

Aquaculture Marketing Survey

**Consumers, Retail Stores,
and Food Service
in New York and New Jersey**

**Ken Gall and
Linda O'Dierno**

Funded by the Northeast
Regional Aquaculture Center



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New York Sea Grant

Funded by the Northeast Regional
Aquaculture Center

In Cooperation with the United States
Department of Agriculture, Office of Agriculture



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INTRODUCTION

Although consumers have generally positive attitudes toward seafood, its consumption in the United States has been static for the past fifty years. Per capita consumption levels have remained essentially unchanged for the past several years, at a level lower than the record high of 16.1 pounds recorded in 1987. According to National Marine Fisheries Service data, the average American consumed only 15.0 pounds of fish and shellfish in 1993. Of that total, 3.5 pounds consisted of canned tuna, 2.5 pounds was shrimp, fish fillets and steaks comprised 2.9 pounds of this total, and 1.0 pound was fish sticks and portions. The ten top selling seafood products were tuna, shrimp, Alaskan pollock (used as a principal ingredient in surimi-based products such as imitation crab meat), cod, salmon, catfish, flatfish, clams, crabs, and scallops. These ten products represented 81% of all seafood consumed in the U.S. (*Fisheries of the United States, 1993*). The National Marine Fisheries Service also estimates that approximately 50-60% of all seafood consumed in the United States is imported. The trade deficit in fishery products through the ports of New York and New Jersey alone was approximately \$460 million in 1993 (*Via International, July 1994*). According to National Marine Fisheries Service Statistics, the total US trade deficit in edible fishery products in the U.S. for the same period was \$2.7 billion. (*Fisheries of the United States, 1993*).

Fish and shellfish account for less than 8% of the total for all high protein animal foods consumed in the United States. According to recent USDA Food Consumption and Expenditures information, each American consumed on average, 64 pounds of beef, 47 pounds of pork, 43 pounds of chicken, 14 pounds of turkey, and about one pound each of lamb and veal, as compared to 14.9 pounds of seafood in 1991.

It has been estimated that consumers in the United States annually spend \$318 billion for food in retail stores and another \$242 billion for meals in food service establishments. The U.S. Department of Commerce has estimated that seafood's share of this total is \$10.6 billion at retail or approximately 3% of the total, and \$24 billion in food service or approximately 10% of the total (*National Fisheries Institute Discussion Paper on National Seafood Marketing, Promotion and Advertising, 1993*). These figures are consistent with estimates that U.S. consumers generally eat at least twice as much seafood away from home at restaurants or other food service establishments as they do at home. A number of reasons have been identified to explain why seafood is consumed more often away from home. Many consumers tend to be less familiar with seafood and have less confidence in their skills and ability to select, handle, store, and prepare it properly, and prefer to have someone else prepare it for them. Consumers also worry about odors in the home. Another important factor relates to households in which one or more family members do not like seafood. In this situation, those family members who like seafood consume it more frequently in restaurants or other food service establishments where each family member can select their own entree.

There are also regional differences in seafood consumption patterns and household seafood expenditures. In general, it has been estimated that seafood consumption is highest in the Northeast and Mid-Atlantic states. According to U.S. Department of Labor statistics, the Northeast had the highest average annual household expenditures for seafood consumed at home, \$105 per household. On a national city by city basis, Honolulu had the highest spending level for seafood consumed at

home at \$254, New York City was second at \$143, Baltimore \$140, Washington D.C. \$115, Philadelphia \$93 and Boston \$77. The national average household expenditure for seafood consumed at home in 1991 was \$82. (*1993 Annual Report on the U.S. Seafood Industry, H.M. Johnson and Associates*).

Currently the U.S. seafood industry, including the aquaculture sector, is faced with a number of challenges including: increasing market share for seafood relative to other meat or animal protein foods; recapturing domestic markets for seafood products that have been displaced by less expensive imports, and expanding export market share. Although some consumers had positive perceptions of aquacultured products, there is little marketplace differentiation, and the results of this consumer study indicate that many consumers are not familiar with aquaculture and cultured products. Aquacultured or farm-raised products are often co-mingled with the wild-caught harvest, and many are sold generically without labelling. In the past, many marketers have assumed that aquaculture raised product could command a higher price. However, with little differentiation in the marketplace and a lack of consumer awareness, this may not hold true. To enjoy a larger market share, aquaculturists may need to consider launching a major educational effort to help both the industry and consumers better understand their products.

Declining wild fishery resources and the reduction of the annual world catch per unit effort, combined with population increases, over-fishing of selected species, and concerns about environmental pollution and the safety of the harvest, have resulted in a groundswell of interest in aquaculture worldwide. Based on current population projections and consistent consumption patterns, it is estimated that worldwide seafood consumption will increase from 95.6 million metric tons in 1990 to 162 million metric tons by the year 2025 (*Joint Subcommittee on Aquaculture, June 1993*). Currently aquaculture operations account for approximately 16% of the fish and shellfish consumed in the United States (*Fisheries of the United States, 1993*). The bulk of that product is imported, and the domestic aquaculture industry must make a major effort to capture and expand the market.

According to United States Department of Agriculture figures, aquaculture is the fastest growing agricultural industry in the country. The Northeast Regional Aquaculture Center (NRAC) estimates the total 1992 farm gate value of aquacultured products in the Northeastern United States to be approximately \$146 million. Salmon and oyster production predominates in both value and volume within the region. Other important species include trout, hybrid striped bass, tilapia, catfish, clams, mussels and scallops. (*Northeast Regional Aquaculture Center Industry Situation and Outlook Report, 1993*).

One of the most serious constraints to economic success is keen competition from developing nations where products are produced at a low cost and high volume often with substantial government subsidies, and therapeutics that cannot be used in the United States. Although some argue that proximity to markets can make local product more attractive, the cost of transportation can be minimal when contrasted with higher production costs in the Northeast. Niche markets such as very high-end restaurants and ethnic markets that purchase live fish offer a good price structure. However, these markets are finite and often transient. Buyers are often willing to switch suppliers based on lower price offers. Large scale aquaculture operations require a much broader market base.

Several aquaculture species produced in the United States, such as catfish and salmon, have been susceptible to market gluts which have resulted in sharp downturns in price. This has created markets

that are supply-driven rather than demand-driven. According to USDA figures, farmed catfish prices fell 22% between 1991 and 1992 to just under 60 cents a pound which is the lowest annual average since 1982. Salmon farmers are facing increasing competition from Chile and Canada while Norwegian production had declined. Market prices for fresh Atlantic salmon have shown a general decline over the past four years. Average prices were between \$3.00 and \$3.50 per pound in 1992. (*Aquaculture: Situation & Outlook Report, March 1993, USDA, ERS.*) During the same year, farm gate salmon prices quoted by producers in the Northeast ranged from \$2.15 to \$3.60 per pound for dressed, head-on fish. The weighted average price was \$3.16. (*Aquaculture: Situation & Outlook Report, March 1993, USDA, ERS.*)

U.S. producers must comply with stringent environmental regulations, and use of therapeutic drugs is heavily restricted. These same regulations with their associated costs are often not imposed on growers in other production areas. Because the proposed Food and Drug Administration's Hazard Analysis Critical Control Point (HACCP) based seafood inspection program will place an equal burden on importers, domestic aquaculturists may, for the first time in years, enjoy the benefits of a more level regulatory playing field which may create a marketable moment for domestic production.

The main focus of this study was to compile both quantitative and qualitative data that could be used to develop a profile of major aquaculture market segments including food service operators, retailers, and consumers. These profiles can be invaluable in developing effective market strategies to better position aquacultured products in the marketplace. A secondary focus was the identification of value-added products which can generate greater returns to both the overall economy and the individual aquaculturist. On a world-wide basis, there is a growing market trend toward these value-added products. An added benefit of further processing is the opportunity to develop new products such as fish cakes and chowders from the by-products of the primary processing operation. Such waste-stream recovery operations can assist in stabilizing prices and developing a spectrum of products that appeal to a broader range of consumers.

