Expanding the availability of sustainable seafood: Uncovering barriers for retailers

Lindsey Piilani Fong

University of New Hampshire, Durham

Follow this and additional works at: https://scholars.unh.edu/thesis

Recommended Citation
https://scholars.unh.edu/thesis/476

This Thesis is brought to you for free and open access by the Student Scholarship at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in Master's Theses and Capstones by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact Scholarly.Communication@unh.edu.
EXPANDING THE AVAILABILITY OF SUSTAINABLE SEAFOOD:
UNCOVERING BARRIERS FOR RETAILERS

BY

LINDSEY PIILANI FONG
Interdisciplinary B.A., University of Northern Colorado, 2001

THESIS
Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of

Master of Science
in
Natural Resources and the Environment: Environmental Conservation

September, 2009
UMI Number: 1472061

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI Microform 1472061
Copyright 2009 by ProQuest LLC
All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346
This thesis has been examined and approved.

Thesis Director, Andrew A. Rosenberg, Professor of Natural Resources and the Environment

Charles A. French, Extension Associate Professor; Community and Economic Development Specialist

Kenneth J. LaValley, Assistant Extension Professor of Biological Sciences; Extension Specialist, Commercial Fisheries Technology

Date August 14, 2009
ACKNOWLEDGEMENTS

My utmost gratitude is owed to my three thesis committee members: Andy, Ken and Charlie. I am especially grateful to have had Andy as an advisor who was willing to guide me, and always believed in my ability to succeed. His kindness and optimism were calming influences during my years as a graduate student, and I am forever indebted. Working with Ken and Charlie was pivotal to the project’s development and execution, and I am very appreciative of their assistance, patience, and accommodation!

To all of the following, this thesis would not have been possible without you. THANK YOU for your support:

Fishwise: Casson Trenor and Tobias Aguirre

All survey participants

My mother, Suzanne Harris for helping me proofread and edit

Sharon Hughes and Lynn Rutter for their administrative support

Tom Langley

Celeste Eno

Qualitative Methods Group

Fellow residents of “Andyland”

Friends

Coffee

Chocolate
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................................................................... iii

LIST OF TABLES ............................................................................................................................... v

LIST OF FIGURES ............................................................................................................................. vi

ABSTRACT ....................................................................................................................................... vii

I. INTRODUCTION ............................................................................................................................ 1

II. BACKGROUND INFORMATION .................................................................................................. 8
   A. Eco-labeling Defined .................................................................................................................. 8
   B. Existing Seafood Label Requirements .................................................................................... 11
   C. Overview of Seafood Eco-labeling ......................................................................................... 13
   D. Seafood Eco-labels ................................................................................................................... 16
   E. Other Sustainable Seafood Initiatives ..................................................................................... 23
   F. Benefits of Seafood Eco-labeling ............................................................................................ 30
   G. Consumer Demand for Eco-labeling ...................................................................................... 31
   H. Market Effects of Eco-labels .................................................................................................... 34
   I. International Agreements Supporting Eco-labeling ................................................................. 37
   J. Eco-labeling and Seafood Sustainability ................................................................................. 38

II. METHODOLOGY .......................................................................................................................... 41
   A. Research Objectives ................................................................................................................. 41
   B. Research Questions .................................................................................................................. 41
   C. Survey Development ............................................................................................................... 42
   D. Participants ............................................................................................................................... 45
   E. Survey Distribution .................................................................................................................. 46
   F. Data Analysis ............................................................................................................................ 49

IV. SURVEY RESULTS AND DISCUSSION OF DATA .................................................................... 51

V. CONCLUSIONS and RECOMMENDATIONS ........................................................................... 76
   A. Research Objectives ................................................................................................................. 76
   B. Research Questions .................................................................................................................. 85
   C. Survey Development ............................................................................................................... 87

LIST OF REFERENCES ....................................................................................................................... 88

APPENDICES ................................................................................................................................... 97
APPENDIX A: Institutional Review Board Approval Letter ........................................ 98

APPENDIX B: Survey Cover Letter and Background Information .............................. 100

APPENDIX C: Survey Instrument ........................................................................ 104

APPENDIX D: List of Additional Sources; Eco-Label Information .......................... 113

APPENDIX E: List of Additional Sources; Seafood Eco-Labeling, Certification of Fisheries and Seafood Trade Issues ................................................................. 116

APPENDIX F: List of Additional Sources; Consumer Surveys Regarding Seafood .. 119

APPENDIX G: Full Survey Results ........................................................................ 121
LIST OF TABLES

Table 1: Responses to Survey Question 6.................................................................57
Table 2: Responses to Survey Question 3..................................................................59
Table 3: Responses to Survey Question 19.................................................................68
LIST OF FIGURES

Fig. 1: Marine Stewardship Council labels ..................................................17
Fig. 2: Friend of the Sea logo ........................................................................17
Fig. 3: Salmon Safe logo ..............................................................................18
Fig. 4: Seafood Safe logo ............................................................................19
Fig. 5: Safe Harbor logo and tag .................................................................19
Fig. 6: Earth Island Institute Dolphin-Safe logo ...........................................20
Fig. 7: Turtle-Safe Certified logo .................................................................21
Fig. 8: Best Aquaculture Practices Certified logo ..........................................22
Fig. 9: Photos showing FishWise labels ..........................................................23
Fig. 10: Map showing the locations of eligible stores ....................................46
Fig. 11: Map showing locations survey respondents ......................................49
Fig. 12: Perceived customer criteria for selecting seafood products .............54
Fig. 13: Perceived customer concern for sustainability by small and large stores ....56
Fig. 14: Influence of sustainability on retailer purchases .............................59
Fig. 15: Retailer suspicion of sustainability rating criteria ............................69
In the fall of 2008, a mail survey was distributed to New England retailers to assess their knowledge and interest regarding 'sustainable seafood' campaigns and eco-labeling programs, as well as identify incentives to help overcome perceived barriers that prevent the distribution of sustainably harvested and labeled seafood in grocery stores. This investigation yields valuable insight for increasing the effectiveness of efforts that aim to influence consumer purchasing of seafood, as there has been little prior investigation of seafood eco-label systems used at the point-of-purchase, or retailer willingness to offer sustainably produced seafood products. This study found that many retailers are uncertain about consumer interest in sustainable seafood. However, retailers are interested in learning more about sustainable seafood and show willingness to offer it if consumer demand and sales potential are made more evident.
I. INTRODUCTION

Fisheries provide a widely consumed protein staple as well as an economic livelihood for many people. Human consumption of seafood has doubled in the last 30 years, while fishing intensity and harvest methods have intensified worldwide (Delgado et. al. 2003, cited within Jacquet and Pauly 2007). Though fisheries are renewable resources, they are not inexhaustible. Current statistics from the United Nations Food and Agriculture Organization (FAO) indicate that 52 percent of world marine capture fisheries are fully exploited, over-exploited (19 percent), or depleted (8 percent) (FAO 2009). Other research warns that many more stocks may be in danger of becoming over-exploited if current fishing trends persist, especially considering the projected rise of seafood consumption (Pauly et al. 1998).

There is growing global recognition of the need for improved fisheries management and conservation of marine biodiversity. However, the politics of fishery management favor continued exploitation, making over-fishing (taking fish out of the ocean faster than they can reproduce) a persistent problem that is hard to overcome through management alone (Rosenberg 2003). A report in 2006 by the Worldwatch Institute indicated that with governments and fisheries management bodies apparently unable to reverse the decline in some fisheries, initiatives by seafood buyers – including retailers and consumers – could prove effective (Halweil 2006).

Sustainable fisheries certification, eco-labeling, seafood choice guides, and other educational outreach campaigns are new initiatives aimed to promote sustainably
managed fisheries by feeding the growing public demand for environmentally preferable products, and making these products more obvious to consumers (Wessells et al. 2001). Part of the consumer demand for better guidance to make informed choices is concern about the health effects of eating seafood. Handily for these consumers, fish species that are harvested more sustainably often have lower risk of mercury contamination, because they tend to be non-carnivorous, shorter lived species lower on the marine food chain (Jacquet and Pauly 2007).

Consumer demand for sustainable seafood products could be a powerful influence on fisheries management by using the marketplace to encourage fishery managers and producers to comply with particular codes of practice in order to qualify for eco-labeling. By encouraging the public to choose seafood caught sustainably, the ultimate goal of these initiatives is to reduce over-fishing, and maintain sustainable harvest methods (Gardiner and Viswanathan 2004; Gulbrandsen 2005; and others). It is also hoped that seafood value will increase for fishermen, and hence the incentive to harvest more sustainably.

However, independent conservation efforts directed exclusively to individual consumers may not be effective in reducing pressure on fish stocks. As asserted in the book *Eco-labelling in Fisheries: What is it All About?* (Phillips et al. 2003 p 180), “The abolition of malpractices in fishery management will only be possible once a critical mass of certifications have been performed and visibility of the eco-label in the marketplace has grown.”
Supermarkets ring up approximately $16 billion each year in total seafood sales and average gross margins of 32 percent (Jacquet and Pauly 2007). Consumers buy half their seafood at grocery stores (Johnson 2007 and Seafood Choices Alliance 2008), and despite good intentions, it is still difficult to easily locate or identify responsible purchases. Supermarkets are the gatekeepers for many food selections, and though sustainability is frequently cited as a chief concern for stores, sustainability of seafood has not been fully addressed (Chanil and Major 2008). Current legal requirements for labeling seafood in the United States are very basic and do not address sustainability (see further discussion in Section II). The FAO Code of Conduct for Responsible Fisheries, as well as other national and international entities such as the United Nations Conference on Environment and Development (UNCED), emphasize the importance of improving the identification of the origin and information about fishery products to achieve sustainability objectives (FAO 2007).

Research has been done on eco-labels in general (OECD 1997 and USEPA 1993; also see Appendix D for additional sources not referenced in this paper) and reports pertaining to seafood eco-labeling have explained certification of fisheries as well as trade issues (see Appendix E for a list of references). Additionally, surveys in the past few decades have evaluated consumer knowledge, perception, and preferences for seafood (Hicks 2008; Seafood Choices Alliance 2003; and Wessells et al 1999; also see Appendix F for additional sources not referenced in this paper).

However, little is known regarding more recent opinions on issues like sustainability, environmental impact, organic, health and nutrition, contaminants and the variety of new seafood safety concerns that may now be influencing purchasing decisions.
(Hicks et al 2008). Given the complexity of current issues, more information is needed about what barriers exist to marketing sustainably labeled seafood products. There has been little investigation of effectiveness of label systems used at the point-of purchase for seafood, or retailer willingness to offer sustainably produced seafood products. One relevant survey was conducted by the Seafood Choices Alliance, a program of NGO SeaWeb, produced reports in 2003 and 2008 that included telephone surveys of seafood retailers (150 respondents), restaurants, and wholesalers to uncover the influences and concerns regarding buying seafood for resale to consumers. Their results showed evidence of a growing awareness in the seafood industry of sustainable seafood and the environmental impacts of commercial fishing and aquaculture. Their findings will be further discussed in the results section.

This research began with an investigation of eco-labeling of seafood products at the point-of purchase, particularly programs such as the California-based FishWise program which facilitates a science-based labeling system for use in grocery stores. Their labels, designed for retail stores, list the type of fish, where it came from, and how it was caught, using a color-coded sustainability rating designation (FishWise 2008). However, stores must individually agree to fully implement the system for all their fresh seafood products, and some retailers have expressed hesitations, such as: Fear of reduced sales/profits, hesitancy to discontinue or label products as ‘unsustainable,’ reluctance to provide detailed differentiation between products (i.e. types of salmon), disbelief that customers care about such information, and disbelief that some products are ‘unsustainable’ (C. Trenor, personal communication, February 24, 2008).
This research study aimed to uncover barriers to marketing sustainably grown and labeled seafood, from the perspective of retailers. This was accomplished by surveying retailers to identify incentives that can help overcome any real or perceived barriers that prevent the distribution of eco-labeled seafood in grocery stores in New England.

Specifically, the project assessed:

a. Retailer views regarding ‘seafood choice’ awareness campaigns and eco-labeling programs, including hesitancies to implementing labeling systems.

b. Retailer willingness to provide sustainably produced seafood products in their stores (including locally caught), including predicted or experienced problems (such as regular availability of supply; quality; consumer interest and knowledge; price differentials).

c. Incentives that retailers feel would help overcome those barriers.

Seafood produced through aquaculture (farming of aquatic organisms including fish, mollusks, crustaceans and aquatic plants) are included because of the worldwide expansion of aquaculture production and the projected increase in sales of products. It has been estimated that the U.S. will require an additional 4 billion pounds of seafood by the year 2020, with aquaculture potentially providing most of the needed production (Johnson cited in Marine Aquaculture Task Force 2007). The increase in aquaculture will present unique environmental challenges, though the levels of ecological impact will depend on the methods used. It seems the general public is largely unaware of the range of ecological and health consequences associated with different farming techniques (Seafood Choices Alliance 2003 and Edge Research 2009).
Some retailers have reservations about using existing labeling programs on products because of a fear that positive statements on one fish product might cause the consumer to infer negative statements about other products that do not carry the logo. Although consumer-based research has shown that this is not the case, this fear remains for retailers (Phillips et al. 2003). Considering this, it was predicted that many retailers currently view seafood eco-labeling skeptically, out of fear of reduced profits/lost sales. It was also predicted they would be willing to offer products produced in an environmentally sound manner if consumer demand and potential for sustained/increased sales was evident. This was reflected in the survey responses, which also revealed incentives to aid retailers with eco-labeling endeavors.

This investigation yields insight applicable to increasing the effectiveness of efforts that aim to influence consumer purchasing of seafood. The results may help expand the use of point-of-purchase eco-labeling systems and the amount of sustainable seafood products offered and sold by stores. Improved seafood labeling will increase both consumer and retailer knowledge regarding quality, health, and environmental sustainability issues associated with seafood production and consumption, and could serve to help all sectors adapt to the changing availability of seafood in an unstable market. Thus, the results could potentially have significant implications for retailers, consumers, eco-labeling programs, educators and fisheries managers.

Whereas past research focused largely on consumers, or the retail sector more generally, this study elicited specific barriers to selling sustainable seafood at grocery stores and utilizing point of purchase seafood eco-labeling programs. With this study, the opinions, knowledge and preferences of retailers was a primary focus. Readers will gain
information needed to understand the market for sustainable seafood from the viewpoint of New England retailers.
II. BACKGROUND INFORMATION

A. Eco-labeling Defined

Environmental labeling, or “eco-labeling” is defined by the U.S. Environmental Protection Agency (EPA) (1993) as “providing information for consumers regarding relative environmental impacts and sustainability.” In 1998 the EPA added that it is “a stringent form of environmental labeling that relies on independent third-party verification to ensure products meet certain environmental criteria or standards” (U.S. EPA 1998). Eco-labeling programs for seafood convey to consumers that there are important issues that they may want to pay attention to, and provide a basis for comparison shopping between products (Caswell 2006). Other descriptive terms used to describe eco-labeling in the marketplace include ‘value added’ (Seafood Choices Alliance 2008), ‘extrinsic indicators,’ or ‘voluntary’ (Caswell 2006).

This type of labeling is distinct from labels of origin (for example, “buy American”) in that they include processes for developing and revising standards over time, whereas labels of origin are static (Auld 2007). Labels that proclaim environmental benefits can be found on all kinds of products and foods. More specifically, products are marked with a visible designation that they have fewer negative impacts on the environment than similar products. Labels may also address social or health considerations, and alert consumers that specific measures were taken by a producer to reduce or eliminate undesirable production characteristics. Labeling
can apply to a wide range of product attributes; reflecting the environmental impact of a product’s entire life cycle, or just a portion such as the production process or content (Wessells et al. 2001).

The difference between legitimate programs and those claims not backed by any certifying organizations (sometimes referred to as “greenwashing”) is sometimes difficult for consumers to decipher. The use of third-party certification bodies adds credibility to an eco-label, differentiating it from unsubstantiated claims of sustainability. To help consumers evaluate eco-labels, a website has been created by the Consumers Union organization at <www.eco-labels.org> which suggests that claims should have meaningful standards that can be verified by an independent organization or inspector. The standards should have originated with an independent body, not those benefiting from the sale of the products. The same label on different products should mean the same thing. A good certifying organization will be open about its standards and who is behind each label (Fulmer 2001).

Companies and stores may be enticed to use environmentally preferred production and eco-labels in hopes of gaining higher profits and a greater market share (Jacquet and Pauly 2007). To qualify for participation in certified labeling schemes, producers may be compelled to modify practices to meet standards of sustainable resource management and production (Gulbrandsen 2005). In some instances, the development of eco-labels has encouraged manufacturers to modify their products so as to maintain their products in retail chains (OECD 1997). The practice of eco-labeling has been recognized as an acceptable form of product differentiation based on production process rather than innate product characteristics,
under the General Agreement on Tariffs and Trade (GATT) administered by the World Trade Organization (WTO) (Gudmundsson and Wessells 2000).

However, there are reasons why some stores avoid eco-labeling. There is a risk that the confusing variety of eco-labels now in existence include a number of meaningless labels, or worse, that these labels will gradually drive out those that do imply some measure of sustainability for the products that are certified. Two decades ago, Wal-Mart discontinued a broad eco-labeling program, citing that varying state laws make it difficult and expensive to make environmental claims. Another significant concern was that consumers may be misperceiving the shelf tags as a general approval of the products’ ‘environmental friendliness’ and that Wal-Mart would be liable for making misleading claims. Another legal complication was that Wal-Mart was relying on information provided by the suppliers, and it was difficult to track the claim back to its original source (U.S. EPA 1993).

Government regulation of eco-labeling is limited, with oversight split among three agencies. The United States Department of Agriculture (USDA) oversees the National Organic Program, which regulates the standards for any farm, wild crop harvesting, or handling operation that sells an agricultural product as organically produced. The Federal Trade Commission (FTC) provides labeling guidelines for companies interested in making eco-claims, and occasionally sends letters of complaint to companies who make questionable claims. The Commerce Department oversees labeling the dolphin-safe tuna on the market (Fulmer 2001).

The USDA Organic Program is an example of a well-established label that can be found on foods that are certified to meet federally set standards concerning use
of pesticides and synthetic fertilizers. This means that food products are not organic unless they have been certified by the USDA and bear the USDA stamp of approval. For meat, the USDA has proposed voluntary standards to use a “grass fed” label, which would allow the use of antibiotics and growth hormones, and would not require access to pastures. Other terms found on meat products, such as: “free range” “antibiotic free,” “hormone free,” “natural,” and similar labels are general claims that are not necessarily backed by any certifying organizations (Hattam 2006).

Other well-known eco-lables include Energy Star, Fair Trade Certified, Bird Friendly, Rainforest Alliance, Green Seal, Forest Stewardship Council.

B. Existing Seafood Label Requirements

Current federal label rules for fish and shellfish sold in U.S. retail markets are known as COOL: Country of Origin Labeling, which requires identification of the country of origin, and a distinction between wild-caught and farm raised/aquaculture. The information may be provided to consumers in the form of a sticker, placard, twist tie, tag, or other clear and visible sign on the covered commodity. The law defines ‘retailer’ as any person engaged in the business of selling any perishable agricultural commodity at retail (USDA 2002).

However, food service establishments and processed food items are exempted from the COOL rules for seafood, which went into effect in 2005 (USDA 2002). This leaves 90 percent of fish sellers (who count as small businesses) and 50 percent of all fish products sold in the U.S. without labels, since ‘processed’ can be anything that has been altered, such as cooked, smoked, or canned seafood, or that has been mixed with other ingredients (including soups, seafood medleys, and breaded or
salted seafood). Also, no enforcement mechanism exists and violators face minimal fines (Food and Water Watch 2008).

