemetoder känner du till?	Trålfiske/Krokfiske/Nät- och garnfiske/Ryssjor och tinor/Dynamit- och cyanidfiske
Vilka fiskemetoder skulle du säga är MER miljövänliga?	Trålfiske/Krokfiske/Nät- och garnfiske/Ryssjor och tinor/Dynamit- och cyanidfiske
Vilka fiskemetoder skulle du säga är MINDRE miljövänliga?	Trålfiske/Krokfiske/Nät- och garnfiske/Ryssjor och tinor/Dynamit- och cyanidfiske
Tycker du att du hittar informationen du söker?	Alltid/Oftast/Ibland/Sällan/Aldrig
Finns det ytterligare information du önskar skulle finnas?	
Tittar du efter miljömärkning när du handlar fisk och skaldjur?	Alltid/Oftast/Ibland/Sällan/Aldrig
Litar du på miljömärkningen?	Alltid/Oftast/Ibland/Sällan/Aldrig/

	Varför?
Vad betyder ”en hållbar fisk- och skaldjursprodukt” för dig?	
Önskar du större tillgång på lokalt fångad fisk och skaldjur?	Ja/Nej/Varför
Skulle du vilja veta mer om fiskaren?	Ja/Nej/Varför
Vad betyder ”lokalt” för dig?	
Varför skulle du köpa lokalt fångad fisk och skaldjur?	
Har du hört talas om ”local food movements” (lokala matrörelser)?	Ja/Nej
Har du hört talas om ”communtity supported agriculture” (direkt investering i en lokal matproducent för att bli delägare av skörden och få tillgång till den)?	Ja/Nej
Skulle du vara intresserad av att investera i eller stödja ett lokalt fiske?	Ja/Nej
Skulle du vara intresserad av att äta färsk lokalt fångad fisk och skaldjur varje vecka?	Ja/Nej
Skulle du vilja veta HUR fisken du köper är fångad?	Ja/Nej
Skulle du vilja veta VAR fisken du köper är fångad?	Ja/Nej
Skulle du vilja veta NÄR fisken du köper är fångad?	Ja/Nej
Skulle du vara intresserad av att få hem olika typer av inhemsk fisk och skaldjur som du inte känner till så väl?	Ja/Nej
Hur mycket mer skulle du vara villig att betala, för hållbar och lokalt fångad fisk och skaldjur jämfört med konventionellt fångad fisk och skaldjur?	0/5-10/11-20/21-30/31-40/41-50/ 51+ (procentsatser)
Hur mycket mer skulle du vara villig att betala, om du visste att pengarna gick direkt till fiskaren och hållbara fiskemetoder jämfört med konventionellt fångad fisk och skaldjur?	0/5-10/11-20/21-30/31-40/41-50/ 51+ (procentsatser)

Appendix 5 – Questionnaire for Fishermen

1. Do you feel that you fish sustainably? How? Why?
2. Do you feel that 'fishermen knowledge' of the ecosystem is used in fishery regulations?
3. How do you sell your catch now? Through what type of market?
4. Are you satisfied with the market options available to you? Why or why not?
5. Do you ever sell directly to consumers or a small, local market? If yes, are you pleased with the outcome? If not, would you be interested in this? Please explain.
6. Would you be interested to be part of a local seafood market that sells directly to consumers and keeps processing and distribution local? Why or why not?
7. How do you think consumers could contribute to a more sustainable fishery?
8. Would you be interested in having more contact with consumers and educating them about your profession? Would this be beneficial, why or why not?
9. What type of market would you envision as being most beneficial to you, consumers, and the environment? Be imaginative.

Questionnaire in Swedish

1. Tycker du att du fiskar på ett hållbart satt? Hur? Varför?
2. Tycker du att fiskares kännedom om ekosystemen tillämpas i fiskeri regulationerna?
3. Hur säljer du din fångst nu? Genom vilken typ av marknad?
4. Ar du nöjd med de tillgängliga marknadsalternativen? Varför eller varför inte?
5. Säljer du någonsin direkt till konsument, eller till en liten lokal marknad? Om ja, är du tillfredsställd med resultatet? Om inte, skulle du vara intresserad av detta? Svara gärna utförligt.
6. Skulle du vara intresserad av att vara del av en lokal fisk- och skaldjursmarknad som säljer direkt till slutkonsumenter?
7. Hur tror du att konsumenter kan påverka ett mer hållbart fiske?
8. Skulle du vara intresserad av att ha en närmare kontakt med konsumenterna och lära dom om ditt yrke? Skulle detta vara värdefullt, varför eller varför inte?
9. Vilken typ av marknad ser du skulle vara till störst varde for dig, för konsumenter och för miljon? Var fri i ditt resonemang.

Appendix 6 – Source of questionnaire data, sample reasoning, and justification of relevance

Respondents	Source of Data	Sample Reasoning	Why relevant?
Consumers	Questionnaire: both closed and open-ended questions.	Havets Hus, Lysekil provided a focused sample of potentially interested consumers. Arranged through contact at Carapax.	Consumers are important in any study of potential markets.
Fishers	Questionnaire: open-ended questions.	Random sample obtained through contacts, as fishers are difficult to track down and get feedback from.	Fishers are key actors in fisheries and provide fish for markets.

Appendix 7 – Local seafood market models, sources of data, and justification of relevance

Model	Source of Data	Why relevant?
Community Supported Fisheries (CSF)	Various, including Witter (2012), Brinson (2011), CSF websites, news articles, and LocalCatch.org	CSFs provide the most developed model of local seafood markets, although in the North American context, potentially transferable.
Simrishamn South Baltic FLAG	Communications with Vesa Tschernij, project leader of 11 FLAGs, and relevant websites.	FLAG networks are a EU funded initiative to spur coastal community and fishery development, with 14 in Sweden.
Stockholm Fish Market	Interview with Henrik Andersson, fisheries consultant to the County Administrative Board in Stockholm, and relevant websites.	Stockholm as Sweden's capital could lead as an example for the country.