Many American consumers more readily accept new species if they are presented in a processed form. However, American aquaculturists often do not have the volume to justify processing and packaging. This places them at a competitive disadvantage. One mechanism to overcome these constraints is the formation of processing cooperatives. A cooperative structure can also assist in reducing production costs if it is also designed to operate a feed mill or to purchase bulk quantities of feed and supplies.

GOALS AND PROJECT INTENT

The goal of this project was to compile information on consumers, retailers and food service businesses in the largest market in the Northeast, the New York and New Jersey areas surrounding New York City. The project's intent was to obtain information that would help aquaculture producers: 1) better understand the purchasing practices of consumers, retailers and food service businesses and 2) understand their attitudes and perceptions about seafood in general and aquaculture produced products in particular. This information could then be used to assist aquaculturists in identifying appropriate marketing and merchandizing strategies to better position their products in this important marketplace.

METHODOLOGY

The methodology employed was a combination of quantitative and qualitative data collection. The quantitative portion of the project consisted of three separate surveys: 1) consumers, 2) retail operations (both independent seafood markets and supermarket chain stores), and 3) food service operators (both restaurants and institutional feeding programs). A major goal was to examine perceptions of farm-raised fish and shellfish and to develop correlations among all three sectors. In each of the surveys, attempts were made to 1) identify the most promising markets, 2) identify the most desirable product forms, 3) evaluate end-users perceptions, and 4) identify the product attributes that can be used to improve the market position of aquacultured products.

The nature of the data collection methods precluded individual clarification of questions which resulted in some level of discrepancy among answers. Questions were subject to the individual respondent's interpretation. In order to more clearly characterize the responses to the questions raised by the initial survey instrument, several consumer focus groups were convened. These focus group discussions provided the opportunity to better understand and describe the results obtained in the quantitative portion of the study.

The data gathered on consumers, retailers, and food service businesses in the New York and New Jersey area is summarized in each of the following sections of this report. Marketing opportunity suggestions are included at the end of each of these sections. A copy of the actual survey instruments used to gather this data can be found in the Appendix.

The project investigators were Linda O'Dierno, Coordinator of Fish and Seafood Development for the New Jersey Department of Agriculture and Ken Gall, Seafood Specialist with Cornell University's New York Sea Grant Extension Program. Funding support for this project was provided by the Northeast Regional Aquaculture Center as part of a regional study to examine "Alternative Marketing Options to Improve Profitability of the Northeast Aquaculture Industry", Grant Number 91-38500-5908. Data Analysis was provided by the New Jersey Agricultural Statistics Service. Editorial assistance was provided by Ms. Kim Kosko, New Jersey Sea Grant, and publication design and layout was coordinated by Sharon O'Donovan, New York Sea Grant Institute.

MARKET SURVEY
of
CONSUMERS
in
NEW YORK AND NEW JERSEY

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CONSUMER SURVEY

PURPOSE AND METHODS

Effective marketing strategies can be developed to better position fish and shellfish products in the marketplace when marketers have an understanding of: 1) which attributes of seafood and aquaculture produced products are important to consumers; 2) the mechanisms or factors that consumers use to decide to purchase seafood; 3) what products they purchase and how they are used; and 4) where they purchase or consume seafood. This information can be used to develop basic market penetration strategies that are designed to: 1) convince current seafood consumers to purchase more often; 2) attract consumers who normally chose meats and poultry products as their primary protein source to choose seafood more often; and 3) convince non-seafood eaters to begin purchasing seafood. Each of these alternatives requires that the successful marketer understand how consumers view today's seafood choices. This study was undertaken to gain a better understanding of how and where consumers in the New York and New Jersey area purchase seafood, their buying practices, and some attitudes and perceptions about seafood and aquaculture produced products.

Consumers were asked to complete a survey questionnaire at a number of public events in New York and New Jersey during 1993. Consumers who visited exhibits or displays staffed by the project investigators or their associates were invited to complete a survey questionnaire. Survey data was primarily collected at events that attract a broad range of individuals. Some of these events included the Somers Point New Jersey Bayfest, the Hempstead (Long Island) Festival by the Sea, and the Oyster Bay (Long Island) Festival. Survey information was also gathered at public facilities in the region. By collecting survey information at public events and facilities rather than in retail stores it was felt that the sample would not be prejudiced toward frequent seafood consumers and would be more representative of typical consumers in the area. There was no effort to determine whether or not the individuals asked to complete a survey were seafood consumers. Seven hundred and sixty (760) individuals completed the survey questionnaire, and many received a seafood cook booklet for their effort.

Because some clear distinctions emerged between coastal and non-coastal users and some questions required further refinement, two consumer focus groups were convened. One of the groups met in Albany, New York and the second group met in Toms River, New Jersey. Focus group questions were developed to gather qualitative data to assist with the interpretation of the quantitative data obtained from the survey questionnaires. The qualitative information provided a better understanding of how consumers make their purchase decision, their general knowledge or level of understanding about seafood, what strategies could be employed to convince them to purchase more seafood especially farm-raised products, and to identify potential opportunities for producing value-added products that would appeal to consumers in this area.

SURVEY RESPONDENT PROFILE

The survey questionnaire asked respondents to provide some information that would help to make distinctions between various groups of consumers. The questionnaire asked consumers to indicate

their sex, their age (possible choices included: 18-24, 25-34, 35-44, 45-49, 50-54, 55-64, 65 and over), and their total household income (possible choices include: under \$30,000; \$30,000 to \$40,000; \$40,000 to \$50,000; \$50,000 to \$75,000; \$75,000 to \$99,000; \$100,000 and above). An attempt was also made to track the state where survey respondents lived.

Of all the consumers who completed a survey questionnaire, 389 (51%) were from New York, 301 (40%) were from New Jersey, and 70 (9%) were unknown or from another state in the surrounding region. Two hundred and fifty-six (34%) of the survey respondents were male, 444 (58%) were female, and the gender of 60 (8%) of the survey respondents was unknown. Tables 1 and 2 summarize the age and income distribution of those who completed a survey questionnaire.

TABLE 1. AGE DISTRIBUTION OF CONSUMER SURVEY RESPONDENTS

18-24	25-34	35-44	45-49	50-54	55-64	65 & >	Unknown
34(5%)	78(10%)	145(19%)	105(14%)	211(28%)	47(6%)	94(12%)	46(6%)

TABLE 2. INCOME DISTRIBUTION OF CONSUMER SURVEY RESPONDENTS

<\$30 K	\$30- 40K	\$40- 50K	\$50- 75K	\$75- 100K	>\$100 K	Unknown
92(12%)	156(20%)	129(17%)	93(12%)	127(17%)	81(11%)	82(11%)

SEAFOOD SPECIES PURCHASED MOST FREQUENTLY

Consumers were asked to: "List the five seafood products that they purchase most often". This was essentially a recall question and consumers were prompted to include both finfish and shellfish in their list. No species lists or other prompts were used because it was felt that such a list could bias or influence the responses.