Individual states in the U.S. can implement their own labeling laws, which can be stronger, but not weaker than U.S. federal law. Since the early 1990s, Washington State has required labeling for farm-raised salmon sold in retail and wholesale fish markets. Alaska requires labels for genetically modified farmed fish, as well as the labeling of all farm-raised halibut, salmon, sablefish- even in restaurants. Arkansas and Louisiana require labeling for farmed catfish sold in retail and wholesale markets (Food and Water Watch 2008).

Despite these laws, inaccurate seafood labeling continues to occur (Jacquet and Pauly 2008). Many seafood species are renamed or mislabeled to masquerade in the market as eco-friendlier or more appetizing species. For example, hake fillets are marketed and sold as flounder or tilapia. For years, environmental and health organizations have stressed the benefits of tilapia. This has contributed to a rising demand for tilapia, and consequently tilapia impostors, like hake (Jaquet 2007). Government enforcement agency investigations have also found seafood labeled as grouper and red snapper are often other species entirely. A 2006 investigation found that 13 of 23 salmon fillets labeled ‘wild’ that researchers bought were actually farmed salmon, labeled as wild (Consumers Union 2006). This mislabeling can undermine eco-labeling programs, but can also be viewed as evidence that the demand for sustainable seafood is being recognized in the marketplace.

The U.S. Food, Drug and Cosmetic Act requires labeling of artificial dyes used in food, but because there are no federal government enforcement efforts,
grocery stores often fail to inform consumers about dyes added to farm-raised fish. Many states have parallel laws, such as California's Sherman Food, Drug and Cosmetic Law. In 2008, California's Supreme Court ruled that consumers may sue grocery store chains to enforce that law. Lawsuits alleged that two petrochemical-based dyes, astaxanthin and canthaxanthin, are added to farm-raised salmon to make the gray color appear pink like wild salmon. Consumers may be concerned because a lack of natural pink coloring in farm-raised salmon may indicate lowered Omega 3 fatty acid content (CBS 2008).

C. Overview of Seafood Eco-labeling

Eco-labeling offers consumers an opportunity to exhibit a preference for environmentally friendly products, giving producers a tangible incentive for joining labeling schemes. The goal of seafood eco-labeling programs is to create market-based incentives for better fisheries management by generating consumer demand for 'sustainable' seafood (products from well-managed stocks). Demand-side programs such as environmental certification systems, eco-labeling, and purchasing policies provide incentives for environmental protection that governments cannot provide (Marine Aquaculture Task Force 2007).

Fisheries certification (and catch documentation) does not necessarily involve a label on products at the retail level, but when it does, it can influence consumers’ choices. Labeling information in stores at the point of sale clearly links fisheries products to their production processes and enables consumers to make better informed purchase choices. Also, it has been argued by many consumer organizations and international consumer unions that consumers have a right to get
product information that is relevant to their values and preferences, especially pertaining to product safety or impacts on health or the environment (Wessells et al. 2001).

The use of environmental labeling has proliferated in recent years, though much less for food than for manufactured products. There has been particularly little environmental labeling of fisheries products (MacMullen 1998 cited in Wessells et al. 2001; and Deere 1999 cited within Gardiner and Viswanathan 2004). However, there are currently several national, international, industry-sponsored, non-governmental organization (NGO) -led and consumer-supplier partnership certification and standards schemes under development which will lead to a broad range of possible labels for seafood products. The following are examples of claims that can be stated on labels: Ecosystem friendly; not over-fished; no by-catch; no marine mammal by-catch (Wessells et al. 2001). According to Wessells et al, the claims should be backed by a “chain of custody” procedure, which documents each stage of production and certifies that the product came from a sustainably managed source.

One of the primary steps behind seafood eco-labeling programs is to set standards and accredit sustainable fisheries from various locations worldwide. Next, processors, wholesalers, and retailers can purchase products from these accredited fisheries and gain the ability to place eco-labels on their seafood products, which inform consumers that the product was harvested from a sustainable fishery (Gudmundsson and Wessells 2000). An eco-labeling organization owns its environmental endorsement symbol or trademark and licenses the use of this mark for a specified period of time and a specific fee.
Eco-labeling can serve three functions in the marketplace: (i) it can provide independent evaluation and endorsement of a product; (ii) it can act as a consumer protection tool; and (iii) it can be a means of achieving specific environmental policy goals. By using this immense power of the marketplace to reward good behavior, these methods can complement and enhance the effectiveness of government regulation of fisheries and industry management practices (Roheim and Sutinen 2006).

Fish currently labeled as “organic” in the U.S. are imports certified and/or accredited in other countries (including IFOAM International Organic Accreditation Service, Soil Association, Naturland, KRAV) (Auld 2007). Until recently, fish could not be certified organic in the United States, because federal rules governing organic foods did not cover fish. The USDA decides which foods can be considered organic, and there are still no USDA organic standards for seafood. A proposal by the Aquaculture Working Group of the National Organic Standards Board, an advisory panel to the USDA’s Agricultural Marketing Service has recently been accepted. This proposal suggests standards that will allow fish farmers to use wild fish as part of their feed mix provided it does not exceed 25 percent of the total and does not come from forage species, such as menhaden, that have declined sharply as the demand for farmed fish has increased. The decision has been met with dissatisfaction by some, who believe that the feed should be completely organic (Eilperin and Black 2008). The debate about whether wild salmon can be considered organic continues.
D. Seafood Eco-labels

The Marine Stewardship Council (MSC) was the first, and is now the most well-known certification/eco-labeling program for sustainable seafood. It was originally formed in 1996 through a partnership between the World Wildlife Fund (WWF) and the Unilever Food Conglomerate (one of the world’s largest purchasers of fish) but is now an NGO independent of its founders. The MSC was modeled after the Forest Stewardship Council, and has clarified that its role is meant to complement international regulations (Gulbrandsen 2005). The MSC definition of ‘well-managed fisheries’ integrates principles and criteria including: Prescriptions to stop overfishing or depletion of exploited populations, maintenance of the productivity and diversity of the ecosystem, and respect for local, national and international sustainable fishery laws and standards (Marine Stewardship Council 2009).

MSC labeling requires chain-of-custody tracking to ensure that products carrying its logo actually originate in a certified fishery. Certification requires a series of steps, beginning with pre-assessment by an MSC-accredited certifier and ending with a full assessment by an independent evaluation team. This evaluation team (consisting of a fishery stock assessment expert, an ecosystem expert, and a fisheries management expert) awards performance scores based on performance indicators and scoring guidelines for each fishery. Once the certification process is complete, accepted fisheries and seafood businesses receive a license to display a blue oval MSC label on seafood products or marketing materials. Certification lasts five years and is subject to annual audits to confirm that any required improvements are being made (Marine Stewardship Council 2009).
Similar to the MSC, **Friend of the Sea** is an NGO founded in 2006 as a certification and label scheme for products originating from sustainable fisheries and aquaculture worldwide. Certification criteria follow the FAO “Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries” and are audited by international certification bodies (Friend of the Sea 2009).

![Friend of the Sea logo](friend_of_the_sea_logo.png)

**Fig. 2: Friend of the Sea logo (Friend of The Sea logo 2009).**

A smaller scale seafood eco-labeling/certification scheme in the U.S. is the non-profit **Salmon-Safe Program**. This program works to restore water quality and salmon habitat in the agricultural watersheds of the Pacific Northwest by certifying fish-friendly farms. Salmon-Safe evaluates farm operations that employ conservation practices benefiting native salmon; those endorsed by independent professional certifiers are granted a “Salmon-Safe” label (Salmon-Safe.org 2003).

1 All logos are the property (trademark/copyright) of their respective organizations- see List of References for organization website information.
In 2005 sustainable seafood distributor EcoFish launched Seafood Safe, another smaller scale label which informs consumers of how many meals of that type of fish they can consume per month. The guidelines are intended to protect women of childbearing age from exceeding EPA guidelines for mercury and PCBs. The environmental organization Environmental Defense Fund, along with a scientific advisory board, performs the calculations. The mission of the New Hampshire-based EcoFish company is to identify and market seafood originating from environmentally sustainable fisheries. Currently they are the only one to use the Seafood Safe label, though the program has been made available to any seafood company, retailer or restaurant interested in participating in the program. Interested businesses will undergo a confidential pre-assessment, which will include the development of a customized testing regime based upon the intricacies of their particular products (Seafood Safe 2008). Similarly, a company called CleanFish is trying to build brand recognition for fresh, sustainable seafood from small fishing operations around the world (Cleanfish 2008).
Safe Harbor Foods tests and certifies fish that do not exceed specific levels of mercury contamination. All Safe Harbor certified seafood fall below the 1 ppm limit allowed by the U.S. FDA. In most cases, the standards are based on FDA median levels which are publicly available, and are verified, although the test method used is proprietary and not publicly available for independent verification. The standard is not the same for different species of fish, since it is based on the median level found in fish, which vary by species. Therefore, one particular fish that has the Safe Harbor seal may have a higher level of mercury than a different species of fish that does not have the label. In addition, the median level may not be used for fish that typically have low levels of mercury (Safe Harbor Foods 2008).
One of the first and most famous seafood eco-labels is the **Dolphin Safe** designation on tuna cans, produced by The Earth Island Institute NGO in the early 1990s. The campaign was controversial but became recognized worldwide and stimulated reforms in the tuna fishing industry that are now U.S. law. However, the law does not require certification for all tuna labeled dolphin-safe (Jacquet and Pauly 2007). Also, because all canned tuna available in the US is labeled as dolphin-safe, there is no available choice for consumers to make for non-dolphin-safe tuna (Roheim and Sutinen 2006). The Earth Island Institute has continued an ongoing campaign promoting Dolphin-Safe tuna (Earth Island Institute 2009).

![Dolphin Safe Logo](image)

**Fig. 6: Earth Island Institute Dolphin-Safe logo (Earth Island Institute logo 2009).**

Later in the 1990s, the Earth Island Institute also created the **Certified Turtle-Safe Shrimp** label program as part of a project to protect endangered sea turtles. Associated publicity aimed to educate the public about the threat to sea turtles, as well as the larger issue of fish by-catch. Consumers were also encouraged to purchase shrimp labeled with a “Turtle-Safe” logo, signifying use of Turtle Excluder Devices (TEDs), which attach to shrimp nets and allow turtles to escape. The goal was to use consumer demand to pressure shrimp fishermen to use TEDs, and show them that there are rewards for participating in sea turtle conservation. The program was based on the dolphin-safe tuna and organic certification programs, and expanded through restaurants and major retailers. However, since 1990, all U.S. warm-water
shrimpers have been required to use TEDs and in 1992, the provision was extended to foreign fleets/ all trawl-caught shrimp sold in the United States (Marine Turtle Newsletter 1996 and HEART 1997).

Organizations assisting efforts to develop certification for aquaculture/ fish farming include: Friend of the Sea, World Wildlife Fund (WWF), International Standards Organization (ISO), and GLOBALGAP. The most visible effort in the U.S. is the Responsible Aquaculture Program (RAP), developed by The Global Aquaculture Alliance (GAA), a U.S. based non-profit international aquaculture industry association dedicated to advancing environmentally and socially responsible aquaculture (Seafood Choices Alliance 2008). Their **Certified – Best Aquaculture Practices label** indicates that a 3-stage process comprised of a self assessment audit, an environmental management plan and inspection, and certification and labeling, has been completed. This makes certified products available to consumers who want environmentally responsible farm-raised seafood with the goal of improving the efficiency and long-term sustainability of the aquaculture industry. The program also aims to influence both small and large-scale producers, processors, marketers and retailers to implement management practices that comply with RAP’s “Best Aquaculture Practices” standards. Initially, RAP focused on shrimp aquaculture (using GAA’s Codes of Practice for Responsible Shrimp Farming) but standards for
several fish species have also been developed. RAP’s associated certification body is the Aquaculture Certification Council (ACC), an independent nongovernmental body (Global Aquaculture Alliance 2009).

\[\text{Fig. 8: Best Aquaculture Practices Certified logo (Best Aquaculture Practices Certified logo 2009)}\]

According to research conducted by the Seafood Choices Alliance, the most effective way to make information available is at the point of sale (Seafood Choices Alliance 2003). FishWise is one organization doing this: facilitating the use of a labeling system in retail stores that utilizes a rating scale for sustainably harvested species. Retailers can elect to use the **FishWise labels**, which list the type of fish, where it came from, and how it was caught, using a color-coded sustainability rating designation. The FishWise Program was developed by fisheries scientists from Sustainable Fishery Advocates and is the leading science-based, sustainable seafood labeling program designed specifically for grocery stores. They work in conjunction with the Monterey Bay Aquarium and a national network of organizations promoting sustainable seafood (FishWise 2008).
The European Union is planning a bloc-wide seafood eco-label. According to the European Commission (executive branch of the European Union; responsible for proposing legislation and implementing decisions), a seafood eco-label would be designed to educate consumers and promote a sustainable ecosystem and use of resources. In order to be recognized by the EU, an eco-labeling scheme must consist of certification standards, independent accreditation bodies and independent certification bodies (SeafoodSource.com 2009).

E. Other Sustainable Seafood Initiatives

Recent tactics for improving the sustainability of fisheries have included efforts to raise the awareness of consumers in North America and Europe regarding sustainable seafood products (Gardiner and Viswanathan 2004; and Seafood Choices Alliance 2003). In addition to eco-labeling initiatives, there has been a variety of alternative educational outreach efforts aimed to influence consumer behavior. The Smithsonian Institution published a cookbook of sustainable seafood dishes, and the Incofish Project, funded by the European Commission, produced a ‘FisherMin’ ruler that shoppers can use to measure their fish to ensure they are not buying juveniles.
On a larger scale, NGOs and aquariums have launched a range of seafood-related social marketing campaigns to promote sustainable seafood through the marketplace, including boycotts of certain species/products (notable campaigns include “Give Swordfish a Break,” “Take a Pass on Chilean Sea Bass,” “Farmed and Dangerous Salmon,” and “Caviar Emptor”) (Roheim and Sutinen 2006). In the U.S., the most recognizable tool for consumers are “seafood choice guides,” that provide recommendations regarding which types of seafood to avoid (because of problems such as over-fishing, by-catch issues, habitat destruction, marine pollution or use of chemicals) and which types have been deemed sustainable and are recommended for purchase. These guides have been created in the U.S. by the Monterey Bay Aquarium, the Blue Ocean Institute, Environmental Defense, and many other organizations. The guides are often found in the form of wallet-sized cards, which consumers can consult at restaurants or stores. Most cards organize seafood lists using a traffic light system of ‘green’ for best choices, ‘yellow’ for good options, and ‘red’ for items to avoid. The guides are also proliferating as online-based tools, such as the Fish Watch site, produced by the U.S. National Oceanic and Atmospheric Administration (NOAA), and the Environmental Performance Index, a collaboration between Yale and Columbia Universities. Another tool recently developed is the Blue Ocean Institute’s Fish Phone, a sustainable seafood text messaging service.

While the cards are generally considered by the scientific community to be well produced and good for raising public awareness of over-fishing issues, their effectiveness is sometimes questioned because consumers do not always carry them, and it is difficult to gauge actual effects on consumer choices. Also, certain groups
including the fishing industry voice skepticism and disagreement over particular species ratings designated by the card-producers. Other limitations of seafood guide cards and of boycotts include a lack of traceability, mislabeling and renaming, and a single species focus (Jacquet and Pauly 2007). Both also do not discriminate between responsible and irresponsible fishing operators on the ‘avoid’ list, which could impose an economic cost on the responsible fishing operators, and are effectively advocating for boycotts of any species on the ‘avoid’ list (Roheim and Sutinen 2006).

Although some seafood businesses use consumer guide cards to help guide their wholesale purchasing decisions (for example, the foodservice company Compass Group USA) there are also newer buying guides created more specifically for industry use (Roheim and Sutinen 2006). The Food Marketing Institute has created a Sustainable Seafood Working Group and a Sustainability Task Force to develop guidelines, case studies of retailer best practices, and other resources to help the supermarket industry create seafood sustainability programs and address seafood sustainability issues. The Working Group is also compiling a list of experts, certification and auditing bodies, government agencies, NGOs and other resources with whom retailers can consult. The resource list is posted at <www.fmi.org/sustainability>, and the case studies will also be posted there (Food Marketing Institute 2009).

Similarly, the Ocean Conservancy NGO is offering advice to wholesale and retail seafood buyers about improving the sustainability of their seafood products by purchasing from fishermen who are using the best fishing techniques and equipment. They call their approach “fishery to fork” and also work directly with conservation-
minded fishermen to help them improve their practices. Additionally, they have partnered with more than a dozen leading Canadian and U.S. organizations to form the Conservation Alliance for Seafood Solutions, in which participating organizations provide conservation expertise to seafood buyers and suppliers (Ocean Conservancy 2009). Another NGO, the Seafood Choices Alliance, has compiled several resources for businesses including: “FishSource,” information for large seafood buyers regarding the status of fish stocks and the environmental performance of fisheries; and “FishChoice.com,” for retailers seeking suppliers for sustainable seafood.

Another resource for seafood buyers to compare the environmental impacts of popular fish from sea to table is the “Carbon Fishprint,” a rating system created by Washington D.C.-based ProFish (a wholesale seafood distribution subsidiary of OceanPro Industries Ltd). The system is meant to raise awareness that the harvest and production of some species require significantly more carbon energy than others (ProFish 2009). Because almost 90 percent of the carbon expended comes during the catch, the Fishprint system first looks at the methods of fishing. It also looks at how much energy was used to process the fish as well as transport and delivery methods. ProFish does not intend that buyers choose a fish exclusively based on its Carbon Fishprint, but it is one more source of information that can help consumers and retailers make good decisions. Sustainability experts commend ProFish’s initiative but caution that it will take time to develop rigorous scientific ratings (Black 2009).

A regional initiative on the U.S. west coast is Pacific Fish Trax (managed by the Seafood Consumer Center, a nonprofit organization), which tracks information on the fish, its habitat, and the journey the fish takes from the river and ocean, over the
dock, and to the market. It includes scientific research on fish genetics and marine ecosystem conditions and information about where, when and how a fish travels to market (Pacific Fish Trax 2009).

Recently, environmental groups have increasingly been putting pressure on retailers to stop selling what they categorize as unsustainable species. This has been particularly successful in Europe (Roheim and Sutinen 2006). In June 2008, the environmental organization Greenpeace began to release periodic reports (called “Carting Away the Oceans”) of the sustainable seafood policies and practices of 20 top U.S. supermarkets. Although Greenpeace has yet to release the formula it uses to score retailers’ sustainable seafood purchasing policies, they revealed that all surveyed supermarkets sell significant numbers of over-fished seafood, despite stated support for sustainability initiatives and intentions to develop sustainable seafood policies (Wilson 2008). Greenpeace reported that while some supermarkets have increased their selections of organic foods, “green” products, or fair trade items, sustainable seafood remains a neglected area. Since most U.S. supermarkets lack a comprehensive sustainable seafood procurement policy, many seafood species sold in stores are from unsustainable farms or over-fished stocks, caught using destructive fishing methods (Greenpeace 2009).

U.S. supermarkets have a unique opportunity to reshape the way we catch and consume seafood. Supermarkets are well positioned to help shape the commercial fishing Industry of tomorrow and prevent the collapse of global commercial fisheries. By using their unique marketplace position, supermarkets can press suppliers to become more sustainable in their
business practices. By demanding sustainable products, supermarkets will help lead the way toward safeguarding our oceans for generations to come.