TABLE 3. SEAFOOD PRODUCTS PURCHASED MOST OFTEN BY NEW YORK AND NEW JERSEY CONSUMER SURVEY RESPONDENTS

SPECIES	# Of Consumers Who Included Each Species in Their List	% of Consumers Who Included Each Species in Their List
SHRIMP	563	74%
FLOUNDER	305	40%
CLAMS	247	32%
TUNA	221	29%
SCALLOPS	219	29%
LOBSTER	219	29%
SALMON	208	27%
CRAB	169	22%
COD*	160	21%
SWORDFISH	110	14%

**The sum of the survey responses that indicated "cod" (112) and "scrod" (48).
The total number of survey responses was 760.*

**CONSUMER SURVEY RESPONSES FOR
OTHER AQUACULTURE PRODUCTS**

SPECIES	# of Consumers Who Included Each Species in Their List	% of Consumers Who Included Each Species in Their List
MUSSELS	57	8%
CATFISH	42	6%
OYSTERS	35	5%
TROUT	24	3%
STRIPED BASS	3	0.4%
TILAPIA	1	0.1%

Based on these survey results, it is apparent that most consumers regularly purchase only a few types of seafood. After the first ten choices, the frequency with which any other species was included in consumer's list of seafood items purchased drops drastically. Half of the ten most frequently identified species were shellfish and half were finfish. Shrimp is clearly the most widely consumed seafood product in this area, and was identified by almost three fourths of those surveyed. Other shellfish species identified as being purchased most often by New York and New Jersey consumers were clams, scallops, lobster, and crab. Flounder was the leading finfish species, and was included in 40% of the consumer's lists of their most frequently purchased items. Other important finfish species included tuna, salmon, cod, and swordfish.

The data collected in the New York and New Jersey area closely mirrors the national seafood consumption data (see Introduction for a list of the Top 10 species consumed nationally in 1993). Because many consumers do not include canned tuna in the same category with other traditional seafood products, the true frequency of tuna consumption is probably higher than indicated by the respondents. No attempt was made in this survey to differentiate between canned and fresh tuna. One pronounced difference from the national consumption data is the absence of catfish from the list of top ten sellers. During the focus group discussions, one consumer mentioned that she originally purchased catfish because of the low price and availability of recipe information, and is now purchasing it routinely. This would indicate that there is an extensive elastic demand and an opportunity to introduce new products into the marketplace. Both wild and aquaculture produced products such as catfish, trout, clams, oysters, mussels, tilapia, and hybrid striped bass could be effectively marketed with careful positioning in appropriate markets. To accomplish this, strategies that would make these products “consumer friendly”, and a consumer-acceptable price structure would have to be developed.

Shrimp and salmon were two other aquaculture products frequently identified in this survey. The impressive increases in sales for both shrimp and salmon can be attributed at least in part to the increased availability of these products because of extensive worldwide aquaculture operations. This increased supply has resulted in a price decrease in both products which has made them more accessible to the consumer. Aquaculture production has also resulted in a more consistent year-round supply of product. Consumers can develop a habit of buying the same seafood product year-round without being subject to seasonal availability and drastic price variations. Although clams, another frequently purchased product, are aquaculture raised in the Northeast, the majority of the product in the marketplace is harvested wild.

In order to develop some understanding of the differences between inland and coastal markets, a number of survey questionnaires were distributed in Albany, New York. Seafood consumption patterns in this area are believed to be similar to those of New England. Much of the local seafood supply, primarily typical New England ground fish like cod and haddock, is delivered by truck via Boston/Buffalo common carriers. Based on limited data and the focus group discussions, it appeared that seafood consumption in Albany was considerably lower than in coastal areas of New York and New Jersey. This could be attributed in part to anecdotal evidence of the limited variety and the variable quality of available retail products.

During the focus group sessions, consumers who lived in coastal areas were somewhat eclectic in their seafood choices. These discussions also revealed both positive and negative childhood memories about seafood. One consumer described consuming kippers for breakfast when growing up in Indiana. The older group members had more memories of eating fish when they were growing up. Many of these meals were traditional Friday meatless dinners. One woman recalled having fish and chips every Friday and enjoying the left-overs at breakfast on Saturday. Another explained her husband shunned seafood because of prior memories of eating cod cakes every Friday. He was amazed that his wife was able to prepare seafood in a variety of different ways. These comments reveal the impact that prior experiences have on purchase decisions and consumption.

The non-coastal group was much more conservative in its seafood choices. Shrimp and scallops were repeatedly mentioned as primary seafood choices for home consumption. This group was

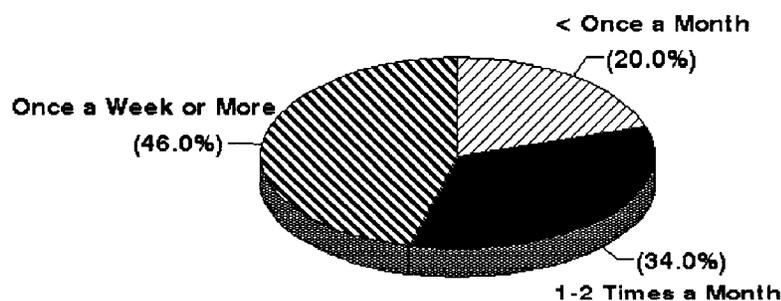
more prone to broaden their seafood experience and sample new products while on vacation. Vacation meals were generally eaten in restaurants, but there was usually no reported attempt to prepare the same dish at home. Consumers from coastal areas were also more adventurous while on vacation. One woman described a memorable seafood platter complete with oysters, sea urchins and sea cucumbers that she had eaten on a visit to Mont St. Michel.

During the focus groups discussions, consumers were asked whether the children in their homes ate seafood. In the non-coastal group discussion, several consumers indicated that they prepared fish sticks for their children when seafood was being served. The coastal consumers reported that they simply fed the children the same meal being served to the rest of the family. Almost unanimously, children in the family had a very positive perception about lobster. This can possibly be traced to adult attitudes about lobster being a luxury item for special occasions. Many American children do not grow-up eating seafood as a regular part of the diet. At the present time, there are no baby or junior food products that contain seafood, but in Europe there are at least two companies that produce baby foods that include seafood. Based on these comments it is evident that personal experiences especially those that occur during adolescence and the early adult years have a significant impact on lifetime consumption of seafood.

FREQUENCY OF SEAFOOD PURCHASES FOR HOME CONSUMPTION

When the survey participants were asked how often they prepared seafood at home, 46% of those surveyed could be considered heavy or frequent consumers of seafood who indicated that they purchased seafood and prepared it at home at least once a week. Thirty-four percent (34%) were occasional users, indicating that they purchased seafood for home preparation once or twice a month. About one fifth or 20% of those surveyed indicated that they only purchased seafood to be prepared at home less than once a month. There were no significant differences in consumption patterns for consumers in the downstate (New York City metro area) region of New York and New Jersey, but consumers from non-coastal areas in upstate New York tended to be less frequent consumers of seafood.

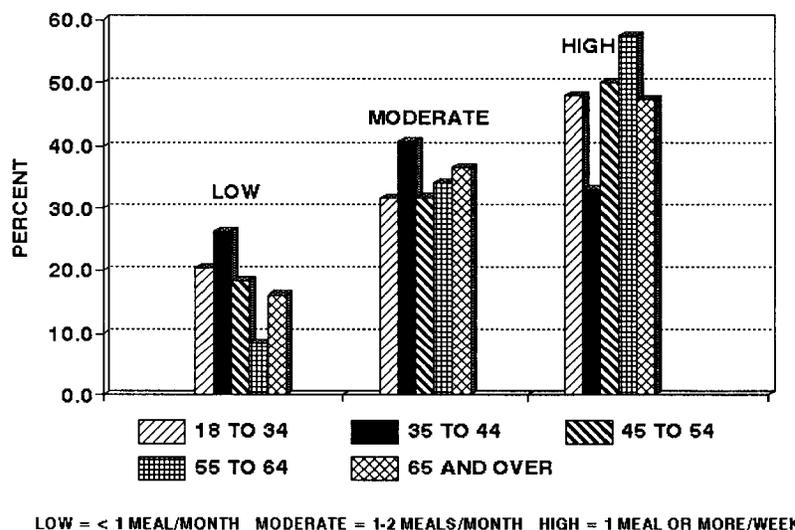
Figure 1. Frequency of New York and New Jersey Consumer Seafood Purchases for Home Consumption



TOTAL NUMBER OF RESPONSES = 744

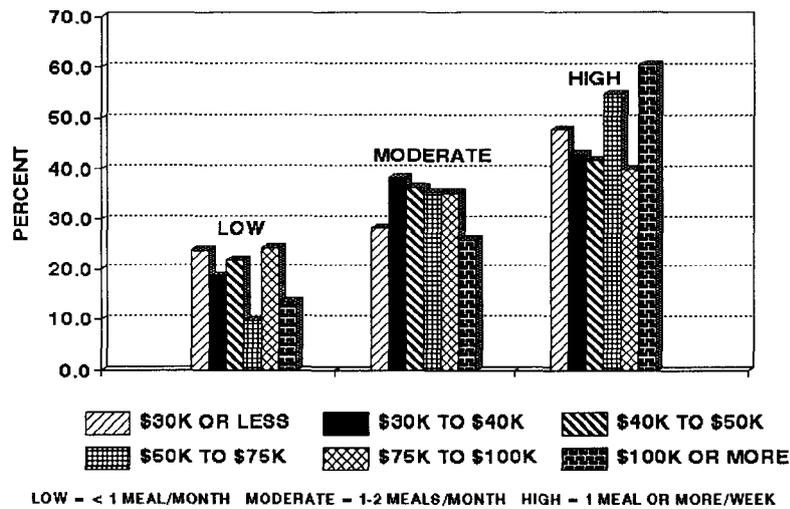
No significant differences were observed between male and female survey respondents in terms of how often they purchase seafood for home consumption. Survey responses were also analyzed to compare frequency of home consumption to age. Consumers in the 55 to 64 year old group could be generally characterized as the most frequent consumers of seafood, and those in the 35 to 44 year old group generally tended to consume less seafood than those in the other age groups. These differences, however, were not striking, and each age group was fairly evenly represented in each of the three consumption categories: low or less than one meal per month, moderate or 1 to 2 meals per month, and high or 1 meal or more per week. It was encouraging to note that a significant portion of those consumers in the 18 to 34 year old group were frequent seafood consumers (1 or more meals per week). These younger consumers as well as those in the 55 to 64 years old group may be more aware of and/or concerned about the relationships between diet and health, and the positive role that seafood can play in a healthy diet. It was also interesting to note that consumers 35 to 44 years old were least likely to eat seafood once a week or more. This and the observed decrease in the number of frequent seafood users 65 years old and over may be related to the amount of discretionary income available for food purchases during these periods of life.

Figure 2. Frequency of Home Seafood Consumption Compared to Various Consumer Age Groups



When income levels were considered, those consumers with the highest income level, greater than \$100,000, reported purchasing seafood for home preparation most frequently. Sixty percent (60%) of these consumers reported eating seafood at home once or more per week. This would be expected when you consider the higher average price of most seafood choices and the likelihood that consumers in this high income range have the most discretionary income for food. Consumers with an average household income of \$50,000 to \$75,000 and less than \$30,000 were also more likely to consume seafood at least once a week or more. This would seem to indicate that there are other strong motivations to consume seafood despite its higher price, and opportunities exist to increase seafood sales with products in the moderate to low price ranges. The consumer focus group discussions revealed that consumers are concerned about the cost of seafood products, and many consumers reported that they would purchase more seafood if the price was more reasonable.

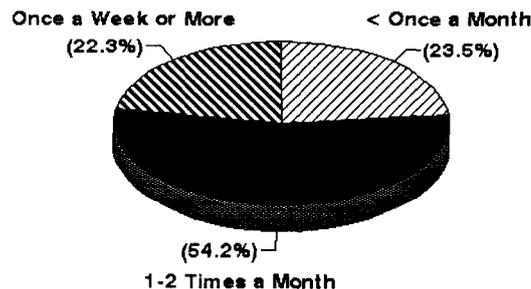
Figure 3. Frequency of Home Seafood Consumption Compared to Various Consumer Household Income Levels



FREQUENCY OF SEAFOOD CONSUMPTION IN RESTAURANTS

It has been estimated that sixty to seventy percent of all seafood is consumed away from the home in either restaurants or other food service facilities (see Introduction). No attempt was made to try to determine the total amount of seafood eaten away from home compared to the amount eaten at home. However, consumers were asked to report how often seafood was ordered in a restaurant in an attempt to relate the frequency of seafood consumption to the place where seafood was consumed. The largest portion (54%) of those surveyed were moderate consumers of seafood in restaurants and reported ordering seafood 1 to 2 times a month. Twenty two percent (22%) were frequent restaurant consumers and reported ordering seafood once a week or more. Twenty four percent (24%) were infrequent consumers of seafood in restaurants and reported ordering it less than once a month.

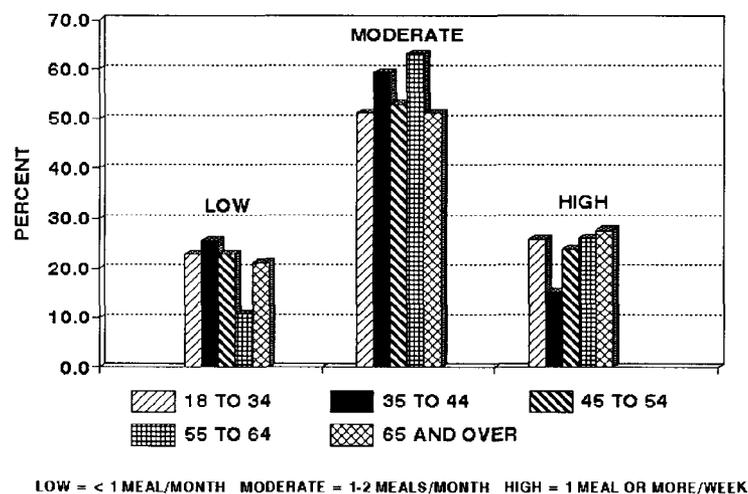
Figure 4. Frequency With Which New York and New Jersey Consumers Order Seafood in a Restaurant



TOTAL NUMBER OF RESPONSES = 744

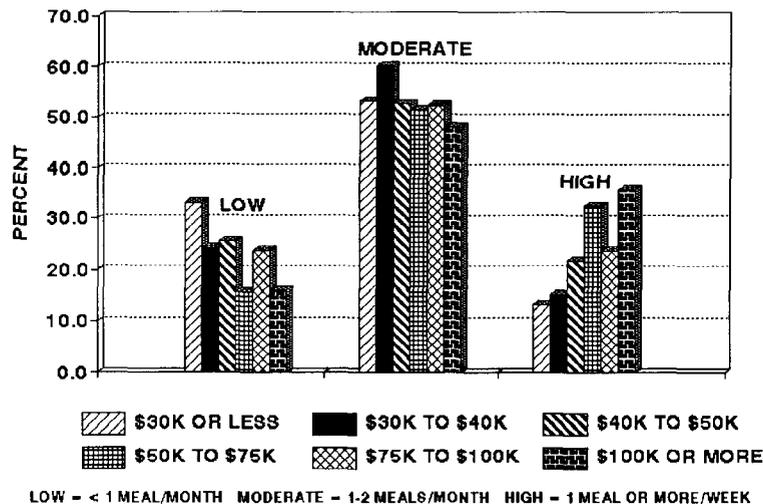
When the frequency of seafood consumption in restaurants was compared to the age of survey respondents the responses were very similar to those for at home seafood consumption. Overall, the majority of consumers in all age groups (51% to 63%) could be considered moderate consumers who order seafood in a restaurant one to two times per month. Approximately one fourth ordered seafood in a restaurant more than once a week and about another fourth less than once a month. Consumers in the 55 to 64 year old age group tended to order seafood most frequently in restaurants, and consumers in the 35 to 44 year old age group least frequently. Again younger consumers between the ages of 18 to 34 generally reported that they order seafood at least as often as consumers in most of the other age groups which would indicate that future seafood consumption trends are likely to be at least similar to current trends and there may be opportunities for increased consumption.