-Greenpeace 2009

Retailers and food-service companies are beginning to show interest in making environmentally preferable seafood choices. Public pressure on retailers, and the fact that retailers appear to be responding quickly to this pressure, indicates that retailers believe the message of sustainability is resonating with consumers (Roheim and Sutinen 2006). A few are partnering directly with NGOs to develop sustainable seafood sourcing policies, as it can be advantageous to rely on an existing credible certification program to avoid a major investment of company time and resources in developing a novel venture (Marine Aquaculture Task Force 2007). In 2006, Wal-Mart announced plans to source all of its wild-caught fresh and frozen fish for the North American market from MSC certified fisheries within three to five years (Wal-Mart 2006). It also has plans to require its shrimp suppliers to adhere to “best aquaculture practices” as defined by the Global Aquaculture Alliance (Seafood Choices Alliance 2008).

Whole Foods, Trader Joe’s, Shaws and Legal Seafoods have also pledged to buy MSC certified products. Supermarket owner Ahold USA (Stop and Shop, Giant, and Peapod stores) and the New England Aquarium have formed a partnership called “Choice Catch” which will affect buying practices to favor marine conservation. Wegmans Food Markets are updating their purchasing policies based on health and environmental standards with consultation from the Environmental Defense Fund NGO. Notably, Wegmans is seeking to go beyond the needs of their customers to
seek long-term change in the seafood industry, stating that these standards are intended to promote environmental progress in the aquaculture industry in the Americas (Seafood Choices Alliance 2008).

The seafood industry itself is beginning to promote the purchase of seafood from sustainable sources, though the environmental impacts of these industry initiatives are limited by the size of the market they represent, as unsustainable sources of seafood may still be able to find alternative markets for their products. Particularly in Europe and North America, seafood companies have been increasingly scrutinizing their supply chains to check the legality of their seafood sources, announcing pledges to use sustainable sources or carry MSC-certified seafood, and dropping certain species from retail shelves due to their designation by some environmental groups as unsustainable (Roheim and Sutinen 2006).

Regional fisheries management organizations (RFMOs) are another force affecting the marketplace for sustainable seafood. RFMOS oversee catch documentation schemes (CDS), vessel monitoring systems (VMS), vessel lists, restrictions for non-compliant operators’ access to goods and services (fuel, landing, insurance, communications and navigation services etc.) and import bans. Anecdotal evidence exists that these measures can help promote sustainable fishing and strengthen the disincentives for illegal, unreported and unregulated (IUU) fishing practices. Unfortunately, they can easily be evaded through actions such as frequently changing vessel names or fishing under flags of convenience (Roheim and Sutinen 2006).
F. Benefits of Seafood Eco-labeling

Consumer demand for sustainable, organic and natural products is increasing. Retailers who are able to sell such products can gain a public relations advantage as well as profit increases, considering that many people are willing to pay a premium for high quality, environmentally conscious products. According to a USAToday/Gallup Poll conducted in March 2007, more than 8 in 10 Americans said a company’s environmental record should be an important factor in deciding whether to buy its products (O’Driscoll and Weise 2007). Earlier surveys cited by Searle et al. (2004) and conducted by the Seafood Choices Alliance (2003) showed parallel results. With a choice of at least two competing stores in most areas, the store that can supply the ‘sustainable choice’ gets a greater proportion of market share (BBMG Conscious Consumer Report, cited within Wilson 2008).

While eco-labeling and the MSC program have their own limitations, they may be preferable for the fishing industry and businesses in comparison with other alternatives in the determination of sustainability. Only eco-labeling has stakeholder consultations, third-party independent certification, accountability, and transparency in place in its process. Also, of all the NGO approaches, only eco-labeling has the possibility of falling under any World Trade Organization (WTO) rules. The other approaches subject the fishing industry to far more risk, uncertainty, and frustration as to what the standards are, the qualifications of those setting the standards, the consistency of the standards across organizations, the ability of industry to provide input into the determination of whether a product is determined to be ‘sustainable,’ and the accountability of those in the determination process (Roheim and Sutinen...
2006). Searle et al. (2004) adds that if certification succeeds in promoting more sustainable practices, it will help ensure that a variety of fish exist over the long-term, and may take the place of harsher forms of control, such as regulation, which can prohibit the fishing of entire species.

It is worth remembering that some of the earlier NGO efforts and campaigns were key influences in the later development of certification and eco-labeling of seafood (for example: WWF had an “Endangered Seas Campaign” prior to founding the MSC). Transnational environmental group networks and their targeting of firms have been key to the emergence eco-labeling schemes, and most firms decided to support or participate in such schemes only after intensive environmental group pressure (Gulbrandsen 2006). Continuing efforts (namely the guide cards) stimulate demand and are often viewed as a complement rather than competition: A difference between certifications and ranking systems used in the guides is that ranking systems arm consumers with information they can use to choose among an array of products in the marketplace, and certifications can be found as a direct label on packaging for only those products that have passed evaluation (Brownstein, Lee, and Safina 2003).

G. Consumer Demand for Eco-labeling

Awareness continues to grow among American consumers about health benefits and risks of eating seafood. In addition to the potential health impacts of seafood, consumers are concerned about the sustainability of resources as certain stocks decline. There is evidence that consumers desire increased eco-labeling, and retailers are beginning to recognize this increasing demand to know where food originates (Seafood Choices Alliance 2003).
In order for consumers to be given more choice in the seafood they purchase, they need adequate information to make informed decisions, and the products they desire must be made available to them (i.e., it is difficult to make eco-conscious choices if there are few alternatives in the store). A national survey of 1500 adult seafood consumers conducted in 2008 by Edge Research and the Ocean Conservancy concluded that consumers would like more information about the origins of their seafood. Overall, 67 percent of Americans are at least somewhat interested in learning more (Seafood Choices Alliance 2001), and 77 percent of organic shoppers (though a low percentage of total shoppers are considered organic shoppers) want to know more (Edge Research 2009). The Seafood Choices Alliance also divulged that a majority (76 percent) of American seafood consumers do not feel that they have enough information about the seafood available to them. Also, retailers are currently a typical source of information about seafood, but consumers do not trust them when it comes to human health and environmental impacts related to fish farming.

Concerning seafood purchasing, a survey of 1,640 U.S. residents found that 70 percent preferred to purchase seafood that was labeled to indicate the fish came from sustainable sources (Wessells et al. 1999). Recent surveys have shown that many consumers are likely to choose one brand or product over another if they believe that it will help the environment. Survey evidence also suggests that slightly over half of the consumers in North America had purchased a product that they felt was better for the environment, boycotted a specific product that they felt was bad for the environment, or boycotted products made by a company that they felt was damaging the environment (Jha 1993, cited within Wessells 1998). In addition, consumers in
developed nations are more likely to react favorably to companies that are thought to be responsive to environmental concerns (Chase and Smith 1992; Bremmer 1989; Kirkpatrick 1990; and Weber 1990 cited within Wessells et al. 2001).

A 2006 survey of consumers by Hicks et al. (2008) found that 27 percent of consumers indicated that a factor affecting purchase decisions is whether seafood products are organic or eco-labeled. A survey by the Seafood Choices Alliance in 2001 reported that 71 percent of consumers stated that seeing an ‘environmentally responsible’ label would make them more likely to buy a particular seafood item. Consumers in that study also specified that they support labeling seafood at the point of purchase, particularly to alert them if seafood was caught in a way that might harm the ocean environment.

In a national survey of U.S. seafood consumers, Wessells et al. (1999) reported that there is at least a hypothetical demand for eco-labeled salmon, cod, and shrimp, if the eco-label implies no over-fishing, and there is a willingness to pay a premium for these products. According to preference studies, consumers have shown some willingness to pay more for eco-labeled products, as long as the price premiums are not large (Jaffry et al. 2001 and Wessells et al. 1999. This has stimulated niche markets for some labeled products (Gulbrandson 2005).

A 1998 survey of seafood consumers in Rhode Island found that 100 percent of the respondents indicated that they would choose to purchase a labeled product coming from a sustainable fishery, rather than one without a label, if there were no price difference. The preference for the labeled product changed to 85 percent if it was priced 10 percent over the unlabeled product, and lowered again to 66 percent if
the price of the labeled product was 20 percent higher in cost over the unlabeled product (Idrissi cited within Wessells, 1998). A later study conducted by Roheim et al. (2001) found statistically significant willingness to select and pay for eco-labeled seafood of particular species, with more than two thirds of respondents indicating a general willingness to switch to seafood species with a no-overfished label. However, the presence of a label was insufficient reason to switch if the labeled species was dissimilar to their preferred tasting species. Still, 90 percent of respondents said that such a label would be “very important” or “somewhat important” to them. A telephone survey conducted by O’Dierno et al. (2006) found that an average of 70 percent of respondents were willing to pay a price premium for organic seafood. For more references of consumer surveys, see Appendix F.

Examples do exist that highlight the fact that more sustainable fish is not necessarily more expensive. When the world’s largest purveyor of frozen fish, Unilever, transitioned certain product lines to be sourced solely from MSC certified US Alaska Pollock, they expected only a negligible price differential that would not be passed onto consumers (www.intrafish.com cited within Aguirre 2005).

H. Market Effects of Eco-labels

Various subjective evidence shows that obtaining an eco-label increased sales of products. However, it is difficult to determine the exact market power or potential an eco-label may confer, especially for seafood. Due to fierce competition in the grocery business, markets do not publish sales by individual departments, and statistical data is often held by industry as confidential commercial information. Independent in-depth reports on industry market research are also highly prized and
generally only available for a high price. Furthermore, it is difficult to confirm if consumers’ actual purchases in stores correlate with their stated values solicited from surveys. It is important to keep in mind that results of seafood preference surveys are relative to specific case studies, species considered, sampled population, and standard problems regarding stated preference data.

In general, according to the Organization for Economic Co-Operation and Development, if the eco-labeling appears at all on a product, it can be interpreted as a sign of success confirming they have some market value, since producers continue to apply for and pay for eco-labels (OECD 1997). Some market results of eco-labeling are evident, for example: Tilapia (or fish labeled as such) is one of the most promoted eco-friendly fish, as mentioned previously, and has moved up from the 9th most consumed fish in America to 6th between 2003 and 2004. However, it is possible the change in preference was due to price or health reasons, since Tilapia has low mercury content (Jacquet and Pauly 2007). Also, the increase in seafood consumption in recent decades can be seen as an opportunity to capitalize on and connect with the expanding markets for organic and eco-friendly products in general. In 2005, apparent fish consumption in industrialized countries reached 27.5 million tons (live weight equivalent); 14.2 million tones more than in 1961, for a growth in annual per capita consumption from 20.0 to 29.3 kg in that period. The share of fish in total protein intake was 7.9 percent in 2005 (FAO 2009).

Product certification can provide important economic benefits by retaining fishery value for the fishers who comply with conservation and management initiatives. Another benefit is making sure the benefits of conservation and
management do not land in the hands of “free riders,” or those who profess compliance but do not practice it. Innovative producers can benefit from the use of more environmentally friendly production methods that offer new opportunities to grow and prosper in a more environmentally friendly world (Wessells et al. 2001).

There are concerns by developing countries about the new trade and marketplace measures including certification and eco-labeling. The costs of complying with RFMO measures or NGO standards of sustainability are less easily borne by resource-poor countries. Developing nations are also concerned about their ability to meet the current MSC standard, which relies heavily on the collection of data for determining the status of stocks – a very difficult and costly task for developing countries, which often lack well-established fisheries management programs (Roheim and Sutinen 2006).

Some of the developing country concerns might be addressed through WTO negotiations, while others could be addressed more directly through technical assistance and cost-sharing in fisheries enforcement. Additionally, there are hopes that eco-labeling could provide new opportunities for attracting capital investment and joint ventures in developing countries. For example, some countries hope to enhance their chances at meeting criteria for the certification of their fisheries through cooperation with other countries in their region or through international ventures with industrial nations (Roheim and Sutinen 2006). See Appendix E for more sources on seafood trade issues.
I. International Agreements Supporting Seafood Eco-labeling

The 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) highlighted international support for the principle of protecting endangered species. The 1982 United Nations (UN) Convention on the Law of the Sea and ensuing instruments, including the 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, the 1995 FAO Code of Conduct for Responsible Fisheries\(^2\), and the 1995 UN Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks each reflected a global commitment to conservation of marine biodiversity and improved fisheries management. These goals, as well as political support behind them, were augmented through Agenda 21 of the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, and the 1992 Convention on Biological Diversity (Wessells et al. 2001). More recently, the urgency of the situation caused by the successive failures in management and the need to rebuild depleted fisheries globally were recognized in the final declaration of the World Summit for Sustainable Development (WSSD) held in Johannesburg in 2002 (Gardiner and Viswanathan 2004).

Particularly relevant to seafood eco-labeling are the FAO Code of Conduct for Responsible Fisheries and UNCED. The FAO Code of Conduct is a set of voluntary guidelines for seafood eco-labeling, including principles that should govern eco-labeling schemes, minimum certification requirements, and fishery assessment criteria (Gulbrandsen 2005). The FAO Member States (FAO 1998) and the National View the Code of Conduct at <www.fao.org/DOCREP/005/v9878e/v9878e00.htm>
Fisheries Institute (National Fisheries Institute 2008) have agreed that fisheries should be consistent with the Code of Conduct because it is the most comprehensive globally accepted consideration of the requirements for sustainable fisheries available, despite the fact that it is presently non-binding (Wessells et al. 2001). The potential usefulness of eco-labeling systems to create market-based incentives for environmentally friendly products and production processes was internationally recognized at UNCED, where governments agreed to encourage expansion of environmental labeling and other environmentally related product information programs designed to assist consumers to make informed choices (Agenda 21 cited within Wessells et al. 2001).

In response to concerns regarding eco-labeling controversies, the FAO has developed its own guidelines for eco-labeling which outline the principles that should govern these programs, including the need for reliable, independent auditing, transparency of standard-setting and accountability, and the need for standards to be based on good science. The guidelines set minimum requirements and criteria for assessing whether a fishery should be certified and an eco-label awarded, drawing from the Code of Conduct of Responsible Fisheries (Intrafish 2005).

J. Eco-labeling and Seafood Sustainability

Kaiser and Edwards-Jones (2006), put forward that eco-labeling could potentially heighten environmental standards and lead to more sustainable systems by using consumer choice to increase demand for sustainably harvested and produced seafood. Since product certification and eco-labeling can lead to increased use of sustainable fishing methods, they also help preserve ocean habitats and larger
ecosystems. This complements and fortifies conventional regulatory measures to achieve conservation and management outcomes (Wessells et al. 2001).

Current data relating to the environmental benefit achieved through eco-labeling is lacking, as most eco-labeling programs are relatively recent and their environmental effectiveness has not been evaluated. Also, it is difficult to isolate and measure the benefits of eco-labeled products as distinct from benefits achieved from other environmental actions. Though a few estimates have been made in terms of pollution avoidance, environmental effectiveness has mostly been evaluated indirectly on the basis of consumer awareness and demand for eco-labeled products, and changes in producer behavior (OECD 1997).

Despite the lack of data available about market effects of eco-labeling, researchers such as Gulbrandsen (2005) still believe the key to abolition of over-fishing and fishery management malpractice is increased participation in certification programs and greater market penetration of eco-labeled products. One positive progression is that management processes in certified fisheries are becoming increasingly open and accountable to outside stakeholders. Stringent environmental performance standards and credible third-party compliance auditing could also help promote ecologically sustainable fisheries management (Gulbrandsen 2005). Perhaps the environmental benefit sought through eco-labeling will be achieved when a balance is reached between the number of eco-labeled products and the stringency of the criteria (OECD 1997).
As outlined by Wessells et al. 2001, market incentives to encourage sustainability may lead to many additional benefits:

- Environmental improvement in aquatic ecosystems will reduce societal costs of reduced global biodiversity.
- Product certification schemes offer possibilities for reducing illegal, unreported and unregulated fishing and sets the stage for rewarding fishers that comply with conservation and management rules.
- The fisheries industry will benefit because the move to a sustainable fishery will preserve production and jobs over the long run.
- Consumers will benefit from increased information concerning the products they purchase, greater choice of products with varying environmental qualities, the ability to make informed choices regarding the purchase of those seafood products, and the continued availability of their favorite seafood products in the future.
III. METHODOLOGY

A. Research Objectives

The project was designed to assess:

1. Retailer views regarding ‘seafood choice’ awareness campaigns and eco-labeling programs, including hesitancies to implementing labeling systems.

2. Retailer willingness to provide sustainably produced products in their stores (including locally caught), as well as predicted or experienced problems (such as regular availability of supply; quality; consumer interest and knowledge; price differentials).

3. Incentives that retailers feel would help overcome those barriers; the survey responses should be able to be used to improve eco-labeling and guide cards.

B. Research Questions:

1. What marketing and labeling systems are retailers currently using?
   - (i.e. stickers, small placards, large signs, Fishwise, etc?)
   - What seafood products are popular sellers?

2. What knowledge and viewpoints do retailers have regarding sustainable seafood?
   - What is their level of agreement with a given definition defining “sustainable seafood”?
   - Is sustainability a factor in deciding what products to offer?
   - Does seafood eco-labeling affect actual sales?

3. What knowledge and viewpoints do retailers have regarding fishery management?
   - What is their knowledge about fisheries management worldwide?
   - What is their view of current fisheries management of fisheries in U.S.?
   - What is their view of current fisheries management in other countries?
   - Have they ever participated in the fisheries management process?
   - What is their knowledge of seafood harvest methods?
4. What knowledge and viewpoints do retailers have regarding seafood guide cards, and what effects are perceived?
   • How familiar are they with seafood choice cards/guides?
   • Which seafood choice cards/guides are they familiar with?
   • What are their opinions on seafood choice cards/guides in general?
   • What do they perceive as the main benefits?
   • What do they perceive as the main drawbacks?
   • How influential do they think seafood choice cards/ literature is in helping customers make purchasing decisions?

5. What knowledge do retailers have regarding eco labeling, and what do they view as barriers and incentives to implementing labeling programs?
   • What are the main benefits of seafood eco-labeling programs in stores?
   • What are the main drawbacks?
   • What is their willingness to implement a seafood eco-labeling system?
   • Which type would they prefer?
   • What are or would be barriers to implementation?
   • Do they see potential of a system to positively benefit their store?
   • What would they change about labeling systems/ programs?
   • What difficulties would they need help with?
   • What would be effective incentives to implement a labeling program?

6. What questions and preferences do customers pose to retailers?
   • How often are customers seen with seafood choice literature, cards or guides?
   • How do retailers perceive consumer demographics and concern for sustainability?

7. Do retailers view labeling locally caught seafood as an advantage or disadvantage?
   • How many offer locally caught seafood?

8. Who do retailers trust; where do they get their information?
   • (Regarding management, harvest methods, sustainable seafood?)

C. Survey Development

A survey was utilized to characterize the perceptions that retailers have of sustainably produced seafood, and to identify barriers and incentives to marketing sustainably produced and labeled seafood. According to Bradburn and Sudman (1988), surveys are a form of market research; information-gathering activities that match services and products with the needs and preferences of the market. Respondents in
general do not tend to lie about their opinions or behavior. When conducted with appropriate samples and questionnaires, and when multiple mailings and some form of compensation are provided, mail surveys can obtain cooperation rates as high as or only slightly lower than cooperation rates obtained by personal interviews. Another benefit is that self-administered questionnaires give more time to think about each question and allows the respondent to complete it at his or her own convenience. On the other hand, self-administered questionnaires are perceived to require more effort than interviews and to feel less personal. Also, a large number of people still are not comfortable with mail surveys.

The major problems in carrying out mail surveys are getting a good sample and an acceptable completion rate. It is extremely difficult to get a high completion rate on mail questionnaires unless respondents are highly motivated to begin with and a good address list is available (Bradburn and Sudman 1988). As many people throw questionnaires they receive in the mail into their wastebaskets, response rates for mail questionnaires tend to be between 10 percent and 50 percent depending on topic and methodology (Weisberg et al 1989). Aside from the ability to understand a mail survey, another key factor is motivation. In general, people who feel strongly about the topic of the survey are more likely to respond than are those who are neutral or have given little thought to the topic. Finally, the sponsorship of a survey also has an effect on cooperation. If people have positive feelings about the person or organization conducting the survey, they will be more likely to respond (Bradburn and Sudman 1988).

The survey tool for this research was developed as a result of reviewing relevant literature and conferring with my committee, comprised of three faculty members at the
University of New Hampshire (UNH). An additional experienced surveyor at UNH reviewed and evaluated the instrument for validity, making appropriate comments and suggestions. The survey was also reviewed and approved for use by the Institutional Review Board (IRB) at the University of New Hampshire.

A mix of qualitative and quantitative data was gathered to provide comprehensive analysis. Though quantitative methods allow for easier data analysis, qualitative components are useful when no existing standardized questionnaires are available that are appropriate for what the research is trying to measure (Patton 1990). Therefore, both closed and open-ended questions were included. Open-ended questions allow respondents to express their thoughts and feelings in their own words instead of in words chosen by the researcher. Many experienced surveyors believe that this produces deeper responses that reflect differences in opinions and attitudes that can be missed by the constraints of the pre-coded categories. However, the disadvantage is that different respondents may approach the same question from different perspectives, so that their answers are not fully comparable. Thus, closed questions produce more relevant and comparable responses, because they specify the parameters for answering the questions (Bradburn and Sudman 1988 and Weisberg et al. 1989).

The final instrument contained 25 questions, 11 of which contained two or more parts. This included several inquiries regarding demographics of the store and customers. The remaining survey questions can be divided into four categories: (i) current marketing and sales at their store, (ii) fisheries management and sustainable seafood, (iii) seafood choice literature and (iv) seafood eco-labeling systems. A variety of question formats were used, including: multiple choice checklists, short open answer, and 5-point Likert
items (respondents specify their level of agreement to a statement, i.e. “strongly agree,” “agree,” “neither agree nor disagree,” “disagree,” “strongly disagree”). Respondents were allowed to check all that applied for questions that potentially had more than one answer. The short answer opportunities appeared either attached to another question, in the form of additional space provided for comments, or independent questions designed to encourage thoughtful written qualitative responses. The entire survey was 8 pages and intended to be completed in 20 minutes or less, as longer surveys can deter participation (Bradburn and Sudman 1988). The survey can be viewed in its entirety at the end of the text as Appendix C.

D. Participants

The use of human subjects as participants in this survey research was approved by the Institutional Review Board for the Protection of Human Subjects at the University of New Hampshire on July 14, 2008. A copy of the approval letter can be viewed at the end of the text as Appendix A.

This study utilized a volunteer purposive sample derived from all eligible grocery stores (those that sell fresh seafood with customer service) within the following New England Region: New Hampshire, Northern Massachusetts (as far South as Boston), and Southern Maine (most were South of Portland- though 10 were sent to locations above Portland). Both large chain stores (Hannaford, Shaws, Market Basket, Whole Foods, Wal-Mart, Stop and Shop) and smaller retailers (independently owned stores, fish markets, small chain stores) were included.
E. Survey Distribution

Each store was mailed a packet containing the survey, accompanied by a cover letter, background information, and a pre-paid return envelope. Bradburn and Sudman state that a major factor to increase motivation is a cover letter that describes the purposes and sponsorship of the study. The mailings were directed toward each store’s seafood department manager, because store managers are usually the most knowledgeable and best positioned to truly understand the operations of their department (Huber and Power, 1985). Options were offered for respondents; surveys could be completed on paper, dictated in person, or done online through InstantSurvey.com, an online survey distributor created by Global Market Insite, Inc. A few (4) participants chose to complete the survey online. The remaining (29) elected to return the paper survey using the pre-paid return envelopes. Of those 29, 4 were anonymous. Respondents were instructed to
answer as many questions as possible, but were allowed to skip any questions. To encourage them to express their opinions, they were assured there were no correct or incorrect responses.

The mailings were sent in three phases. Multiple mailings increase the response rate substantially, as many people who are willing to cooperate put the mail questionnaire aside when it first arrives and need to be reminded (Bradburn and Sudman 1988). Approximately a week after each phase of mailings was sent, at least one follow-up call was made to each store that had been sent a mailing. The area of the first phase was limited to the seacoast areas of: Southern Maine, New Hampshire, and Northern Massachusetts. Initially, 83 surveys were sent out to business establishments suspected of selling fresh seafood directly to customers. However, 39 of those retailers turned out to be closed, did not sell seafood, or were wholesalers, exporters, or restaurants. Consequently, only 44 were eligible.

A bigger sample was desired, hence a second phase of mailing extended the area to include all remaining food stores in inland New Hampshire and inland Southern Maine, and Northern Massachusetts. This time, 183 were sent, but many (23) of the larger chain stores sold fresh seafood at only some of their locations, so only 160 were assumed to be eligible.

Following the second phase, 204 were eligible. Of these, 23 retailers had completed the survey, and 26 had declined or were unreachable. The number of responses were still low, so a third phase of mailings were sent to all those from phases 1 and 2 who had not declined but had not yet completed the survey (155). To encourage participation, an incentive (choice of free gasoline card or free bottle of premium
champagne) was added. Also, phone calls were made before the mailings were sent in order to obtain the names of managers. Envelopes were then addressed personally to each manager.

Phase three resulted in 10 more surveys completed and returned, while 17 were discovered to be ineligible (6 were returned by the postal service, and 11 turned out to not have full service seafood counters, just self-serve/pre-packed/’grab and go’). Responses from these stores were undesirable, as employees do not interact directly with consumers.

In summary, all stores (266) were mailed twice, some 3 times if requested. By the end of all 3 mailings, 79 stores were determined ineligible or undeliverable, leaving 187 total eligible stores. Of the 187 stores, 116 were from New Hampshire, 43 from Massachusetts, and 28 from Maine. One hundred fifty two (152) were large chain stores, and 35 were presumed to be smaller retail operations.

A total of 33 surveys were received, representing a 17 percent response rate from the 187 total eligible stores. Of the businesses that responded, 20 were large chains, 8 were individual stores, and 2 were part of a small chain. Three respondents chose “distributor or restaurant that also sells raw seafood products directly to consumers” but upon closer examination by the researcher, they were determined to be smaller business operations and were grouped with the individual stores and the small chain stores together as “small/ independent retailers” for categorical analysis. Most respondents were located within New Hampshire (29), 2 were from Massachusetts, and 2 were anonymous. While the pool of eligible stores do not represent the total number of seafood retailers within the selected area New England area, it can be inferred that the observed trends could be expanded to all seafood retailers in this region.
Fig. 11: Map showing locations of the 33 stores who responded to surveys.

F. Data Analysis

To analyze the data from the received surveys, descriptive statistical analysis (percentages, frequencies) were carried out using the InstantSurvey online statistical service. The frequencies were then used for comparisons within and between survey questions. Microsoft Excel was used to create figures and conduct chi-square distribution tests to compare frequencies of key questions and look for patterns.

Additionally, qualitative methods were incorporated, as establishing content validity (checking to see whether a test actually measures what it intends to measure) is seen as one of the strengths of qualitative research. The constant comparison method was utilized to group answers and analyze different perspectives on central issues (Patton 1990). The process of constant comparison is used to look for statements and signs of behavior that occur during the study and "stimulates thought that leads to both descriptive
and explanatory categories" (Lincoln & Guba 1985 p 341). Qualitative researchers aim to gather an in-depth understanding of human behavior and the reasons that govern such behavior. The qualitative method investigates the *why* and *how* of decision making, not just *what, where, when*. Inductive analysis means that the patterns, themes, and categories of analysis emerge out of the data, rather than actively creating categories beforehand. Content analysis, or analyzing the content of observations, is the process of identifying, coding, and categorizing the primary patterns in the data (Patton 1990). These categories, while related to an appropriate analytic context, must also be rooted in relevant empirical material: "The analyst moves back and forth between the logical construction and the actual data in a search for meaningful patterns" (Patton 1990 p 411).

It is important to note that the approach taken for this study, in common with similar mail surveys, is not without limitations. The limitations to be considered when reviewing the data and results for this project include the small sample size and limited geographic area, raising the possibility of selection bias. The low total response limits the ability (through low statistical power) to detect statistical significant effects. Thus these findings must be treated with caution and as exploratory in nature.
IV. SURVEY RESULTS AND DISCUSSION

In this chapter, response data for survey questions are grouped by the research question categories previously listed in the Methodology section. Brief discussions, as well as comparisons with other research, are interspersed with groups of questions. The findings are further discussed in the next chapter, Conclusions and Recommendations. For full survey results listed in the order asked on the survey, see Appendix G. Keep the low number of participants in mind when considering data, which is presented in both raw response numbers and frequency percentages.

Several questions were asked to determine what marketing and labeling systems retailers are currently using re: sustainability. In response to Question 7A, one small store had this to say regarding customers: “I believe if they were educated more on how to prepare the sustainable items or have them in a restaurant, it would entice [sic] them to try it at home.” One store has implemented the Fishwise labeling system (Question 18A). Fifty percent of respondents use stickers and/or placards. Of the eleven respondents who sell any type of sustainably labeled seafood products, six (54 percent) report that the sale of such products are about the same as conventional seafood products; two said better, three said worse. Two respondents stated that they prefer oral communication, because “most people do not read signs” (quote from a department manager at a large chain store).
Survey Question 7: If you sell any type of sustainably labeled seafood products, what type of labeling do you use (i.e. stickers, small placards, large signs, etc.)?

Respondents: 28. Open ended answers, grouped:

- [Stickers] 7.8% (5)
- [Small placards] 14.2% (4)
- [Both stickers and small placards] 17.8% (5)
- [None or NA] 25% (7)
- [Prefer oral communication] 7.1% (2)
- [“Most people do not read signs”] 3.5% (1)
- [Other misc. answers] 14.2% (4)

Survey Question 7A: If you sell any type of sustainably labeled seafood products, how do their sales compare to conventional seafood products?

Respondents: 19. Open ended answers, grouped:

- [Better] 10.5% (2)
- [Same] 31.6% (6)
- [Worse] 15.8% (3)
- [N/A] 31.6% (6)
- [Other misc. answers] 10.5% (2)

Survey Question 18A. If you already use a seafood eco-labeling system, specify what type and describe:

Respondents: 11. Open ended; Respondents could leave more than one comment:

(For full list of quotes, see Appendix G.)

One respondent uses FishWise, 6 respondents said “N/A” or “none,” 4 gave other miscellaneous responses.

In Question 4, retailers report that Haddock is a popular consumer purchase; though the specifics of how it was caught were not asked. Other common species in respondents’ top ten were scallops, salmon, lobster, steamers/ clams, shrimp, swordfish, cod, tilapia, tuna, mussels, founder, crab, halibut. According to the National Fisheries Institute’s list for 2008, the top 10 consumed seafoods (nationwide) in order are: shrimp, canned tuna, salmon, pollock, tilapia, catfish, crab, cod, flatfish, and clams (National Fisheries Institute 2009), so the lists are similar.

In Question 25C, retailers were asked to describe their customers’ criteria for selecting seafood products. Many respondents indicated that price and quality were equally important criteria for their customers. Quality (‘most’ or ‘somewhat’) was
considered more important to patrons of smaller stores (see Figure 12). In a 2001 consumer survey conducted by Roheim et al., quality was also selected as by far the most important consideration out of the given choices: Price, species, quality, eco-label. Price was the ranked as the least important.

Survey Question 2: What types of seafood do you currently sell?
Respondents: 32. Each Respondent could select ALL THAT APPLY of the following options:
- Locally produced wild caught finfish 69% (22)
- Locally produced wild caught shellfish 94% (30)
- Other wild finfish 78% (25)
- Other wild shellfish 81% (26)
- Aquacultured/ farmed finfish 84% (27)
- Aquacultured/ farmed shellfish 81% (26)
- Sustainably certified* (either wild caught or farmed) finfish 44% (14)
- Sustainably certified* (either wild caught or farmed) shellfish 34% (11)

*Marine Stewardship Council/ MSC or similar

Survey Question 4: List your ten best selling seafood products and their average selling price (from what you know, or your best estimate):
Respondents: 32. Open ended list answers (summarized):
Answers varied....common species in participants’ top three were haddock, scallops, salmon, lobster. Others in top ten: Steamers/ clams, shrimp, swordfish, cod, tilapia, tuna, mussels, founder, crab, halibut.

Survey Question 25 C: Which describes typical patrons most important criteria for selecting a seafood product?
Respondents: 31. Each Respondent could select ONE of the following options:
- Price most important 3% (1)
- Price somewhat more important 13% (4)
- Price and quality equally important 55% (17)
- Quality somewhat more important 13% (4)
- Quality most important 16% (5)
Fig. 12: Perceived customer criteria for selecting seafood products.

In Question 25D, retailers were asked how they perceive their customers’ concern for sustainability. No respondents thought that their customers were ‘very concerned’ with sustainability; and only one indicated ‘very unconcerned,’ but the respondents were only allowed to select one descriptor to generalize all patrons. Retailers from large chain stores were more likely to say they did not know what their customers thought; perhaps they are less in touch with their customers because of the nature of a high-traffic large store setting. Patrons of large stores were perceived to be slightly less concerned (see Figure 13). This is interesting considering the response to Question 3, which showed that sustainability is more of an influence on purchasing for large store retailers. Thus, it appears that retailers at larger stores care more about sustainability, but not because they think their consumers are concerned.
Perhaps they consider sustainability an influence on purchasing because they view offering a greater selection of products as a competitive advantage in the marketplace.

A 2008 survey by the Seafood Choices Alliance asked a similar question and found that many retailers view themselves as more concerned about the environment than their customers are. Among retailers, 33 percent say they are very concerned, but only 25 percent believe their customers are equally concerned.
**Survey Question 25D:** Perceived Customer Concern for Sustainability (Small/Independent Retailers) n=13

- Very concerned: 0%
- Do not know: 0%
- Somewhat unconcerned: 15%
- Neutral: 15%

**Survey Question 25:** Perceived Customer Concern for Sustainability (Large Chain Stores) n=18

- Very concerned: 0%
- Do not know: 17%
- Somewhat concerned: 23%
- Somewhat unconcerned: 22%
- Neutral: 28%

Fig. 13: Perceived customer concern for sustainability by small and large stores.
What knowledge and viewpoints do retailers have regarding sustainable seafood? When retailers were asked for their level of agreement with a two-part given definition defining ‘sustainable seafood’ in Question 6, fewer participants agreed with the second part of the definition of sustainable seafood. They seemed to view that part as concerning just the environment rather than fish.

The 2008 survey by the Seafood Choices Alliance established that sustainable seafood appears to be a rising trend for retailers, but this is difficult to confirm, partly because the term ‘sustainable’ on a label lacks a common definition. Many retailers are uncertain about what percentage of their seafood is sustainable, but they estimate a substantial amount (20 percent). Even though little organic seafood is available on the U.S. market, they also claim to carry significant amounts (up to 25 percent) of organic seafood and expect continued growth.

Survey Question 6: Indicate your level of agreement with the following components in a definition describing “sustainable seafood”:

<table>
<thead>
<tr>
<th>Each Respondent could select ONE option for each row:</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses: 33 “From sources/seafood stocks (either fished or farmed) that can provide for today’s needs without damaging the ability to maintain or increase abundance into the long-term future”</td>
<td>51.5% (17)</td>
<td>45% (15)</td>
<td>3% (1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Responses: 29 “Few, if any ecological impacts associated with catch or production”</td>
<td>30.6% (6)</td>
<td>42.3% (12)</td>
<td>13.7% (4)</td>
<td>30.6% (6)</td>
<td>3.4% (1)</td>
</tr>
</tbody>
</table>

Table 1: Responses to survey Question 6.
Open ended responses (additional comments): 8
(For full list of quotes, see Appendix G.)
When asked in Question 3 which factors are important in deciding what products to offer, respondents reported that quality is most influential to their selections of seafood to sell, followed by consumer demand (see Chapter V for further discussion of this). Price and availability are also influential. Locally caught and sustainability were rated lowest. Sustainability is a more influential factor at larger stores (see Figure 14, which shows a statistically significant (p=.020) difference between small and large retailers). This may be because they have larger purchasing power and the ability to afford a wider selection of seafood.

Similarly, the Seafood Choices Alliance survey found that quality and customer demand were very high drivers, and availability and price moderately high considerations. The most important environmental factor considered in purchasing was whether the species is caught in a way that causes damage to the marine environment, and more than a third of the retailers surveyed have decided not to sell certain seafood items because of concern about environmental impacts. The Seafood Choices Alliance also noticed a 17-point increase between when the question was first asked in 2001, and then again in 2007 (20 percent in 2001 compared to 37 percent in 2007).
Survey Question 3: On a scale of 1-5, indicate how each of the following factors influence your selections of seafood to sell:

<table>
<thead>
<tr>
<th>Each Respondent could select only ONE option for each row:</th>
<th>5 (Very influential)</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 (Not at all influential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents: 33 Price</td>
<td>45.5% (15)</td>
<td>33.3% (11)</td>
<td>18.1% (6)</td>
<td>3% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 31 Consumer demand</td>
<td>77.4% (24)</td>
<td>19.35% (6)</td>
<td>3.2% (1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 33 Quality</td>
<td>93% (32)</td>
<td>3% (1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 32 Availability</td>
<td>50% (16)</td>
<td>19% (6)</td>
<td>31% (10)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 29 Sustainability</td>
<td>31% (9)</td>
<td>28% (8)</td>
<td>21% (6)</td>
<td>17% (5)</td>
<td>3% (1)</td>
</tr>
<tr>
<td>Respondents: 31 Locally caught</td>
<td>19% (6)</td>
<td>42% (13)</td>
<td>19% (6)</td>
<td>10% (3)</td>
<td>10% (3)</td>
</tr>
<tr>
<td>Respondents: 2 Other:</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;in season or not&quot;</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;wild or farmed&quot;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2: Responses to survey Question 3.

Survey Question 3: Is sustainability an influence in selections of seafood to sell?

Fig. 14: Influence of sustainability on retailer purchases. Survey responses (from part of Question 3) show that sustainability is a greater influence in selections of seafood to sell for larger retailers.
What self-reported knowledge and viewpoints do retailers have regarding fishery management? Most respondents consider themselves “somewhat informed” about fisheries management and seafood harvest methods. For both these questions, very few respondents want to report lack of knowledge (see Chapter V, section B). A large majority of respondents believe that fisheries are being managed well (90 percent chose ‘excellent, ‘good,’ or ‘fair’) in the U.S. Their opinion of fisheries management in other countries was markedly lower, with 81 percent choosing ‘fair’ or ‘poor.’ Only two respondents had participated in fisheries management/policy process.

Survey Question 8: Rate your knowledge about fisheries management (worldwide).
Respondents: 33. Each Respondent could select ONE of the following options:
- Very well-informed 18.8% (6)
- Somewhat informed 60.6% (20)
- Neutral 9% (3)
- Somewhat un-informed 9% (3)
- Very un-informed 3% (1)

Survey Question 8A: Have you ever participated in fisheries management/policy?
Respondents: 33. Each Respondent could select ONE of the following options:
- Yes 6% (2)
- No 93.9% (31)

Survey Question 9: In general, do you think current management of fisheries (USA) is:
Respondents: 33. Each Respondent could select ONE of the following options:
- Excellent 3% (1)
- Good 39.3% (13)
- Fair 48.4% (16)
- Poor 9% (3)

Survey Question 9A: In general, do you think current management of fisheries (other countries) is:
Respondents: 33. Each Respondent could select ONE of the following options:
- Excellent 0
- Good 12% (4)
- Fair 42.4% (14)
- Poor 39.3% (13)
- Very poor 6% (2)
Survey Question 10: Rate your knowledge about seafood harvest methods (including methods considered to be more 'sustainable').