Figure 5. Frequency of Restaurant Seafood Consumption Compared to Various Consumer Age Groups



Restaurant consumption frequency was also similar to that of home consumption when compared to consumer's reported income levels. Overall, most consumers whose household income levels ranged from less than \$30,000 to greater than \$100,000 reported that they ordered seafood in a restaurant one to two times per month. The most obvious trend observed from these surveys was that the number of frequent consumers who ordered seafood once a week or more increased significantly as income level increased. This may be related to the fact that consumers with higher incomes eat in restaurants more often than those with a lower income, they have more discretionary money to spend while dining in a restaurant, and they may be more likely to order both moderately priced and expensive seafood items. In general those consumers with the lowest household income tended to order seafood less frequently, but a significant number of consumers in this income level did report ordering between 1 and 2 seafood meals per month. This may be an indication that seafood choices in lower and moderate price ranges are becoming more widely available at restaurants in the area.

Figure 6. Frequency of Restaurant Seafood Consumption Compared to Various Consumer Household Income Levels



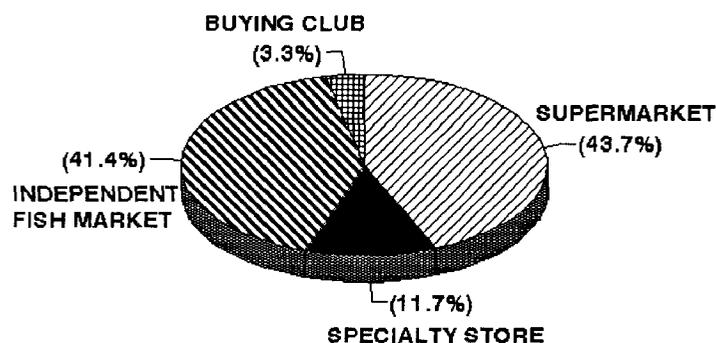
COMPARISON OF AT-HOME AND RESTAURANT SEAFOOD CONSUMPTION DATA

If we compare restaurant consumption data gathered in this survey to that for home consumption, 46% of those surveyed reported consuming seafood once per week or more at home while less than half as many (22%) reported ordering seafood once a week or more in restaurants. This difference is likely to be related to the overall cost of a seafood meal at home compared to a seafood meal in a restaurant. Those consumers who want to eat seafood more frequently are likely to spend less money eating seafood at home as compared to eating it in a restaurant. It is also interesting to note that the relative number of consumers who eat seafood infrequently or less than once a month is about the same for both home and restaurant consumption. These consumers are probably less likely to eat seafood because of personal tastes or preferences or past experiences regardless of the place. Participants in the focus groups indicated that they like to try new kinds of seafood in restaurants, but are often frustrated when they tried to find the same products in the retail store to re-create the dish and it was unavailable. Consumers from non-coastal areas generally reported lower restaurant consumption of seafood than those from coastal areas.

WHERE CONSUMERS PURCHASE SEAFOOD FOR HOME CONSUMPTION

To gain an understanding of where consumers purchase seafood for home consumption, survey respondents were asked to indicate the two locations where they usually purchased seafood products. This question was designed to focus on retail sales, and four choices were provided: supermarket, specialty store, buying club, and independent fish market. No attempt was made to define these retail outlets, and no attempt was made to identify what type of products (ie. fresh, frozen or prepared items) were being purchased. The frequency with which consumers checked each of these four retail outlets was measured.

Figure 7. Retail Outlets Where Consumers Purchase Seafood for Home Consumption in New York and New Jersey



TOTAL NUMBER OF RESPONSES = 725

Supermarkets (44%) and independent retailers (41%) were the primary types of retail outlets where New York and New Jersey consumers purchase seafood. Each of these types of stores had an almost equal share of the retail market. In the New York and New Jersey area there are still a large number of smaller independent neighborhood markets that sell a variety of food products from baked goods to meat and fish or seafood. In the seafood marketplace in the metropolitan New York City area, anecdotal evidence would seem to indicate that supermarkets are slowly increasing their market share, but neighborhood fish or seafood markets are likely to continue to be a major player in the retail market.

Specialty stores were identified by approximately 12% of those surveyed. Since no attempt was made to define “specialty store” it’s somewhat difficult to accurately characterize this type of retailer, but these stores are thought to be retailers that carry a variety of other food products in addition to seafood.

Buying clubs were identified by approximately 3% of the consumers in this area. The number of these wholesale/retail buying club outlets has increased significantly especially in suburban areas of New York and New Jersey over the past several years, and will likely gain a larger share of the market for bulk and frozen seafood products in these areas in the future. In the focus groups discussions, most consumers regarded buying clubs as providing an opportunity to purchase product at a lower price. Buying clubs were also identified as a preferred retail outlet for purchasing larger amounts of bulk items such as frozen shrimp.

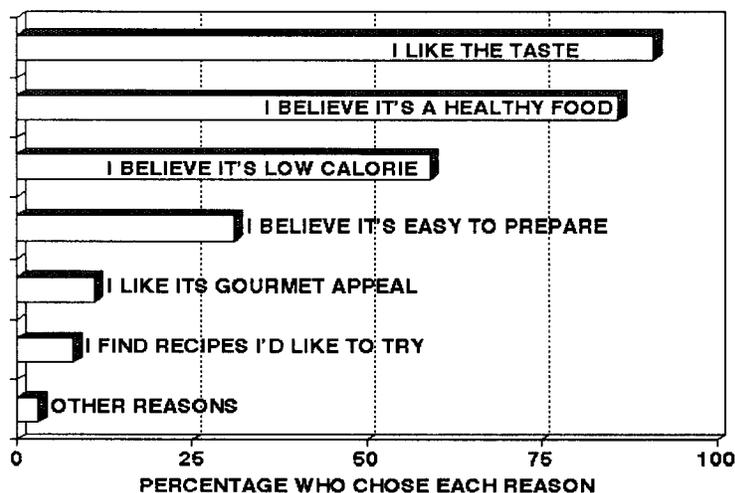
There were no observed differences between male and female consumers in terms of the retail outlets from which they purchased seafood. Supermarkets predominated as the first choice among consumers in the following age groups: 18-24, 35-44 and 50-54. Independent seafood markets predominated as the first choice for consumers in the following age groups 25-34, 45-49, 55-64 and over 65. Fifty-seven percent of the non-coastal consumers purchased their seafood at supermarkets as compared to the overall figure of 43.7% for all of the consumers surveyed.

During both the coastal and non-coastal focus group discussions, consumers were asked to rate the quality of the seafood available in supermarkets on a scale of 1-10, with 10 representing the highest quality. Most consumers rated quality between 6-8. In the non-coastal sample, consumers were reticent to return product when they were dissatisfied. One consumer indicated that she no longer shopped in the store where she purchased poor quality product. Several of the consumers in the coastal focus group had returned product. Overall most consumers who participated in the focus group discussions had the knowledge to judge seafood quality and were familiar with organoleptic indicators of quality such as smell, color, texture, gill color, eyes, etc. However, many were not confident in their ability to actually make a quality determination. Several felt that counter personnel were not knowledgeable enough to provide adequate assistance.

WHY CONSUMERS PURCHASE SEAFOOD

Consumers were asked to respond to a list of possible reasons why they choose to purchase seafood. The list of possible choices provided in the survey questionnaire included: "I like the taste", "I believe it is a healthy food", "I believe it is low calorie", "I think it's easy to prepare", "I like its gourmet appeal", "I find recipes in cookbooks and magazines that I like to try", and other reasons. Survey respondents were asked to select three of these reasons that best described their individual feelings or perceptions.