Respondents: 33. Each Respondent could select ONE of the following options:

- Very well-informed: 15.5% (5)
- Somewhat informed: 72.7% (24)
- Somewhat un-informed: 12.1% (4)

What knowledge and viewpoints do retailers have regarding seafood guide cards, and what effects are perceived? As there was no visible consistency in the responses for Question 13 regarding familiarity with seafood choice cards/guides, a chi square test was conducted. There was no significant difference in response distribution (p=.475), showing that in general, retailers did not show much familiarity with the guides. The responses given in 13A further show that although they may have heard of the cards, they may not have personally seen any, since fewer participants responded to the second, more specific question. The retailers were often not familiar with more than one seafood choice cards/guide; of the 12 respondents who identified one or more cards, 7 respondents knew of one type of card, 2 respondents knew of 2 types of cards, and 3 respondents knew of all 3 cards listed. Moreover, they may not have understood what was meant by "seafood choice guide" as several respondents listed things that were not seafood guides, such as "Guiding Stars" which is a grocery store nutrition rating system.

Survey Question 13: How familiar are you with consumer 'seafood choice cards/guides'?

Respondents: 33. Each Respondent could select ONE of the following options:

- Very familiar: 24.2% (8)
- Somewhat familiar: 24.2% (8)
- Neutral: 27.2% (9)
- Somewhat un-familiar: 12.1% (4)
- Very un-familiar: 12.1% (4)
Survey Question 13A: Which seafood choice cards/ guides are you familiar with?
Respondents: 22. Each Respondent could select ALL THAT APPLY of the following options:
- Monterey Bay Aquarium: Seafood Watch Regional Seafood Guides 36% (8)
- Blue Ocean Institute: Guide to Ocean Friendly Seafood 36% (8)
- Environmental Defense: Oceans Alive Pocket Seafood Selector 18% (4)
- [None/ N/A] 27% (6)
- Other (actual quotes): 22% (5)
  - "Ones that involved the Purdue University"
  - "company info"
  - "Guiding Stars"
  - "Grocery store description cards (nothing about sustainability)"

Respondents’ opinions about seafood choice cards/ guides in general were not overwhelmingly enthusiastic, but then not as negative as it might have been predicted. It is important to keep in mind the responses from Questions 13 and 13A, which suggested that respondents were not very familiar with seafood choice cards/ guides or misunderstood what was meant by ‘seafood choice guide.’ One participant spoke from their personal perspective as a consumer, rather than a retailer (“Always forget that I have it with me and it’s another thing to carry around. I wished they were available where you actually purchase seafood. I.E. at a seafood counter at the supermarket”). One retailer said consumers don’t care [enough to use cards]; a few other respondents were unsure whether consumers care. Searle et al. (2004) also asserted that retailers do not believe U.S. consumers care.

Respondents thought a benefit of seafood choice guides is increased consumer awareness/ understanding of seafood availability (Question 16A shows similar results). Respondents thought a drawback of seafood choice guides is disagreement/ uncertainty about sustainability ratings given the guides. Slightly less people selected given choices for ‘drawbacks’ (Question14B) compared with ‘benefits’
(Question 14A), though they wrote more open-ended responses concerning drawbacks.

In Question 15, retailers were asked to estimate how often customers are seen in stores with 'seafood choice' literature, cards, or guides. While 38 percent of retailers have seen cards ('often,' 'occasionally,' or 'rarely'), 54 percent have never seen customers using them. Again, keep in mind the lack of familiarity with the cards/guides.

Respondents were divided whether they think the cards influence consumer purchasing (Question 15A). A chi square test conducted for Question 15A found no significant difference in response distribution (p=.099). This is consistent with other responses from retailers. However, some consumer surveys (discussed in Chapter II and V) would suggest that consumers are influenced by the guides.

Survey Question 14: What are your opinions about seafood choice cards/ guides in general?
Respondents: 29. Each Respondent could select only ONE of the following options:
- Very favorable 17.2% (5)
- Somewhat favorable 20.6% (6)
- Neutral 51.7% (15)
- Somewhat un-favorable 6.9% (2)
- Very un-favorable 3.4% (1)

Open ended responses (additional comments): 9

Survey Question 14A: What do you think are the main benefits of the guides?
Respondents: 25. Each Respondent could select ALL THAT APPLY of the following options:
- Increased consumer awareness/ understanding of seafood availability 84% (21)
- Increased demand for sustainable seafood products 40% (10)
- Increased ability to compare seafood products 52% (13)
- Avenue for education about conservation in general 48% (12)
- Other (please specify): 8% (2)
  “economic impact”
“most environmentalists don’t favor aquaculture- this bad publicity leads to a low demand”

**Survey Question 14B: What do you think are the main drawbacks of the guides?**

Respondents: 23. Each Respondent could select ALL THAT APPLY of the following options:

- Disagreement/uncertainty about ratings designated by the guides: 48% (11)
- Decreased demand for seafood products overall: 35% (8)
- Time restraints in reading and understanding: 30% (7)
- Guide recommendations that are too generalized: 30% (7)
- Other (please specify): 30% (7)

(For full list of quotes, see Appendix G)

**Survey Question 15: How often do you see customers shopping with ‘seafood choice’ literature, cards, or guides?**

Respondents: 31. Each Respondent could select only ONE of the following options:

- Often: 3.2% (1)
- Occasionally: 6.4% (2)
- Rarely: 29% (9)
- Never: 54.8% (17)
- Don’t know: 6.4% (2)

**Survey Question 15A: On a scale of 1-5, how influential do you think that seafood choice cards/literature is in helping customers to make decisions about which product(s) to purchase?**

Respondents: 30. Each Respondent could select only ONE of the following options:

- Very influential: 6.6% (2)
- Somewhat influential: 23.3% (7)
- Neutral: 26.6% (8)
- Somewhat un-influential: 30% (9)
- Not at all influential: 13.3% (4)

What knowledge do retailers have regarding eco labeling, and what do they view as barriers and incentives to implementing labeling programs? When the respondents were asked to rate their knowledge about seafood eco-labeling in stores, some say they are informed. When asked what the main benefits of seafood eco-labeling programs in stores are (Question 16A), respondents do agree that eco-labeling programs increase consumer awareness/understanding of seafood
availability, as well as consumer ability to compare products. Overall, fewer
drawbacks were identified in comparison to benefits. Most frequently identified
drawbacks were: Disagreement/uncertainty about ratings designated by the guides;
time restraints in reading and understanding; and guide recommendations that are too
generalized.

The 2008 survey by the Seafood Choices Alliance reported that awareness of
labeling and opinions about its importance are mixed among retail sectors.
Awareness of the upcoming USDA standards for organic certification of farmed fish
is modest with only 5 percent of retailers saying they heard a great deal and 25
percent saying they had heard some. When asked about the perceived value of an
organic certification for seafood by the USDA, 75 percent of retailers said that such a
label would be add significant value. Regarding the potential value-add of the Marine
Stewardship Council (MSC) certification, 54 percent of retailers thought it would be
either very or somewhat significant. An interesting note is that sustainability labeling
generates significantly more interest and attention from seafood wholesalers
compared to retailers, with wholesalers twice as likely to have heard about the MSC
certification for sustainable wild fish.

Survey Question 16: Indicate your knowledge about seafood eco-labeling (labeling
regarding sustainability) programs in stores.
Respondents: 32. Each Respondent could select only ONE of the following
options:
- Very well-informed 18.7% (6)
- Somewhat informed 21.8% (7)
- Neutral 40.6% (13)
- Somewhat un-informed 12.5% (4)
- Very un-informed 6.2% (2)
Survey Question 16A: What do you think are the main benefits of seafood eco-labeling programs in stores?

Respondents: 30. Each Respondent could select ALL THAT APPLY of the following options:
- Increased consumer awareness/understanding of seafood availability 77% (23)
- Increased demand for sustainable seafood products 23% (7)
- Increased ability to compare seafood products 63% (19)
- Avenue for education about conservation in general 50% (15)
- Other (please specify): 0

Survey Question 16B: What do you think are the main drawbacks?

Respondents: 30. Each Respondent could select ALL THAT APPLY of the following options:
- Disagreement/uncertainty about ratings designated by the guides 43% (13)
- Decreased demand for seafood products overall 23% (7)
- Time restraints in reading and understanding 40% (12)
- Guide recommendations that are too generalized 37% (11)
- Other (please specify):
  - “not enough positive communication”
  - “just one side of the story” 10% (3)

Retailers’ willingness to implement a seafood eco-labeling system is fairly high (70 percent ‘very willing,’ ‘somewhat willing,’ or ‘neutral’ compared to 16 percent ‘somewhat un-willing,’ ‘very un-willing’) which can be seen as a fairly promising response. Respondents’ indicated their preferred type of seafood eco-labeling is placards or brochures, or small placard signs (such as those by FishWise).

A report by Searle et al. (2004) asserts that for retailers and producers, interest in certified products often derives from the desire to have a secure supply (i.e. a large and health fish population); and/or to be responsive to consumer demand for certified goods. Conversely, Gulbrandson (2005) claims participation in seafood labeling schemes may not been driven by consumer demand or the hope of a price premium. Instead, what convinced many producers was the threat of losing market shares, a fear instilled by environmentalists. Even so, the consumer has inherent power though purchasing decisions and ability to either boycott or support particular products and
brands based on the supply chain. The threat of consumer boycott and the hope of
greater market access/price premiums have directly affected the success of
environmental targeting of products to encourage certification of suppliers
(Gulbrandsen 2005).

Survey Question 18: Rate your willingness to implement a seafood eco-labeling
system in your store:
Respondents: 30. Each Respondent could select only ONE of the following
options:
Very willing 13.3% (4)
Somewhat willing 33.3% (10)
Neutral 23.3% (7)
Somewhat un-willing 6% (2)
Very un-willing 10% (3)
Not familiar enough...to make informed decision 13.3% (4)

Survey Question 18B: What type of system would you prefer?
Respondents: 27: Each Respondent could select ALL THAT APPLY of the
following options:
Marine Stewardship Council certification, or similar labeling on food wrapping 22% (6)
Small placard signs for each type of seafood (such as those by FishWise or similar consultancy programs) 52% (14)
Large signs or grids 7% (2)
Informational literature (such as brochures) available at point of sale 59% (16)
Video or audio display at point of sale 22% (6)
Other (please specify):
“too much over load; people can find out on their own” 11% (3)
(For full list of quotes, see Appendix G.)

Frequently cited barriers to implementing a seafood eco-labeling system:
Possible consumer confusion about labeling; reluctance to discontinue any products
or label as ‘unsustainable’; suspicion about criteria used to designate sustainability
ratings (see Figure 14); impacts on sales of other products. Less frequently cited
barriers included: apprehension regarding initial implementation process, and
continuity of supply from sustainably managed sources. Respondents did not think
marketing flexibility would be compromised, which is a good sign.
Survey Question 19: What are/would be barriers or hesitations of implementing a seafood labeling system?

<table>
<thead>
<tr>
<th>Each Respondent could select only ONE option for each row:</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents: 29 Suspicious about the criteria used to designate sustainability ratings</td>
<td>20.6% (6)</td>
<td>34.4% (10)</td>
<td>41.3% (12)</td>
<td>3.4% (12)</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 27 Apprehension regarding initial implementation process</td>
<td>11.1% (3)</td>
<td>40.7% (11)</td>
<td>33.3% (9)</td>
<td>11.1% (3)</td>
<td>3.7% (1)</td>
</tr>
<tr>
<td>Respondents: 28 Fear of reduced sales/ profits</td>
<td>3.5% (1)</td>
<td>46.4% (10)</td>
<td>42.8% (12)</td>
<td>7.1% (2)</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 27 Impacts on sales of other products</td>
<td>3.7% (1)</td>
<td>55.5% (15)</td>
<td>29.6% (8)</td>
<td>11.1% (3)</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 27 Marketing flexibility would be compromised</td>
<td>24.8% (4)</td>
<td>18.5% (5)</td>
<td>37% (10)</td>
<td>25.9% (7)</td>
<td>3.7% (1)</td>
</tr>
<tr>
<td>Respondents: 27 Continuity of supply from sustainably managed sources</td>
<td>22.2% (6)</td>
<td>25.9% (7)</td>
<td>37% (10)</td>
<td>24.8% (4)</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 28 Reluctance to discontinue any products or label as 'unsustainable'</td>
<td>25% (7)</td>
<td>35.7% (10)</td>
<td>25% (7)</td>
<td>14.9% (4)</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 27 Lack of demand for sustainable products</td>
<td>11.1% (3)</td>
<td>29.6% (8)</td>
<td>44.4% (12)</td>
<td>11.1% (3)</td>
<td>3.7% (1)</td>
</tr>
<tr>
<td>Respondents: 28 Consumers may be confused by the labeling</td>
<td>17.8% (5)</td>
<td>50% (14)</td>
<td>21.4% (6)</td>
<td>7.1% (2)</td>
<td>3.5% (1)</td>
</tr>
<tr>
<td>Respondents: 3 Other (please specify): &quot;Consumers may think that anything not labeled as 'sustainable' is absolutely not to be purchased. This would rule out whole classes of seafood.&quot;</td>
<td>0</td>
<td>(2)</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 1 Other (please specify): &quot;price of eco-sustainable seafood&quot;</td>
<td>0</td>
<td>0</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Responses to survey Question 19.
Other barriers listed within responses to other (open-ended) questions:

- “With customers becoming more educated and aware of the environment, they tend to ask what is local. They want to buy from local fisherman to support them and the community. BUT, when there is a large price difference; price is the selling point.” (Single store: Survey 1: Q5)

- “date/ where it came from. Price.” Q12A (re- questions asked by consumers):

- “price might be too high” Q20 (re- positive aspects of labeling):

- “Too cumbersome in general”

- “Our entire company would have to introduce the eco-sustainable program, which is currently 160 stores.” (Q20)

- “Too many added requirement or retailers [sic]” (Q24)

**Survey Question 19:** [Would suspicion about the criteria used to designate sustainability ratings be a barrier or hesitations of implementing a seafood labeling system?]

![Graph showing survey responses](image)

Fig. 15: Retailer suspicion of sustainability rating criteria. Survey responses (from part of Question 19) show that smaller stores are more suspicious of sustainability rating criteria.
When respondents were asked if they see potential positive aspects of implementing a seafood eco-labeling program, 56 percent said ‘yes,’ 44% said ‘no.’ An interesting thing noticed on the paper surveys was that many respondents had apparently erased ‘yes’ and switched to ‘no.’ Some respondents left random comments that did not answer the question that was asked (as this happened on several questions, it will be discussed more in Chapter V). One person indicated [more consumer education= more likely to buy].

When asked what they would change about labeling systems / programs in Question 21, 37 percent of respondents requested a broader range of sustainability levels. Respondents also indicated that they would need help educating/employee training employees, and were interested in being offered incentives to implement a labeling program, such as free materials and employee training. A small independent retailer explained, “We were carrying a MSC certified, but the price is so much higher and trying to explain the cert to customers is difficult.” Other retailer difficulties described by the Seafood Choices Alliance report were concerns about securing adequate supplies of seafood, verification of sources and chain of custody. A telephone survey conducted in 2007 asked Minnesota grocery store retailers what resources would be helpful for marketing organic food items. The retailers specified point of purchase materials, more advertising, help to display the items, and general information about the products (in this case, organic food) (DiGiacomo 2008).
Survey Question 20: Do you see any potential positive aspects that could benefit your store by implementing a seafood eco-labeling system?

Respondents: 25. Each Respondent could select ONE of the following options:

Yes 56% (14)
No 44% (11)

Open ended responses (description of answer): 18
(For full list of quotes, see Appendix G.)

[Do want to provide info to consumers.] 5
[More education= more likely to buy] 3
[Would be good for the consumers who already care] 3
[Consumers need more education, they think they know but don’t] 2
“green image” 1

Survey Question 21: What would you change about labeling systems/programs?
(For example, would a broader range of sustainability levels be more appealing than narrow categories?)

Respondents: 16. Open ended answers, grouped:

[Want broader range of sustainability levels] 37% (6)

Survey Question 22: What difficulties do you/ would you need help with?

Respondents: 12. Open ended answers, grouped:
(For full list of actual quotes, see Appendix G)

[Educating/training employees.] 5
[Educating consumers.] 2
[Sourcing product.] 2
[Show how it fits into existing model.] 2

Survey Question 23: Which of the following would be effective incentives to implement a labeling program?

Respondents: 26. Each Respondent could select ALL THAT APPLY of the following options:

Free materials 77% (20)
Free support 54% (14)
Employee training 77% (20)
Broader advertising re: sustainable seafood to increase consumer awareness 50% (13)
Price premium for products 38% (10)
Consumer demand 50% (13)
Other (please specify) 8% (2)
“support, fee or not.”
“free materials with volunteer labor”
Questions 12 and 12A sought to determine what questions and preferences customers pose to retailers. Eighty seven percent of the retailers responded that their customers ask often or occasionally about the source of their seafood before purchase. The most common questions asked by consumers were whether seafood selections were wild-caught or farm-raised, and where the seafood originated. An interesting note is that the Seafood Choices Alliance 2008 report found that retailers are asking similar questions to wholesalers, with a clear trend toward wanting to know where fish are coming from and how they are being produced.

Survey Question 12: How often do customers ask about the source of seafood before purchase (seafood origins, harvest methods, or other environmental or health concerns?)
Respondents: 31. Each Respondent could select ONE of the following options:
- Often 32.2% (10)
- Occasionally 54.8% (17)
- Rarely 9.6% (3)
- Never 0
- Don’t know 3.2% (1)

Survey Question 12A: Comments, or examples of questions and concerns asked by customers:
Respondents: 27. (Grouped; for full list of actual quotes, see Appendix G)
- [Wild or farmed] 19
- [Country of origin (often China specifically)] 9
- [Freshness] 4
- [Locally caught] 4
- [Health] 3
- [Mercury] 3
- [PCBs, chemicals] 3
- [Other] 3
- [Antibiotics/steroids] 2
- [Frozen] 2
- [Cooking] 1
- [Carbon footprint] 1
- [Pregnancy concerns] 1
- [Organic] 1
- [Price] 1
Do retailers view labeling locally caught seafood as an advantage or disadvantage? When retailers were asked whether they thought labeling products as ‘locally caught’ was an advantage or disadvantage, most respondents thought it is advantageous to label as local. However, 18 percent of respondents said no. One person took ‘local’ very literally:

“Lobsters are kept alive and walk with their peers that come from Maine. No advantage to selling ‘Hampton Caught’ lobster when every tourist wants a ‘Maine Lobster’.”
—Small lobster store.

Opinions on what define ‘local’ apparently vary; a better definition should have been provided in this survey. Retailers might be interested to know that the survey of consumers in 2006 by Hicks et al. (2008) that only 16 percent of consumers believed that seafood imported to the U.S. as safe as locally harvested products. That survey also found that 49 percent of consumers said that ‘where seafood comes from’ is a factor affecting purchase decisions.

Survey Question 5: If you sell seafood that is caught locally, do you think it is advantageous to label it as such?
Respondents: 33. Each Respondent could select ONE of the following options:
Yes 81% (27)
No 18% (6)

Open ended responses (description of answer, grouped): 22
(For full list of quotes, see Appendix G.)
[Said something similar to ‘yes, people like it’] 18
[Gave some type of general info about sales] 3
[One person had a very specific definition of ‘local’] 1
Who do retailers trust; where do they get their information?

Question 11 revealed that retailers currently get their information from a wide variety of sources including: suppliers and distributors, supermarket corporate or management levels, the internet, and seafood trade publications. As far as which sources are most trusted, a surprising amount of respondents trusted the National Marine Fisheries Service (NMFS).

"Everything needs to be kept easy to understand from a consumer's point of view. NMFS should be the only one to say what qualifies sustainability [sic] and also which species are over-fished, food/ bad fishing methods, etc."

-Large chain store

For comparison, the Edge Research/Ocean Conservancy survey found that of consumers, 47 percent of consumers get their information about seafood from grocery stores (47 percent), 50 percent from food/cooking related media, and 37 percent from restaurants. Organic consumers are more engaged with all media and pay particular attention to health-related news. According to the Seafood Choices Alliance (2003), in-store labeling is by far the preferred way to get such information compared to news articles, printed materials, or the internet. However in a survey conducted in 2006 by Hicks et al. (2008), consumers chose the media (30 percent) and the internet (14 percent) as their preferred seafood information resource.

As far as which sources consumers trust, retailers are currently among the least trusted sources of information. The Hicks et al. study found that 35 percent of consumers surveyed trust store personnel to be knowledgeable about seafood. Only 5 percent of consumers surveyed by the Seafood Choices Alliance said they would trust information from retailers about health and environmental impacts of fish farming.
Perhaps labeling used in stores with outside source of certification would better ease their concerns. The Seafood Choices Alliance also found that consumers’ most trusted sources of information on the impacts of aquaculture are marine biologists and other scientists. For information concerning health and environmental impacts, 33 percent of consumers trusted doctors and scientists in academia. Of the consumers surveyed by Hicks et al., 34 percent trusted the media to present the facts about seafood.

Survey Question 11: Where/how do retailers get information (regarding fisheries management and harvest methods)?

Respondents: 30. Open ended answers, grouped:
- Suppliers/distributors (including North Coast—an area supplier) 6
- Corporate management of store 8
- Internet 6
- Seafood trade magazines/publications 5
- Other, including customers 5
- Others in seafood business; fishermen, process plant workers 4
- News/media 3
- Television 3
- Environmental groups 1
- Books 1

Survey Question 17: Who do you think would be the most reliable source of information regarding whether the seafood you sell is from a source that is managed sustainably?

Respondents: 28. Each Respondent could select ALL THAT APPLY of the following options:
- Academia 21% (6)
- Company research and development 32% (9)
- Customer comment and opinion 11% (3)
- Government research 21% (6)
- National Marine Fisheries Service 64% (18)
- Non-governmental organizations, such as aquariums 21% (6)
- Other (please specify): 14% (4)
V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions/ Significance of Findings

The conclusions to this research have been summarized into five categories:
The first three are recommendations of what retailers need to know regarding the importance of sustainable seafood in order for sustainable seafood marketing to be expanded and successful. The other two recommendations signify other changes that would help the marketplace be more receptive and effective for sustainable seafood eco-labeling.

1. Retailers need to understand consumer preferences.

Survey responses show that consumer preferences do matter to retailers, but sometimes the retailers misinterpret consumer comments or do not know how to respond. The results of consumer surveys which show consumer preferences (namely, that they do care about sustainability) could influence these stores—but the results need to be shared with them.

Retailers stated when they decide which types of seafood to sell, sustainability is not a very important consideration (see Figure 14), but consumer demand is; in Question 23, many retailers said that noticeable consumer demand would be an effective incentive to implement a labeling program. But, consumer demand is apparently hard for the stores to decipher directly; i.e. despite evidence to the contrary, many retailers I surveyed did not think consumers care about sustainability.

This is reflected in the following quotes (from questions 6,14,20,22, 24):
“Consumers don’t care about sustainability. Few customers care about farm raised vs. wild caught, and this level of concern only came to light after Fox 25 news aired several stories about farm raised shrimp that were discovered to have antibiotic contamination. Sustainability just isn’t on their radar.”

“Good idea, but the majority of consumers don’t care”
(Re: question 14, seafood choice cards)

“too much info: this generation could care less”

“The more information that is available, the more confused my customers are. Please leave well enough alone!”

“As a person with a science background, I feel that conservation and sustainability are important and that more should be done to educate consumers. However, I’m skeptical about how much it will cost to buy such products and whether people will take the extra time to investigate.”

“People don’t seem to care much about sustainability”

“Most people lack the patience or willingness to think very hard about their seafood in this area.”
(note: last 3 quotes from same respondent)

While some respondents have seen customers using seafood choice cards, many have never seen customers using them. But given the retailers’ general lack of familiarity with the cards, many retailers simply may not recognize them. Also, the following were the only answers written under the choice of ‘other’: “Company info,” “Guiding Stars,” “grocery store description cards (nothing about sustainability),” “ones that involved the Purdue University.” None of these are seafood choice guide cards, meaning the respondents might not know what is meant by ‘seafood choice guide cards’ (along with the several respondents who said ‘none’ or who did not answer the question). Moreover, whether or not the cards are seen by retailers is not the only indicator if the consumers are using cards, or if they are concerned with seafood sustainability issues in general.
On the other hand, some retailers in this survey did report that consumers are becoming more aware and interested in seafood origin (see quotes below). Eighty-seven percent (27 out of 31) of the respondents said that their customers ask ‘often’ or ‘occasionally’ about the source of their seafood before purchase. The most common questions asked by consumers were whether seafood selections were wild-caught or farm-raised, and where the seafood originated (Question12A). Since these are topics covered in the guides, it is possible that the guides indeed influenced the customer concern and inquiry. Quotes from Questions 5 and 6:

"Most people are more conscious of where there fish is coming from and want to support US product."

"Our customers are extremely interested in sources and strongly support local and regional producers when given the opportunity."

"people like to know where the seafood comes from"

"people will pick up salmon (for instance) more if its from Canada or USA even if the salmon from "chile" is $1.00 cheaper.

"Yes, consumers are looking more for local or especially U.S.A. origin."

"With the exception of cooked shrimp, most products from the United States or Canada sell better than items from, for example, Vietnam."

"Wild and farm raised seem to be their most impmortant. However things from foreign countries are noted." [sic]

"China- seafood will not sell!"

These customer concerns, as reported by retailers in this survey, are supported with the results of a survey of consumers conducted in 2007 by Hicks et al (2008). Only 16 percent of those surveyed felt that imported seafood was as safe as domestic, and 55 percent were unsure. Hicks postulates that it is likely that the number of consumers who feel that imported products are as safe as locally harvested products is
likely to decrease even further because of continued media reporting on concerns with imported seafood. Of the respondents in the survey, 49 percent considered ‘where seafood comes from’ to be an important factor contributing to purchasing decisions.

Also, other surveys of consumers do show demand for sustainable products (such as Seafood Choices Alliance 2003, Johnson et al. 2001, and Blackstone 2001 cited within Hicks et al. 2008). Therefore, these consumer surveys could definitely influence store retailers, so the results need to be shared with them. It seems that thus far, the attempts to broaden consumer knowledge about sustainable seafood, and expand sustainable seafood markets, have largely left retailers out of the process.

2. **Retailers need to have current knowledge of sustainability/ fisheries management issues for when consumers ask.**

Both retailers and consumers lack knowledge about sustainable seafood, but both are interested in learning more. Consumers are asking questions (as reflected in my survey and others- see Chapter 2 section H) and do desire and need more information.

Improving consumer trust is necessary (Coons 2003 cited within Hicks et. al. 2008), and educated retailers would be better equipped to answer consumer questions. In this survey, very few respondents wanted to report lack of knowledge (Questions: 8- fisheries management; 10- seafood harvest methods; 13- seafood choice guides; 16- in-store seafood eco-labeling), which is expected in such survey questions (see section B below). As far as the sources of information retailers claim to use (suppliers and distributors, supermarket corporate or management levels, the internet,
seafood trade publications), many could be biased or simply not interested in covering certain content. Also, considering that many retailers are unfamiliar with seafood choice cards and eco-labeling, those seafood choice guides/cards which recommend that consumers ask retailers for help might want to remove that suggestion.

The Hicks et al. consumer survey point out that customers also lack relevant knowledge about seafood. Consumers’ rankings of their knowledge regarding purchasing factors showed very low knowledge confidence, with only 29-39 percent of the respondents describing themselves knowledgeable or very knowledgeable on the issues that they considered important to their purchasing decisions. The 2001 report by the Seafood Choices Alliance also has data showing lack of consumer knowledge regarding seafood purchasing. The next three quotes (from Questions 20 and 22) show the retailers in this survey agree that customers, as well as retail employees, are uninformed:

"Customers are eager to learn more about fish. They want to eat it, but on the whole, most are very uninformed."

"People need to be more educated. They think they know but often have incorrect information."

"Information would need to be provided to employees, as most do not know literally anything about fish" 

Therefore, it has been shown that both retailers and consumers lack knowledge, but both are interested in learning more. For instance, both retailers and consumers have shared concerns about ocean issues such as over-fishing. The Seafood Choices Alliance found that 58 percent of retailers consider whether a species is overfished when making purchasing decisions, and when Hicks et al.
(2008) asked consumers whether they agreed that overfishing is a problem, 48 percent said yes, 38 percent were unsure, and only 14 percent disagreed.

3. **Seafood department managers are willing to implement sustainable seafood labeling, but they do not have the authority to make these decisions.**

Therefore, the results of consumer surveys should be shared with higher levels of retail management and corporations.

As shown in Question 18, managers are willing to implement sustainable seafood labeling, but they do not get to make these decisions. The results were: 14 respondents are willing and 7 are unwilling to implement a seafood eco-labeling system in their store. Quotes showing similar sentiments (from Questions 22 and 24):

"On a personal level it has to come thru our corporate office”

"I do not make the choices with in our company.” [sic]

"I work for a nationwide chain- we have no control over labeling decisions.”

"My actions are subject to the corporate decisions. What I personally would do and what my company decides for the good of the corporation are 2 different items.” [sic]

"Willing but not up to me.”

The following quotes from Questions 5 and 20 show that the retailers do see benefits of seafood eco-labeling:

"Increasing consumer awareness is key”

"Educating customers about sustainable fishing and preserving the environment will pay off in the long run.”

"An educated customer is a better customer.”
“Again it goes back to educating the consumer. Most unsustainable items are such because of consumer demand. If they are more educated in a more sustainable fish, they would be more likely to buy it.”

“The "aware" customers would definitely buy sustainable products. Customers that are taught about sustainable fish would lean more towards buying it.”

“In a highly educated customer group, this program would ROCK! I just don't [too throw] out unsustainable as of today”

Another aspect to this discussion is that although the retailers are somewhat willing to use labeling systems, they want to have options. When asked what they would change about labeling programs in Question 21, 37 percent (six out of 16 respondents) requested a broader range of sustainability levels. Incentives could also be an effective avenue to encourage participation, as retailers also showed broad interest in incentives in general, including free materials. Respondents also indicated that they would need help educating/training employees.

4. Having a better traceability for ocean food products in place is needed (beyond the current COOL label requirements).

Though this is not a direct conclusion from this survey, it is related, as a better traceability system would reduce mislabeling and improve accuracy and credibility in sourcing and identifying sustainably caught seafood. Another benefit would be improved seafood safety. Caswell (2006) emphasizes that development of markets for improved safety, as well as for other quality attributes, requires an effective certification and tracking of these attributes as well as their communication to buyers.

Increasing globalization of our food supply combined with outbreaks of foodborne disease has heightened concerns over food safety issues: Consumer
confidence of food safety in the United States fell from 83 percent in 1996 to 74 percent in 2002 (Economic Research Service cited within Thompson et al. 2005). In response to the growing concern by government and consumers, many nations are looking at food traceability as a way to restore confidence in the food supply while providing the mechanisms for quick and thorough product recall procedures. Traceability, which allows for the tracking of food products through all steps of production, distribution, and sales, can provide information on the nature, origin, and quality of a product; allowing consumers to make more informed purchasing decisions (Thompson et al. 2005).

Borresen (2003) argues that the seafood industry is a commercial food sector in which traceability is becoming a legal and commercial necessity, as globalization of trade and the lack of international standards have made identifying the origin and history of seafood products difficult. Implementing traceability systems will require improved vertical integration between entities and the development of standards for the collection and dissemination of traceability data. Fortunately, rapid advances in information technology have made it possible to implement traceability systems within the food industry, and a well-designed traceability system may benefit many in the seafood industry (Thompson et al. 2005). By maintaining the identity of favorable attributes throughout the marketplace, seafood producers can provide quality assurance while bolstering their reputation (Unnevehr et al. 1999) and creating added value if the information provides assurances that consumers are willing to pay for (Bailey et al. 2002).
In 2006, the potential merging of labeling programs for seafood safety and environmental concerns was also explored by Caswell. She believes the environmental labeling approach for seafood has good potential because the certification and labeling program can focus on assuring particular process attributes, which may have multiple benefits (i.e., improved environmental quality, food safety, and nutrition) that are all valued by consumers. A particular product could carry more than one type of label, or multiple claims could be packaged into one overall “seal of approval” label to avoid clutter and confusion. On the other hand, a primary risk is consumer confusion from too many labels and similar/overlapping labels.

5. **Seafood choice campaigns should educate regarding sustainability and fisheries management issues, including purchasing locally caught seafood.**

The recent report by the Seafood Choices Alliance (2008) presents positive evidence that sustainable seafood appears to be a rising trend among retailers and wholesalers, who are increasingly open to dialogue and are interested (88 percent ‘somewhat’ or ‘very’ interested) in obtaining information that can help them make informed and responsible choices for themselves, their customers, and the ocean. Retailers primarily want information on what to sell, and feel that they are currently not getting the information they need to make decisions about the environmental impacts of seafood.
B. Recommendations for Future Research:

This research aimed to help fill gaps in an aspect of sustainable seafood marketing that has had sparse previous published material. It is hoped that this study may serve to inspire and guide future related research; conducting similar surveys or a second phase of this survey in the future could be beneficial and is recommended.

A considerable problem that impeded participation from chain stores was hesitation expressed by store department managers about being "allowed to" complete surveys. It is recommended that higher levels of store management also be contacted early on in the participant pre-screening phase regarding store policies and permission. Selecting and offering an effective incentive is highly recommended. Another way to increase sample size would be to screen potential participants well in advance to make sure they fit desired criteria, and ability to complete survey. Additionally, survey distribution and collection could be conducted during a peak availability of seafood, as it will be more likely that all businesses will be open.

To expand the depth of information collected, interviews could also be added so that participants’ answers could be explained in detail for better understanding. The survey content and analysis could also incorporate more demographic characteristics of participants, to see how these characteristics affect their views. The study could be replicated in other geographical areas for comparison (if this is done, care should have taken to define “locally caught” seafood accordingly for each area). Surveys could also be done before and after education about sustainable seafood labeling.
Other possible changes for distribution methodology would be to create different versions of surveys for different sizes of retailers (small store owners; chain store managers; corporate decision makers/buyers) or different sector (wholesalers; distributors; restaurants). This would give an even better understanding of the whole market process of buying and selling seafood. Lastly, to reconcile disparate surveys on consumers and retailers, research that takes the interplay of customer and supplier interaction would be enlightening. In any of these situations, thorough pilot surveys are recommended to ensure that all pertinent questions are included and worded effectively.

On the whole with regard to attitude surveys, Bradburn and Sudman (1988) warn that a critical limitation is that respondents may not have any opinion at all about a topic—especially if they do not know much about it or are not interested in it. Thus there is always the possibility that questions intended to measure attitudes instead measure non-attitudes. When respondents are asked questions on topics they have thought little about, the best answer is probably “I don’t know.” But instead of saying this, some respondents generate opinions on the spot in order to avoid appearing uninformed (Weisberg et al 1989). In light of this, it is important to include ‘none’ as an option for attitude questions.
C. Summary

By creating consumer demand for sustainable products and management practices, seafood eco-labeling has strong potential to reduce over-fishing and promote marine conservation. Though government regulation of public resource use will always play a central role in management, governmental efforts are affected by public opinion and pressure. Therefore, eco-labeling of fishery products can both raise public awareness and political will to manage sustainably, as well as lead markets to supply sustainably produced fishery products.

Retailers have a pivotal role in making eco-labeling efforts work, as they are the direct providers of product choices, information and general guidance for customers. If retailers are aware and supportive of eco-labeling and the goal of sustainable seafood, this can have a broad positive impact on the public. While market advantage is of key importance to retailers, concern for sustainability, especially if reflected by the public, can also be a motivation.

Providing retailers with training, marketing support, and clear information on sustainably produced seafood products will help enable them to establish seafood product eco-labeling. This type of support is only just beginning to emerge and expanding such efforts will play a critical role in making eco-labeling an effective tool for conservation. For optimum success and wide participation, it is important to include retailers in the planning of these efforts to ensure their concerns and needs are addressed.
LIST OF REFERENCES


APPENDICES
APPENDIX A:

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER
Fong, Lindsey  
Natural Resources & the Environment, Morse Hall  
11 Dover Street  
Dover, NH 03820  

IRB #: 4342  
Study: Expanding the Availability of Sustainable Seafood: Uncovering Barriers for Retailers  
Approval Date: 09-Jul-2008  

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, Responsibilities of Directors of Research Studies Involving Human Subjects. (This document is also available at [http://www.unh.edu/osr/compliance/irb.html](http://www.unh.edu/osr/compliance/irb.html).) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,  

Julie F. Simpson  
Manager  

cc: Rosenberg, Andrew
APPENDIX B:

SURVEY COVER LETTER AND BACKGROUND INFORMATION
Dear Store Owner or Manager:

I am requesting your help and participation. As part of a research project for my Master's degree at the University of New Hampshire, I am conducting a survey to uncover the knowledge and perspectives of New England retailers who offer seafood products in their stores (or in some way sell un-prepared seafood directly to consumers). I hope this survey may ultimately help improve the marketing and availability of seafood products in the region.

Completed surveys will be electronically tallied and a summary report will be prepared. If you desire, this report will be made available directly to you for your benefit. Information you provide is confidential and you will not be identified by name in the report. The survey results will be used within a thesis project at the University of New Hampshire.

Please take a moment to fill out the survey, or direct it to the person who would be most knowledgeable about seafood sales at your store. It is important to have a broad range of participants to ensure valid survey results. For your convenience, you may choose from several delivery formats; see the enclosed background information for more details. Please complete the survey by October 15, 2008.

Thank you for your help!

Sincerely,

Lindsey Fong
University of New Hampshire
Candidate for Master of Science in Natural Resources
BACKGROUND INFORMATION REGARDING PARTICIPATION IN A RESEARCH STUDY

RESEARCH STUDY
I am graduate student at the University of New Hampshire. The title of my research study is: “Expanding the Availability of Sustainable Seafood: Uncovering Barriers for Retailers.”

This study has been approved by the Institutional Review Board for the Protection of Human Subjects in Research at the University of New Hampshire.

PURPOSE OF THE STUDY
The goal of my project is to solicit the knowledge and perspectives of New England retailers who offer seafood products in their stores. I hope to uncover:
- Retailer views regarding ‘seafood choice’ awareness campaigns and eco-labeling programs, including hesitancies to implementing labeling systems.
- Retailer willingness to provide sustainably produced products in their stores (including organically produced and locally caught), including predicted or experienced problems (such as regular availability of supply; quality; consumer interest and knowledge; price differentials).
- Incentives that retailers feel would help overcome those barriers.

By directly surveying/ interviewing retailers, I hope to identify incentives that can help overcome any real or perceived barriers that prevent the distribution of eco-labeled seafood in grocery stores in New England.