Figure 8. Reasons Why New York and New Jersey Consumers Choose to Eat Seafood



The most frequently identified reason for choosing seafood was because consumers liked the taste (92%). Eighty-six percent (86%) of the respondents indicated that they felt seafood was a healthy food. These responses are consistent with data gathered in other surveys conducted by both trade and consumer publications and groups over the past decade. All of this evidence indicates that consumers are strongly motivated to eat seafood because they like and enjoy the taste of certain products and they have a sense that seafood is a healthy, lower fat food choice. The next most frequently identified reason for choosing seafood was that consumers believed it was a low calorie food, and 60% of the survey respondents picked that choice. In general Americans have a tendency to be overweight and a large portion of the population is actively utilizing some type of weight reduction regime. Many of the popular diet plans such as "Weight Watchers" suggest increasing consumption of seafood. Some plans have suggested up to 5 seafood meals per week. Older consumers also tend to be more concerned about the health and low calorie attributes of seafood. This may be related to the general information on seafood's positive nutritional benefits that have been widely publicized as well as medical advice suggesting that those at risk for coronary heart disease increase their consumption of seafood to two meals per week.

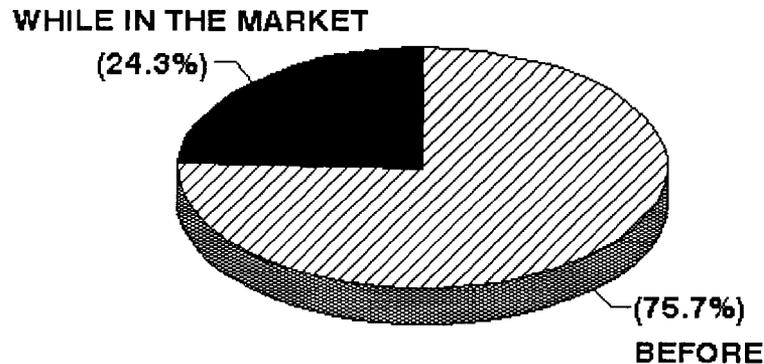
During the focus group discussions with coastal consumers, two participants mentioned mackerel. One was an avid fisherman and the other had purchased mackerel at her local market. Both consumers were familiar with the potential health benefits associated with this product because of its higher fat content and consequently higher levels of omega-3 fatty acids. It is interesting to note that both males and females were equally concerned about healthy diets, and females were slightly more concerned about whether or not seafood was low calorie.

Slightly less than one-third (31%) of the consumers surveyed indicated that they purchased seafood because they believed that it was easy to prepare. One of the most frequently identified barriers to the home consumption of seafood relates to the fact that many consumers have little confidence in their ability to prepare seafood at home. Seafood cooks faster than other high protein animal foods, and most simple recipes for fish and shellfish require little preparation time and can be thoroughly cooked in ten to twenty minutes. In general, those consumers who have had some experience preparing a variety of seafood products are likely to recognize how quickly and easily seafood can be prepared. Educational and promotional materials and demonstrations can help to convince those consumers who have less experience with seafood preparation that it is easy to prepare. A smaller number of consumers were motivated to purchase seafood because of its gourmet appeal, and because of recipes that they wanted to try. Providing both simple recipes and those with a gourmet approach can be used to effectively merchandize and promote seafood in general as well as specific seafood products.

WHEN CONSUMERS DECIDE ON THEIR RETAIL SEAFOOD PURCHASES

Consumers were asked to indicate when they usually make their decision to purchase seafood: either before they come to the store or when they reach the seafood counter in the market. The majority (76%) of the consumers surveyed indicated that they make the decision to purchase seafood before going to the store. Twenty-four percent (24%) indicated that they generally decided to purchase seafood while in the market.

Figure 9. When Consumers Decide to Purchase Seafood: Before Coming to the Store or When They Reach the Seafood Counter



TOTAL NUMBER OF RESPONSES = 741

Impulse buyers or those who decided to purchase seafood while in the market were more common among consumers in the 18-24 years old category (65%). A recent survey conducted by *Seafood Business* indicated that only 10% of the shoppers in a supermarket stop at the seafood counter. To generate increased traffic, some retailers have installed lobster tanks and other product promotions that attract children. There was no difference between coastal and non-coastal consumers relative to when consumers make their decision to purchase seafood.

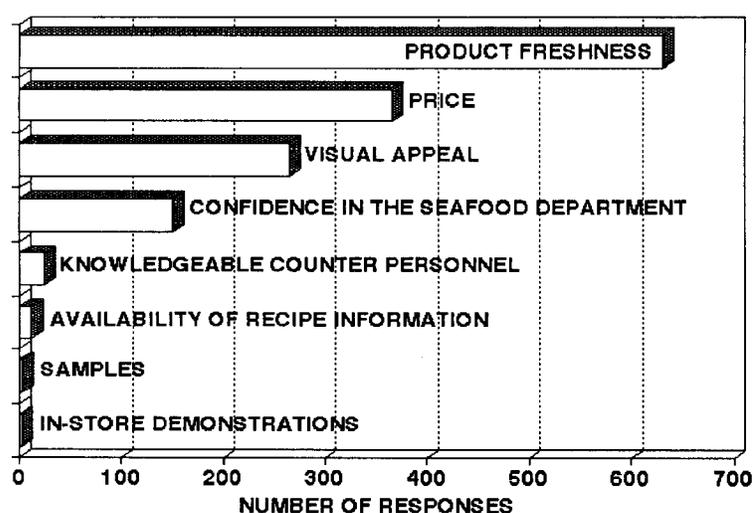
Our survey did not distinguish between those who had made a generic decision to purchase seafood and those who had actually decided upon a particular type of seafood product that they wished to purchase before going to the store. Because supermarket chains regularly advertise, this market sector can have a considerable advantage in attracting customers who have a desire to purchase a specific advertised product. When focus group participants were questioned about whether they actually decide what type of fish to purchase before going to the store, most said yes. The final decision was made in the store based primarily on freshness and price. During the focus group discussions, more women than men indicated that they consulted the newspaper food ads before making the purchase decision. Many participants indicated that they are shopping for sale products. All of this information is important in designing an effective merchandising strategy for retail shoppers.

FACTORS THAT INFLUENCE CONSUMER'S PURCHASE DECISIONS

One consumer survey question was designed to obtain information on what retail store or seafood counter factors influence a consumer's purchase decisions. Consumers were asked to indicate what two factors were most important in determining what to buy when they actually got to the seafood counter. A menu of possible choices was provided that included: Product Freshness, Visual Appeal, Price, Confidence in the Seafood Department, Knowledgeable Counter Personnel, Availability of Recipe Information, In-Store Demonstrations, and Samples.

Of the factors listed in this survey, “product freshness” was by far the most frequently identified. Eighty-five percent (85%) listed product freshness as one of the two most important factors affecting the purchase decision. No definition of “freshness” was provided and it is likely that this term may have a somewhat different meaning to various consumers. Many consumers tend to equate the term “fresh” with “high quality” for all perishable foods and especially for seafood. The term “fresh” is currently ill defined. In its most limited interpretation “fresh” is used to identify products that have not been previously frozen. Most consumers, however, appear to use the terms fresh and high quality interchangeably. During the focus group discussions, consumers routinely equated quality with freshness. Consumers were asked whether quality and freshness meant the same thing. For many, this was a difficult question. One participant explained, “I had clams fresh from the Bay of Naples and was sick for a week, so I guess freshness and quality are different.” After discussing these concepts with the focus group participants, the consensus was that quality was dependent upon the environment and the handling of the product. To further investigate the concept of quality, consumers were asked how they judged quality when making a purchase. Most were quite knowledgeable and mentioned odor, eyes and color. Almost unanimously, consumers believed that frozen product was always inferior to fresh product. This is an area where a major consumer education effort might be launched. There is also a need for additional consumer education to help consumers understand the relationship between quality and freshness and what types of information consumers can use to evaluate “freshness” or “quality”. For some consumers it was simply a question of asking the person behind the counter if the product was “fresh”, and for others there were some organoleptic factors that were considered. Clarification of these concepts should help consumers better understand their needs and expectations when purchasing seafood and increase overall customer satisfaction. Of all the consumers surveyed, freshness was the most important criterion for those in the over 65 age bracket (95%) and for those in 45-49 age category (93%).

Figure 10. Factors That Determine What Products Consumers Buy When They Get to the Seafood Counter



Price was the second most frequently identified factor that influenced consumer’s decisions about what seafood products to buy. Price was identified by approximately half (49%) of the consumers

surveyed. The price or cost of seafood has been an important concern for seafood products. The Consumer Price Index (CPI) for seafood is currently considerably higher than the CPI for red meats and poultry. In addition, the CPI has remained relatively stable for meat and poultry for the past several years that data has been available, while the CPI for seafood has continued to rise. Based on the discussions during the focus groups, it was clear that price resistance is a major factor determining whether or not to purchase seafood. When prices reached \$6.99 per pound, the focus group consumers reported that they began to resist purchasing that product. Some consumers felt that if it was a special occasion, they would make the purchase but probably not for a normal meal. Other consumers mentioned that if they really wanted a specific type of seafood, they would purchase it even if the price was higher than they had anticipated. In the non-coastal area, price was a more important consideration. Price was the lowest concern for those in the 18-24 (32%) and the 25-34 (37%) year old age groups.

The other important factors that consumers indicated affected their decision to purchase seafood were primarily related to specific aspects of the retail store itself. "Visual appeal" was identified as one of the two most important factors influencing their purchase decision by 36% of the consumers who completed a survey, and "confidence in the seafood department or store" was identified by 20%. Knowledgeable counter personnel were indicated by 3%, and availability of recipe information by 2% of those surveyed. These responses would seem to indicate that the overall impressions retail stores make on consumers are an important factor influencing their purchase decision. Consumers expect displays to be visually appealing, and a variety of anecdotal evidence seems to support the notion that interesting and attractive displays are effective in stimulating sales. The overall image or impression that an individual store or display counter has on consumers also influences consumer's decision to buy. The overall cleanliness and appearance of both the store and the employees are likely to play an important role in instilling consumer confidence. It was interesting to note that few consumers felt that knowledgeable counter personnel were a major factor influencing their purchase decision. This study did not attempt to determine whether consumers had confidence in their ability to assess how knowledgeable counter personnel were or whether they relied on other sources of information to get answers to their questions. Few consumers felt that recipes were as important as the product, its price, and overall impressions and confidence in the retail store. In general, women considered confidence in the seafood department to be more important than men (23% vs. 10%). In some cases, especially in coastal areas, men may feel that they have a better understanding of fish and seafood from their recreational fishing experiences.

Another area of concern to consumers that emerged in the focus group discussions related to product identification. In many cases, consumers did not have a clear idea of the products that they were purchasing. According to one participant, "Red snapper is a wonderful fish and very inexpensive". Others in the group agreed. Since true red snapper, *Lutjanus campechanus*, is one of the most expensive fish in the New York and New Jersey marketplace and there are numerous lower priced substitutes on the market, they were probably not purchasing red snapper. This is illustrative of the importance of name recognition and **perceived** quality and taste attributes of products like red snapper. A number of consumers in both the coastal and non-coastal focus groups also indicated that they purchase scallops often and that the price is low. Most consumers didn't realize that these lower priced scallops (\$2.99-\$3.99 per pound) are likely to be either calico scallops from the Southern United States or frozen imported product that has been thawed for sale.

INFORMATION OR SERVICES THAT WOULD INDUCE CONSUMERS TO PURCHASE SEAFOOD MORE OFTEN

In an attempt to identify potential merchandizing or education strategies that could be effectively used to increase seafood sales, survey respondents were asked to list “types of information or services that would induce you to purchase seafood more often”. Two blank lines were provided on the survey for responses, and no prompts or suggestions were provided in order to get a better idea of the kinds of issues on consumer’s minds. Since this was a fill in the blank question not all consumers provided a response. Three hundred and five (305) responses were received. Individual responses varied slightly, and similar ideas were grouped together when the survey results were evaluated.

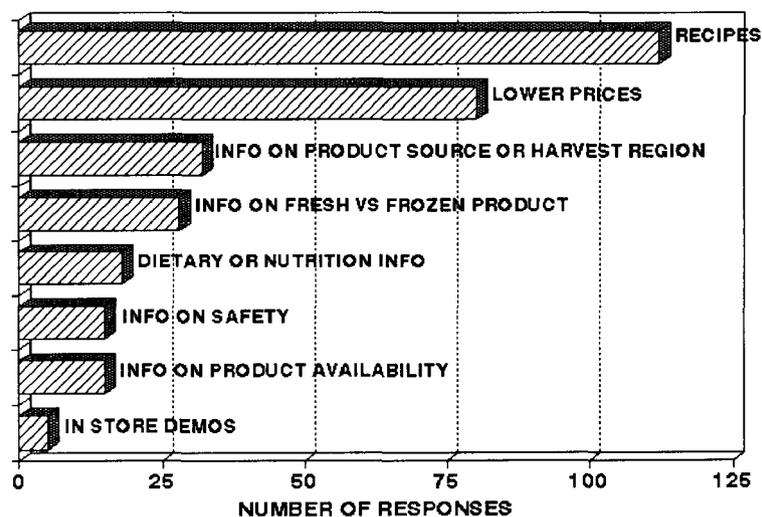
Of all the possible responses to this question, the most frequently identified type of information or service related to having more recipes available at the point of purchase. Thirty-seven percent (37%) of those who answered this question made comments about recipes. Females commented about recipes almost twice as often as males. Providing a variety of recipes at retail seafood counters is an effective and relatively low cost merchandizing strategy. Although recipes alone do not affect purchase decisions as much as perceptions about quality and price, they can motivate customers to purchase specific types of products. Aquaculture producers and other suppliers could support retailers by providing both printed recipes as well as “camera ready copy” of recipes that retailers could reproduce with their company name, address and logo.

Twenty-six percent (26%) of the consumers who answered this question identified lower price as an important factor that would induce consumers to purchase seafood more often. Men tended to be somewhat more concerned with lower price, 33% of the men mentioned price compared to 24% of the women. As mentioned earlier, focus group participants also indicated that they would purchase more seafood if the price was more reasonable. A number of people provided additional comments on the survey about the high price of seafood. According to one survey respondent, “ A reliable source of fresh seafood is hard to find, especially at fairly reasonable prices. I’ve found one supermarket chain that’s both reasonable and reliable. Without it, our fish consumption would go down in spite of the fact that we would like to eat even more.” Another answered, “I started buying catfish when the supermarket offered a free cajun spice packet and recipe, and the price was \$3.00 a pound. After that, I started buying catfish regularly. I would buy other fish more often if the price wasn’t \$5-6 a pound and up.” Another echoed the same feeling, “I think the biggest factor in preventing me from purchasing more seafood is price.” “Price and availability are the primary reasons for not purchasing more seafood products.”

Eleven percent (11%) of the consumers surveyed indicated that they wanted more information about the harvest area or source of the products that they were purchasing. Male respondents made comments about source or harvest area more frequently than females. The level of interest or concern about harvest source among males may be related to information that recreational fishermen are exposed to about sport fish health consumption advisories widely publicized in both New York and New Jersey. Concern about product source might also be attributable to television broadcasts about seafood safety and contaminants. Many of the consumers in the focus groups had seen television exposes, but many regarded it as exaggerated reporting. One woman indicated that her husband was no longer eating fish because of a recent television news report focused on industry problems, but then she commented that “he’s always more squeamish about these things.” She indicated that it had no

effect on her consumption level. Originally, it was believed that consumers wanted harvest area information in order to evaluate the safety of the product, however, during the focus groups, it was revealed that some consumers believed that locally harvested product was fresher and, therefore, better. These concerns about product freshness could be a major marketing tool for locally produced aquaculture products. The public concern about harvest area could be used as a marketing tool to promote aquaculture product.