PARTICIPATION IN THIS STUDY
Retailers can complete the survey in your choice of the following three formats:
1. A link to the survey is available online at www.NHseafood.com (choose “Retail” survey).
2. Complete the enclosed printed survey and return in the pre-paid postage envelope.
3. I can convey the survey orally in person at your place of work- similar to a structured interview (if the survey is completed in this manner, audio recording may be used-if so, additional consent validation will be acquired from participants.

Under any option, the survey will not likely take more than 20 minutes to complete.

POSSIBLE RISKS OF PARTICIPATING IN THIS STUDY
This research does not have the potential of involving more than minimal risk to participants. We will take every effort to protect raw data and ensure confidentiality.

POSSIBLE BENEFITS OF PARTICIPATING IN THIS STUDY
Soliciting retailer ideas for successful eco-labeling programs and incentives can help influence future endeavors and participation in systems that could have benefits to customers and retailers themselves.
Benefits could be felt by retailers who are able to sell sustainable eco-labeled products, considering some people are willing to pay a premium for high quality, environmentally conscious products.

**IF YOU CHOOSE TO PARTICIPATE IN THIS STUDY, WILL IT COST YOU ANYTHING?**
No.

**WILL YOU RECEIVE ANY COMPENSATION FOR PARTICIPATING IN THIS STUDY?**
No.

**WHAT OTHER OPTIONS ARE AVAILABLE IF YOU DO NOT WANT TO TAKE PART IN THIS STUDY?**
You understand that your consent to participate in this research is entirely voluntary, and that your refusal to participate will involve no prejudice, penalty or loss of benefits to which you would otherwise be entitled.

**CAN YOU WITHDRAW FROM THIS STUDY?**
If you consent to participate in this study, you are free to stop your participation in the study at any time without prejudice, penalty, or loss of benefits to which you would otherwise be entitled.

**HOW WILL THE CONFIDENTIALITY OF YOUR RECORDS BE PROTECTED?**
The researcher seeks to maintain the confidentiality of all data and records associated with your participation in this research.

You should understand, however, there are rare instances when the researcher is required to share personally-identifiable information (e.g., according to policy, contract, regulation). For example, in response to a complaint about the research, officials at the University of New Hampshire, designees of the sponsor(s), and/or regulatory and oversight government agencies may access research data.

Data will be aggregated for reporting, and most results will likely be presented without any identifying information. If we desire to include identifying information, participants will be contacted to request permission. Access to raw data will be limited to the researcher and faculty advisory committee. The data will not likely be used for any other purposes; if so, participants will be contacted and notified.

All survey documents and any recordings (if applicable) will be destroyed upon completion of the research project.

**WHOM TO CONTACT IF YOU HAVE QUESTIONS ABOUT THIS STUDY**
If you have any questions pertaining to the research or survey you can contact:
Lindsey Fong, 970-371-6113, Lpd6@unh.edu
Ken LaValley, 603- 862-4343, ken.lavalley@unh.edu

If you have questions about your rights as a research subject you can contact Julie Simpson in the UNH Office of Sponsored Research, 603-862-2003 or Julie.simpson@unh.edu to discuss them.
APPENDIX C:

SURVEY INSTRUMENT
Seafood Retailer Survey

Instructions: Please answer as many questions as possible. There are no correct or incorrect responses, so please feel free to express your opinions.

1. Which best describes your store/retail establishment? Select one:
   - Single, independent store
   - Part of a small chain (2-15 stores)
   - Part of a medium-sized chain (16-50 stores)
   - Part of a large chain (50+ stores)
   - Distributor or restaurant that also sells raw seafood products directly to consumers

2. What types of seafood do you currently sell? Select all that apply:
   - Locally produced wild caught finfish
   - Locally produced wild caught shellfish
   - Other wild finfish
   - Other wild shellfish
   - Aquacultured/farmed finfish
   - Aquacultured/farmed shellfish
   - Sustainably certified* (either wild caught or farmed) finfish
   - Sustainably certified* (either wild caught or farmed) shellfish
   *Marine Stewardship Council/MSC or similar

3. On a scale of 1-5, indicate how each of the following factors influence your selections of seafood to sell:

<table>
<thead>
<tr>
<th>Factor</th>
<th>5 (Very influential)</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 (Not at all influential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locally caught</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other: (specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. List your ten best selling seafood products and their average selling price (from what you know, or your best estimate):
   1. 
   2. 
   3. 
   4. 
   5. 
   6. 
   7. 
   8. 
   9. 
   10.

5. If you sell seafood that is caught locally, do you think it is advantageous to label it as such? Circle [Yes/No] and describe:
6. Indicate your level of agreement with the following components in a definition describing “sustainable seafood”:

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>“From sources/seafood stocks (either fished or farmed) that can provide for today’s needs without damaging the ability to maintain or increase abundance into the long-term future”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Few, if any ecological impacts associated with catch or production”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: ____________________________________________________________
________________________________________________________

7. If you sell any type of sustainably labeled seafood products, what type of labeling do you use (i.e. stickers, small placards, large signs, etc.)?

7A. If you sell any type of sustainably labeled seafood products, how do their sales compare to conventional seafood products?

8. Rate your knowledge about fisheries management (worldwide). Select one:

<table>
<thead>
<tr>
<th>Very well-informed</th>
<th>Somewhat informed</th>
<th>Neutral</th>
<th>Somewhat un-informed</th>
<th>Very un-informed</th>
</tr>
</thead>
</table>

8A. Have you ever participated in the fisheries management/policy process? Circle [Yes/No] and describe:
9. In general, do you think current management of fisheries (USA) is: *(Select one)*

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very poor</th>
</tr>
</thead>
</table>

9A. In general, do you think current management of fisheries (other countries) is: *(Select one)*

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very poor</th>
</tr>
</thead>
</table>

10. Rate your knowledge about seafood harvest methods (including methods considered to be more 'sustainable'). *Select one:*

<table>
<thead>
<tr>
<th>Very well-informed</th>
<th>Somewhat informed</th>
<th>Neutral</th>
<th>Somewhat un-informed</th>
<th>Very un-informed</th>
</tr>
</thead>
</table>

11. Where/how do you get this information (regarding management and harvest methods)?

12. How often do customers ask about the source of seafood before purchase (seafood origins, harvest methods, or other environmental or health concerns?)* Select one:*

<table>
<thead>
<tr>
<th>Often</th>
<th>Occasionally</th>
<th>Rarely</th>
<th>Never</th>
<th>Don’t know</th>
</tr>
</thead>
</table>

12A. Comments, or examples of questions and concerns asked by customers:

13. How familiar are you with consumer ‘seafood choice cards/guides’? *Select one:*

<table>
<thead>
<tr>
<th>Very familiar</th>
<th>Somewhat familiar</th>
<th>Neutral</th>
<th>Somewhat un-familiar</th>
<th>Very un-familiar</th>
</tr>
</thead>
</table>
13A. Which seafood choice cards/ guides are you familiar with? *Select all that apply:*

- Monterey Bay Aquarium: Seafood Watch Regional Seafood Guides
- Blue Ocean Institute: Guide to Ocean Friendly Seafood
- Environmental Defense: Oceans Alive Pocket Seafood Selector
- Other

14. What are your opinions about seafood choice cards/ guides in general? *Select one:*

<table>
<thead>
<tr>
<th>Very favorable</th>
<th>Somewhat favorable</th>
<th>Neutral</th>
<th>Somewhat unfavorable</th>
<th>Very unfavorable</th>
</tr>
</thead>
</table>

Comments: ____________________________________________________________

________________________________________________

14A. What do you think are the main benefits of the guides? *Select all that apply:*

- Increased consumer awareness/ understanding of seafood availability
- Increased demand for sustainable seafood products
- Increased ability to compare seafood products
- Avenue for education about conservation in general
- Other (please specify): ____________________________________________

14B. What do you think are the main drawbacks of the guides? *Select all that apply:*

- Disagreement/ uncertainty about ratings designated by the guides
- Decreased demand for seafood products overall
- Time restraints in reading and understanding
- Guide recommendations that are too generalized
- Other (please specify): ___________________________________________

15. How often do you see customers shopping with ‘seafood choice’ literature, cards, or guides? *Select one:*

<table>
<thead>
<tr>
<th>Often</th>
<th>Occasionally</th>
<th>Rarely</th>
<th>Never</th>
<th>Don’t know</th>
</tr>
</thead>
</table>

15A. On a scale of 1-5, how influential do you think that seafood choice cards/literature is in helping customers to make decisions about which product(s) to purchase?

<table>
<thead>
<tr>
<th>5 (Very influential)</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 (Not at all influential)</th>
</tr>
</thead>
</table>
16. Indicate your knowledge about seafood eco-labeling (labeling regarding sustainability) programs in stores. Select one:

<table>
<thead>
<tr>
<th>Very well-informed</th>
<th>Somewhat informed</th>
<th>Neutral</th>
<th>Somewhat un-informed</th>
<th>Very un-informed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16A. What do you think are the main benefits of seafood eco-labeling programs in stores? Select all that apply:

- Increased consumer awareness/ understanding of seafood availability
- Increased demand for sustainable seafood products
- Increased ability to compare seafood products
- Avenue for education about conservation in general
- Other (please specify): _______________________________________________________________________

16B. What do you think are the main drawbacks? Select all that apply:

- Disagreement/ uncertainty about ratings designated by the guides
- Decreased demand for seafood products overall
- Time restraints in reading and understanding
- Guide recommendations that are too generalized
- Other (please specify): _______________________________________________________________________

17. Who do you think would be the most reliable source of information regarding whether the seafood you sell is from a source that is managed sustainably?

- Academia
- Company research and development
- Customer comment and opinion
- Government research
- National Marine Fisheries Service
- Non-governmental organizations, such as aquariums
- Other (please specify): _______________________________________________________________________

18. Rate your willingness to implement a seafood eco-labeling system in your store: Select one:

<table>
<thead>
<tr>
<th>Very willing</th>
<th>Somewhat willing</th>
<th>Neutral</th>
<th>Somewhat un-willing</th>
<th>Very un-willing</th>
<th>Not familiar enough with sustainable seafood marketing options to make an informed decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

109
18A. If you already use a seafood eco-labeling system, specify what type and describe:

18B. What type of system would you prefer? Select all that apply:
- Marine Stewardship Council certification, or similar labeling on food wrapping
- Small placard signs for each type of seafood (such as those by FishWise or similar consultancy programs)
- Large signs or grids
- Informational literature (such as brochures) available at point of sale
- Video or audio display at point of sale
- Other (please specify):

19. What are/ would be barriers or hesitations of implementing a seafood labeling system?

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspicious about the criteria used</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to designate sustainability ratings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apprehension regarding initial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>implementation process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of reduced sales/ lost profits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts on sales of other products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing flexibility would be</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>compromised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity of supply from</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sustainably managed sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reluctance to discontinue any</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>products or label as 'unsustainable'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of demand for sustainable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers may be confused by the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>labeling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
20. Do you see any potential positive aspects that could benefit your store by implementing a seafood eco-labeling system? Circle [Yes/ No] and describe:

21. What would you change about labeling systems/ programs? (For example, would a broader range of sustainability levels be more appealing than narrow categories?)

22. What difficulties do you/ would you need help with?

23. Which of the following would be effective incentives to implement a labeling program? Select all that apply:
   - Free materials
   - Free support
   - Employee training
   - Broader advertising about sustainable seafood to increase consumer awareness
   - Price premium for products
   - Consumer demand
   - Other (please specify):

24. Please share any additional comments, concerns, or advice you have:
25. Please describe the clientele who shop at your store (from what you know, or your best estimate):

A. Proportions of patrons, by age bracket:

<table>
<thead>
<tr>
<th>% of Total customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
</tr>
<tr>
<td>20-30</td>
</tr>
<tr>
<td>30-45</td>
</tr>
<tr>
<td>45-60</td>
</tr>
<tr>
<td>Over 60</td>
</tr>
</tbody>
</table>

B. Proportions of patrons, by annual income bracket:

<table>
<thead>
<tr>
<th>% of Total customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $19,999</td>
</tr>
<tr>
<td>$20,000-$39,999</td>
</tr>
<tr>
<td>$40,000-$59,999</td>
</tr>
<tr>
<td>$60,000-$89,000</td>
</tr>
<tr>
<td>Over $90,000</td>
</tr>
</tbody>
</table>

C. Which of the following options best describes the typical patron's most important criteria for selecting a seafood product?

<table>
<thead>
<tr>
<th>Price most important</th>
<th>Price somewhat more important</th>
<th>Price and quality equally important</th>
<th>Quality somewhat more important</th>
<th>Quality most important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Which of the following options best describes the typical patron's concern for the environment/sustainability?

<table>
<thead>
<tr>
<th>Very concerned</th>
<th>Somewhat concerned</th>
<th>Neutral</th>
<th>Somewhat un-concerned</th>
<th>Very un-concerned</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please enter your information below. This information is for the surveyor only; your name/store will not be revealed or linked to your answers in the finished report.

Store name and location (city and street):

Your name and position (owner, manager, corporate, etc.):

Would you like a copy of the final data report?  Circle YES/ NO
Would you like to be entered into the drawing to win a prize?  Circle YES/ NO

Phone, email or other preferred contact information:

THANK YOU!
APPENDIX D:

LIST OF ADDITIONAL SOURCES
ECO-LABEL INFORMATION
ADDITIONAL SOURCES: ECO-LABEL INFORMATION


APPENDIX E:

LIST OF ADDITIONAL SOURCES
SEAFOOD ECO-LABELING, CERTIFICATION OF FISHERIES AND SEAFOOD TRADE ISSUES


APPENDIX F:

LIST OF ADDITIONAL SOURCES
CONSUMER SURVEYS REGARDING SEAFOOD
LIST OF ADDITIONAL SOURCES
CONSUMER SURVEYS REGARDING SEAFOOD


APPENDIX G:

FULL SURVEY RESULTS
FULL SURVEY RESULTS

1. Which best describes your store/retail establishment?
Respondents: 33. Each Respondent could select only ONE of the following options:
   - Single, independent store: 8
   - Part of a small chain: 2
   - Part of a large chain: 20
   - Distributor or restaurant: 3

2. What types of seafood do you currently sell?
Respondents: 32. Each Respondent could select ALL THAT APPLY of the following options:
   - Locally produced wild caught finfish: 22
   - Locally produced wild caught shellfish: 30
   - Other wild finfish: 25
   - Other wild shellfish: 26
   - Aquacultured/farmed finfish: 27
   - Aquacultured/farmed shellfish: 26
   - Sustainably certified* (either wild caught or farmed) finfish: 14
   - Sustainably certified* (either wild caught or farmed) shellfish: 11

*Marine Stewardship Council/ MSC or similar
3. On a scale of 1-5, indicate how each of the following factors influence your selections of seafood to sell:

<table>
<thead>
<tr>
<th>Each Respondent could select only ONE option for each row:</th>
<th>5 (Very influential)</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 (Not at all influential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents: 33 Price</td>
<td>15</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 31 Consumer demand</td>
<td>24</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 33 Quality</td>
<td>32</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 32 Availability</td>
<td>16</td>
<td>6</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 29 Sustainability</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 31 Locally caught</td>
<td>6</td>
<td>13</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Respondents: 2 Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;in season or not&quot;</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&quot;wild or farmed&quot;</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

4. List your ten best selling seafood products and their average selling price (from what you know, or your best estimate):

Respondents: 32. Open ended list answers (summarized):
Answers varied...common species in participants’ top three were Haddock, Scallops, Salmon, Lobster. Others in top ten: Steamers/clams, shrimp, swordfish, cod, tilapia, tuna, mussels, founder, crab, halibut.

5. If you sell seafood that is caught locally, do you think it is advantageous to label it as such?
Respondents: 33. Each Respondent could select ONE of the following options:
Yes                                           27
No                                            6

Open ended responses (actual quotes): 22

"With customers becoming more educated and aware of the environment, they tend to ask what is local. They want to buy from local fisherman to support them and the community. BUT, when there is a large price difference; price is the selling point."

"People love to know that the seafood is processed/packaged in the USA. It seems very important to consumers."
“Most people are more conscious of where their fish is coming from and want to support US products.”

“Our customers are extremely interested in sources and strongly support local and regional producers when given the opportunity. In addition to COOL requirements, we will be specific as to location and are about to begin using Captain, boat name and port in which landed when known and when regional.”

“This area supports local in general”

“Customers LOVE local products!”

“Lobsters are kept alive and walk with their peers that come from Maine. No advantage to selling "Hampton Caught" lobster when every tourist wants a ‘Maine Lobster’”

“Absolutely people value locally caught seafood BUT those are not usually the most popular, i.e. pollack and cod are local but unpopular to customers.”

“You should always tell customers exactly what they are getting.” [sic]

“People like to know where the seafood comes from.”

“People will pick up salmon (for instance) more if it’s from Canada or USA even if the salmon from “chile” is $1.00 cheaper.”

“I don’t sell anything local but if I did, signing in caught locally would help sell the item. Customers like to support locally caught items.”

“Customers love to buy local seafood. ME shrimp sells well in season. ME clams meat sells well. They are willing to pay more for local products.” [sic]

“Yes, consumers are looking more for local or especially U.S.A. origin.”

“All our seafood is labeled farmed or wild
where it was caught or raised
where it was processed.” [sic]

“With federal COOL Legislation in effect since 2004, it is mandatory to label all seafood for sale with its country of origin. With the exception of cooked shrimp, most products from the United States or Canada sell better than items from, for example, Vietnam.”

“Locally caught usually means its fresher (to the customer) not always true”

“Locals will buy it”
“Steamers are the only product that is labelled as being from Maine. The live lobster is also from Maine, but it isn't labelled as such. Approximately 30% of walk-in customers inquire about the lobsters' origin.” [sic]

“Wild and farm raised seem to be their most important. However things from foreign countries are noted.” [sic]

“people like local”

“It follows our basic mission statement totally”

6. Indicate your level of agreement with the following components in a definition describing “sustainable seafood”:

<table>
<thead>
<tr>
<th>Each Respondent could select ONE option for each row:</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses: 33</td>
<td>17</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>“From sources/seafood stocks (either fished or farmed) that can provide for today's needs without damaging the ability to maintain or increase abundance into the long-term future”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responses: 29</td>
<td>6</td>
<td>12</td>
<td>4</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>“Few, if any ecological impacts associated with catch or production”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Open ended responses (additional comments-actual quotes): 8

“At this time, I think it too restrictive to use "few, if any". We risk sounding utopian and deny the realities of modern fishing. However, I feel strongly that environmentalists and industry should be working together to quickly and systematically reduce environmental impacts - especially by-catch.”

“Two definitions to two different things (first is sustainable, second is eco-friendly)”

“Small placards”

“Putting limits on fishermen and rotating where they can fish helps a lot.”
“Customers don't care about sustainability. Few customers care about farm raised vs. wild caught, and this level of concern only came to light after Fox 25 news aired several stories about farm raised shrimp that were discovered to have antibiotic contamination. Sustainability just isn't on their radar.” [sic]

“seems logical”

“China-seafood will not sell!”

“We need to protect and find ways to increase our fish for future generations”

7. If you sell any type of sustainably labeled seafood products, what type of labeling do you use (i.e. stickers, small placards, large signs, etc.)?
Respondents: 28. Open ended answers, grouped:
  [Stickers] 5
  [Small placards] 4
  [Both stickers and small placards] 5
  [None or NA] 7
  [Prefer oral communication] 2
  [“Most people do not read signs”] 1
  [Other misc. answers] 4

7A. If you sell any type of sustainably labeled seafood products, how do their sales compare to conventional seafood products?
Respondents: 19. Open ended answers, grouped:
  [Better] 2
  [Same] 6
  [Worse] 3
  [N/A] 6
  [Other misc. answers] 2

8. Rate your knowledge about fisheries management (worldwide).
Respondents: 33. Each Respondent could select ONE of the following options:
  Very well-informed 6
  Somewhat informed 20
  Neutral 3
  Somewhat un-informed 3
  Very un-informed 1

8A. Have you ever participated in the fisheries management/ policy process?
Respondents: 33. Each Respondent could select ONE of the following options:
  Yes 2
  No 31
9. In general, do you think current management of fisheries (USA) is:
Respondents: 33. Each Respondent could select ONE of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>1</td>
</tr>
<tr>
<td>Good</td>
<td>13</td>
</tr>
<tr>
<td>Fair</td>
<td>16</td>
</tr>
<tr>
<td>Poor</td>
<td>3</td>
</tr>
</tbody>
</table>

9A. In general, do you think current management of fisheries (other countries) is:
Respondents: 33. Each Respondent could select ONE of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
</tr>
<tr>
<td>Fair</td>
<td>14</td>
</tr>
<tr>
<td>Poor</td>
<td>13</td>
</tr>
<tr>
<td>Very poor</td>
<td>2</td>
</tr>
</tbody>
</table>

10. Rate your knowledge about seafood harvest methods (including methods considered to be more 'sustainable').
Respondents: 33. Each Respondent could select ONE of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very well-informed</td>
<td>5</td>
</tr>
<tr>
<td>Somewhat informed</td>
<td>24</td>
</tr>
<tr>
<td>Somewhat un-informed</td>
<td>4</td>
</tr>
</tbody>
</table>

11. Where/how do you get this information (regarding management and harvest methods)?
Respondents: 30. Open ended answers, grouped:

- [Suppliers/distributors –including North Coast- an area supplier] 6
- [Corporate management of store] 8
- [Internet] 6
- [Seafood trade magazines/publications] 5
- [Other, including customers] 5
- [Others in seafood business including fishermen, process plant workers] 4
- [News/ media] 3
- [Television] 3
- [Environmental groups] 1
- [Books] 1

12. How often do customers ask about the source of seafood before purchase (seafood origins, harvest methods, or other environmental or health concerns)?
Respondents: 31. Each Respondent could select ONE of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often</td>
<td>10</td>
</tr>
<tr>
<td>Occasionally</td>
<td>17</td>
</tr>
<tr>
<td>Rarely</td>
<td>3</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>Don’t know</td>
<td>1</td>
</tr>
</tbody>
</table>
12A. Comments, or examples of questions and concerns asked by customers:
Respondents: 27. Open ended responses (actual quotes):

“We like to inform our customers on what they are eating. Our Dover store has new tags. Each fish is labeled with Farmed or Wild caught, and country of origin. We prefer to use hook fish over dragger. They do not want any items from CHINA. Chilean Sea Bass is also a no/no in retail. We were carrying a MSC certified, but the price is so much higher and trying to explain the cert to customers is difficult.”

“Why does some packaging say Wild Alaskan Salmon but then says product of China? How much mercury or PCBs is in this? Is tuna safe to eat even though I am pregnant? Do your cans have bisphenol-A? Are your products from the USA? If not, where are they from? Do you have organic seafood?”

“I only want fresh wild caught. Only want US product. Nothing from China Don't want farm raised salmon.”

“When did the fish come in? How much mercury is in it? How do I cook it?”

“-"Is this local?" or ‘what's local’
-Inquiring about the carbon footprint of Icelandic haddock vs. local haddock.”

“‘Are these steamers local?’ No ma'am, they come from Maine. It is illegal to sell steamers harvested in NH.”

“They are asking more often all the time
Where caught?
Wild or Farmed?
Any chemicals added?”

“Where fish is from, farm raised or from china.”

“date/ where it came from pric” [sic]

“The biggest concern jis wild vs. farmed Salmon. Customers want to know if Farmed Salmon is as good for them as wild.” [sic]

“‘Whats better Farm raised or Wild?’ ‘I've heard that wild is better from you’-the salmon from canada that we carry (farm) is Raised in the 'Bay of Funday' 3rd fasted current in the world which is a constant water flow meaning all fish waste is washed away twice a day which is better than most others.” [sic]

“Mostly the main questions we get are farm raised as apposed to wild caught. Is farm raised fish bad for me?” [sic]

“Everybody looking for wild items instead farm raised” [sic]

“Farm raised- some customers don't like products from China.”
“People are mainly concerned about purchasing fish from China. Also customers are concerned that the only shrimp we sell, occasionally is Maine Shrimp. Otherwise most is from Thailand.”

“most customers prefer wild”

“Is this fish wild caught or farm-raised? Are there any anti-biotics or steroids in the farmed fish?”

“Is it from China- Farmed or Wild- has it been frozen.”

“is your salmon farm raised?”

“Where does it come from? Is it farm raised?”

“Are your shrimp farm raised?” often no rationale other than media influence. ‘Is your salmon wild or farm raised?’ Same thing, but with comments about fish overcrowding, not the actual health/ quality of product.”

“Most concern is about farm raised in general but [with] salmon don't want FR but have no clue that any wild salmon in the winter all have to have been frozen.”

“freshness”

“salmon always raises question- wild vs farmed”

“Is that farmed or fresh.”

“farm raised- wild- vhina- mercury- P.B.C.- fresh- frozen- local- red tide lobsters-softshell- hardshell- omega oils-“ [sic]

“Basically they'll ask... ’Is this local?’” [sic]

13. How familiar are you with consumer ‘seafood choice cards/ guides’?
Respondents: 33. Each Respondent could select ONE of the following options:

- Very familiar 8
- Somewhat familiar 8
- Neutral 9
- Somewhat un-familiar 4
- Very un-familiar 4

13A. Which seafood choice cards/ guides are you familiar with?
Respondents: 22. Each Respondent could select ALL THAT APPLY of the following options:

- Monterey Bay Aquarium: Seafood Watch Regional Seafood Guides 8
- Blue Ocean Institute: Guide to Ocean Friendly Seafood 8
- Environmental Defense: Oceans Alive Pocket Seafood Selector 4
- Other 11
Open ended responses (actual quotes):
[None/N/A] 6
"Ones that involved the Purdue University"
"company info"
"Guiding Stars"
"Grocery store description cards (nothing about sustainability)"

14. What are your opinions about seafood choice cards/guides in general?
Respondents: 29. Each Respondent could select only ONE of the following options:
   - Very favorable 5
   - Somewhat favorable 6
   - Neutral 15
   - Somewhat un-favorable 2
   - Very un-favorable 1

Open ended responses (additional comments-actual quotes): 9
"I think they are a great idea. Monterey Bay spooks the customers too much. I would give the customer a generalized information and let them make the decision."

"Always forget that I have it with me and it's another thing to carry around. I wished they were available where you actually purchase seafood. I.E. at a seafood counter at the supermarket."

"I question the use of mercury issues (scare tactics) to further their sustainability goals."

"Good idea, but the majority of customers don't care."

"There needs to be ONE guide. I feel the guides are very restrictive. Maine Lobster should absolutely be sustainable."

"They are very helpful."

"Let people/consumers know what is endangered etc."

"As a person with a science background, I feel that conservation and sustainability are important and that more should be done to educate consumers. However, I'm skeptical about how much it will cost to buy such products and whether people will take the extra time to investigate."

"Any 'props' to help sell product is welcomed!"

14A. What do you think are the main benefits of the guides?
Respondents: 25. Each Respondent could select ALL THAT APPLY of the following options:
   - Increased consumer awareness/understanding of seafood availability 21
   - Increased demand for sustainable seafood products 10
   - Increased ability to compare seafood products 13
Avenue for education about conservation in general 12
Other (please specify):
 “economic impact”  
 “most environmentalists don’t favor aquaculture- this bad publicity leads to a low demand”

14B. What do you think are the main drawbacks of the guides?
Respondents: 23. Each Respondent could select ALL THAT APPLY of the following options:

- Disagreement/ uncertainty about ratings designated by the guides 11
- Decreased demand for seafood products overall 8
- Time restraints in reading and understanding 7
- Guide recommendations that are too generalized 7
- Other (please specify- actual quotes): 7

“Telling them that they should not eat a certain product.”
“they don’t do enough to communicate the positive aspects”
“Downplays nutrition benefits”
“people don’t use them, Also supply...would never meet demand using these methods”
“Customers don’t trust the information presented to them.”
“not accurate info: agenda driven”
“pregnant women- read- doctors-“

15. How often do you see customers shopping with ‘seafood choice’ literature, cards, or guides?
Respondents: 31. Each Respondent could select only ONE of the following options:

- Often 1
- Occasionally 2
- Rarely 9
- Never 17
- Don’t know 2

15A. On a scale of 1-5, how influential do you think that seafood choice cards/literature is in helping customers to make decisions about which product(s) to purchase?
Respondents: 30. Each Respondent could select only ONE of the following options:

- Very influential 2
- Somewhat influential 7
- Neutral 8
- Somewhat un-influential 9
- Not at all influential 4

16. Indicate your knowledge about seafood eco-labeling (labeling regarding sustainability) programs in stores.
Respondents: 32. Each Respondent could select only ONE of the following options:

- Very well-informed 6
16A. What do you think are the main benefits of seafood eco-labeling programs in stores?
Respondents: 30. Each Respondent could select ALL THAT APPLY of the following options:
- Increased consumer awareness/understanding of seafood availability: 23
- Increased demand for sustainable seafood products: 7
- Increased ability to compare seafood products: 19
- Avenue for education about conservation in general: 15
- Other (please specify): 0

16B. What do you think are the main drawbacks?
Respondents: 30. Each Respondent could select ALL THAT APPLY of the following options:
- Disagreement/uncertainty about ratings designated by the guides: 13
- Decreased demand for seafood products overall: 7
- Time restraints in reading and understanding: 12
- Guide recommendations that are too generalized: 11
- Other (please specify):
  - “not enough positive communication”
  - “just one side of the story”
  - “none”

17. Who do you think would be the most reliable source of information regarding whether the seafood you sell is from a source that is managed sustainably?
Respondents: 28. Each Respondent could select ALL THAT APPLY of the following options:
- Academia: 6
- Company research and development: 9
- Customer comment and opinion: 3
- Government research: 6
- National Marine Fisheries Service: 18
- Non-governmental organizations, such as aquariums: 6
- Other (please specify- actual quotes):
  - “University research, extension programs”
  - “North Coast is honest, informed, and on the cutting edge as far as East Coast fishing goes”
  - “company research=biased!!! Customer opinion= lots of ‘wives tales' and misinformation”
18. Rate your willingness to implement a seafood eco-labeling system in your store:
Respondents: 30. Each Respondent could select only ONE of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very willing</td>
<td>4</td>
</tr>
<tr>
<td>Somewhat willing</td>
<td>10</td>
</tr>
<tr>
<td>Neutral</td>
<td>7</td>
</tr>
<tr>
<td>Somewhat un-willing</td>
<td>2</td>
</tr>
<tr>
<td>Very un-willing</td>
<td>3</td>
</tr>
<tr>
<td>Not familiar enough...to make informed decision</td>
<td>4</td>
</tr>
</tbody>
</table>

18A. If you already use a seafood eco-labeling system, specify what type and describe:
Respondents: 11. Open ended (actual quotes):
NA/none 6

- “we have country of origin labeling and label whether or not wild/farmed on everything. Not sure if that’s what you’re talking about.”
- “FishWise”
- “We save all tags of all seafood and put the country of origin on the signs.”
- “Use the small signs with the prices right on them”
- “we don't offer products that are considered "Eco-sustainable," unless you consider farm-raised in this category.”

18B. What type of system would you prefer?
Respondents: 27. Each Respondent could select ALL THAT APPLY of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Stewardship Council certification, or similar labeling on food wrapping</td>
<td>6</td>
</tr>
<tr>
<td>Small placard signs for each type of seafood (such as those by FishWise or similar consultancy programs)</td>
<td>14</td>
</tr>
<tr>
<td>Large signs or grids</td>
<td>2</td>
</tr>
<tr>
<td>Informational literature (such as brochures) available at point of sale</td>
<td>16</td>
</tr>
<tr>
<td>Video or audio display at point of sale</td>
<td>6</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>3</td>
</tr>
<tr>
<td>“too much over load; people can find out on their own”</td>
<td></td>
</tr>
<tr>
<td>“n/a”</td>
<td></td>
</tr>
<tr>
<td>“conservation with consumers”</td>
<td></td>
</tr>
</tbody>
</table>
19. **What are/would be barriers or hesitations of implementing a seafood labeling system?**

<table>
<thead>
<tr>
<th>Each Respondent could select only ONE option for each row:</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents: 29 Suspicious about the criteria used to designate sustainability ratings</td>
<td>6</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 27 Apprehension regarding initial implementation process</td>
<td>3</td>
<td>11</td>
<td>9</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 28 Fear of reduced sales/profits</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 27 Impacts on sales of other products</td>
<td>1</td>
<td>15</td>
<td>8</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 27 Marketing flexibility would be compromised</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 27 Continuity of supply from sustainably managed sources</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 28 Reluctance to discontinue any products or label as 'unsustainable'</td>
<td>7</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 27 Lack of demand for sustainable products</td>
<td>3</td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 28 Consumers may be confused by the labeling</td>
<td>5</td>
<td>14</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Respondents: 3 Other (please specify): “Consumers may think that anything not labeled as ‘sustainable’ is absolutely not to be purchased. This would rule out whole classes of seafood.”</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respondents: 1 Other (please specify): “price of eco-sustainable seafood”</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
20. Do you see any potential positive aspects that could benefit your store by implementing a seafood eco-labeling system?

Respondents: 25. Each Respondent could select ONE of the following options:

- Yes 
- No

Open ended responses (actual quotes): 18

"Again it goes back to educating the consumer. Most unsustainable items are such because of consumer demand. If they are more educated in a more sustainable fish, they would be more likely to buy it."

"Those people who really care about what they're eating will be happy. Those who prefer organics etc."

"Providing info that allows consumer to make an educated purchasing decision."

"Green Image"

"Educating customers about sustainable fishing and preserving the environment will pay off in the long run."

"An educated customer is a better customer."

"Customer knowledge"

"n/a"

"Customers are eager to learn more about fish. They want to eat it, but on the whole, most are very uninformed."

"Our entire company would have to introduce the eco-sustainable program, which is currently 160 stores."

"More informed consumer"

"The "aware" customers would definitely buy sustainable products. Customers that are taught about sustainable fish would lean more towards buying it."

"People don't seem to care much about sustainability."

"People need to be more educated. They think they know but have often incorrect information"

"Price might be too high"

"too cumbersome in general"

"happy customers"
“In a highly educated customer group, this program would ROCK! I just don’t want [too throw] sp? out unsustainable as of today”

21. What would you change about labeling systems/programs? (For example, would a broader range of sustainability levels be more appealing than narrow categories?)
Respondents: 16. Open ended answers, grouped:
[Want broader range of sustainability levels] 6

22. What difficulties do you/would you need help with?
Respondents: 12. Open ended answers, (actual quotes):

“implementing the program and educating the retail workers to speak to the customers with confidence about the program.”

“sourcing of sustainable products and peer review/vetting of all the various (and growing) number of ‘certifications’ and ‘certifiers’.”

“educating consumers”

“Educating employees and customers.”

“n/a”

“Information would need to be provided to employees, as most do not know literally anything about fish.”

“Understanding how ‘eco-sustainable’ seafood fits into the entire seafood business model.”

“Most people lack the patience or willingness to think very hard about their seafood in this area.”

“On a personal level it all has to come thru our corporate office.”

“Knowledge of ecolabeling + sustainable seafood”

“increased [ ] dealing with signs lessens productivity”

“Training my staff
[Accessibility]sp? of product
Realizing that I’m not going to lose sales and profits to accomodate this program” [sic]
23. Which of the following would be effective incentives to implement a labeling program?

Respondents: 26. Each Respondent could select ALL THAT APPLY of the following options:

- Free materials 20
- Free support 14
- Employee training 20
- Broader advertising re: sustainable seafood to increase consumer awareness 13
- Price premium for products 10
- Consumer demand 13
- Other (please specify) 2
  - “support, fee or not.”
  - “free materials with volunteer labor”

24. Please share any additional comments, concerns, or advice you have:

Respondents: 14 Open ended answers (actual quotes):

- “Would love to learn more about your work and give you a tour of our stores so you can see our work in action. I and my two seafood dept managers attended the UNH CE Seafood - Exploring Benefits and Risks, last November - I was very "impressed with the research being conducted there. Also, my seafood depts will be featured in a Greenpeace review as an example of how a sustainability program can work in a retail environment - a direct response to the Seafoodnews.com editorial by John Sackton of 6/17/08.” [sic]

- “Everything needs to be kept EASY TO UNDERSTAND from a consumer's point of view. NMFS should be the only one to say what qualifies sustainability and also which species are over-fished, good/ bad fishing methods, etc.” [sic]

- “The more information that is available, the more confused my customers are. Please leave well enough alone!”

- “I do not make the choices with in our company.”

- “I work for a nationwide chain- we have no control over labelling decisions.”

- “My actions are subject to the corporate decisions. What I personally would do and what my company decides for the good of the corporation are 2 different items.” [sic]

- “The seafood business is tough enough without having more systems/programs forced upon us.”

- “increasing consumer awareness is key.”

- “This survey took longer than 20 min to complete!”

- “Willing but not up to me. At our particular store, we do not have a full seafood department. We carry 4-5 fish rotating in a limited capacity. See 137 pages of...
5 fin fish and many prepared items in a 4-foot section of space. Our frozen section is 80% shrimp with various sizes. The other 20% percent is prepared seafood."

"too much info: this generation could care less"

"Too many added requirement or retailers"

"Already have product price country of origin"

"My words:
People ask me it it is farmed raised
Yes!
So is your- coffee- chichen- veg- turkey- rice- pasta- chips- steak- burger-
corn- the cloths that you have on.
They have no response
So is your bathroom paper!!
-Farm raised fish-!!
-keep water clean-

P.S. I love the ocean- sea life
Keep up the good work"

25. Please describe the clientele who shop at your store (from what you know, or your best estimate):

A. Proportions of patrons, by age bracket:
Respondents: 33

<table>
<thead>
<tr>
<th>Age Bracket</th>
<th>Minimum</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under age 20</td>
<td>0</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Between age 20-30</td>
<td>0</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>Between age 30-45</td>
<td>0</td>
<td>27</td>
<td>100</td>
</tr>
<tr>
<td>Between age 45-60</td>
<td>0</td>
<td>28</td>
<td>70</td>
</tr>
<tr>
<td>Over age 60</td>
<td>0</td>
<td>14</td>
<td>40</td>
</tr>
</tbody>
</table>
B. Proportions of patrons, by annual income bracket:
Respondents: 33

<table>
<thead>
<tr>
<th>Income Bracket</th>
<th>Minimum</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 19,999</td>
<td>0</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>$20,000- $39,999</td>
<td>0</td>
<td>21</td>
<td>100</td>
</tr>
<tr>
<td>$40,000-$59,999</td>
<td>0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>$60,000-$89,999</td>
<td>0</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Over $90,000</td>
<td>0</td>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

C: Which describes typical patrons most important criteria for selecting a seafood product?
Respondents: 31. Each Respondent could select ONE of the following options:
   - Price most important: 1
   - Price somewhat more important: 4
   - Price and quality equally important: 17
   - Quality somewhat more important: 4
   - Quality most important: 5

D. Which describes typical patron’s concern for the environment/sustainability?
Respondents: 31. Each Respondent could select ONE of the following options:
   - Very concerned: 0
   - Somewhat concerned: 14
   - Neutral: 7
   - Somewhat un-concerned: 6
   - Very un-concerned: 1
   - Do not know: 3