Figure 11. Types of Information or Services Identified by Consumers That Would Induce Them to Purchase Seafood More Often



Approximately 9% of the survey respondents were interested in information about fresh seafood versus frozen product. Men tended to mention concerns about whether the product was fresh instead of frozen more often than women, with 13% of the men mentioning it compared to 7% of the women. Based on the comments received it appeared that some consumers wanted to know whether the product was fresh or previously frozen, but it was unclear what they would do with that information. Consumers also wanted information about quality attributes of fresh as compared to frozen products. Public education is an important consideration since frozen product can in some cases be superior to fresh.

About 6% of the consumers who responded to this question indicated that they would like to have more dietary or nutrition information about seafood in general as well as for specific types of fish and shellfish. As described earlier, many consumers are generally aware of the positive nutritional benefits that could be associated with eating more seafood. Consumers are now looking for specific information they can use to make choices to meet their own individual nutritional needs. A variety of educational and marketing materials that describe seafood's nutritional benefits and the nutritional composition of specific types of fish and shellfish are available. In fact, current FDA nutritional labeling regulations require seafood markets to voluntarily post nutrition charts or provide nutrition information on the 20 most frequently consumed seafood products in the U.S. It would appear that

the seafood industry and public education programs simply need to make this information more widely available to consumers.

Only 5% of those surveyed were concerned about safety or wanted assurances about product safety. Women tended to be more concerned about safety. Seven percent (7%) of the women respondents mentioned safety as compared to 1% of the men. This was an interesting response because many consumer groups and media reports have created the impression that there is a crisis in terms of public confidence in the safety of seafood products. It would appear that the considerable attention that has been focused on seafood safety for the past decade has had more of an impact on those working in the seafood industry and those who regulate it, than on the public. In this study alone, the level of concern about safety in both the retail and food service sectors appears to be higher than the level of concern among consumers.

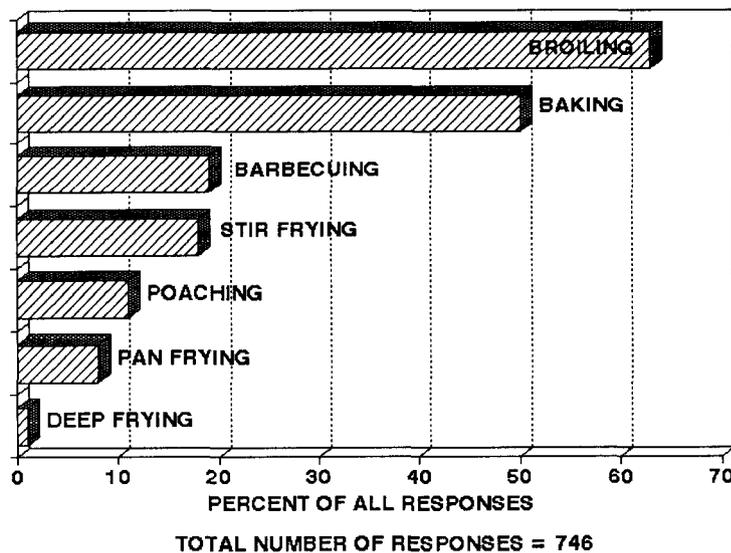
Five percent (5%) of the consumers who responded to this question felt that greater availability would influence them to purchase more seafood. Several consumers indicated that there were particular species that they liked but were not always available. Consistent availability can be a positive factor when promoting aquaculture product. In addition, public education efforts that help consumers to recognize when seasonal products are likely to be abundant can help consumers adjust their expectations. The New York Seafood Council is currently conducting a "Long Island Fresh" marketing campaign that is designed to help consumers identify when locally harvested seafood products are likely to be most abundant. A similar "Jersey Shore Seafood" campaign is being conducted in New Jersey.

A small number of consumers indicated that in-store demonstrations are an effective means to entice consumers to purchase certain products. Demonstrations that allow consumers to sample and taste new products can effectively reduce consumer's anxiety about whether or not they will like it when they prepare it at home. Anecdotal evidence has indicated that in-store demonstrations are very effective in increasing sales for less familiar seafood products.

HOW CONSUMERS COOK SEAFOOD AT HOME

Consumers were asked to identify how they cook seafood at home. A list of potential home preparation methods was provided that included: baking, broiling, barbecuing, poaching, stir frying, pan frying and deep frying. Each survey respondent was asked to select the two methods that they used most often.

Figure 12. How New York and New Jersey Consumers Cook Seafood at Home Most Often



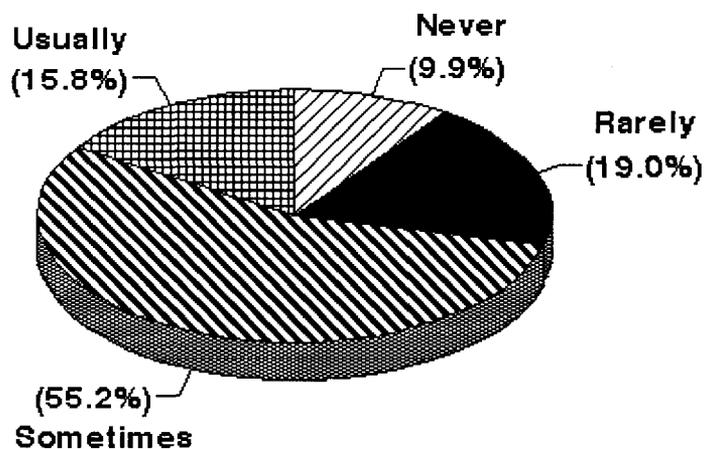
Broiling and baking were the most common methods of preparation used by the consumers surveyed. Broiling was the most frequently used cooking method, and was chosen by 63% of the survey respondents. Baking was selected by 50% of the survey respondents. Barbecuing was identified by 19% of the survey respondents, and stir frying by 18%. The popularity of barbecuing and stir frying has increased considerably over the past decade. Many summer seafood promotions have focused on home barbecuing of seafood, and stir frying has become an increasingly popular method of food preparation. Both of these methods require a short cooking time and use little additional fat, making them a good choice for health conscious consumers. Stir fry and barbecue recipes may be ideal cooking methods to suggest for many aquaculture produced products. Poaching was identified by 11% of the survey respondents. This preparation method offers many of the same advantages of the other popular cooking methods. Pan frying was identified by only 8% of the consumers surveyed. This traditional cooking method has been decreasing in popularity primarily because of the need to use oil or other fat as the cooking medium. Although many consumers like deep fried seafood, only 1% reported using this cooking method at home. Although microwave cooking was not included as a preparation choice, two individuals reported that they regularly cooked seafood in the microwave oven. One retailer mentioned that he believes most consumers “view microwaving is a way to reheat leftovers or to cook frozen foods and popcorn. They don’t view it as an actual cooking method.”

Responses differed somewhat between men and women. Women were more likely to choose baking than men. 55% of the women chose baking as a preferred cooking method as compared to 42% of the men. Men were much more likely to prepare seafood by pan frying than women.

CONSUMER PURCHASES OF PREPARED SEAFOOD PRODUCTS

To obtain information on the potential market for further processed or value-added seafood products, consumers were asked how often they purchased prepared seafood products and what types of products they purchased. This question was included because it has been suggested that the development of appropriate value-added products might provide a major opportunity for expanding sales for aquaculture producers when accompanied with proper promotional strategies. Survey respondents were asked to check all of the prepared products they had purchased from a list of potential products that included: salads, fish cakes, fish in sauce, soups and chowders, ready to cook entrees like stuffed flounder, smoked fish, party platters, breaded products, and frozen prepared entrees. Survey respondents were also asked to indicate how often they purchased prepared product and four choices were given: never, rarely, sometimes, and usually.

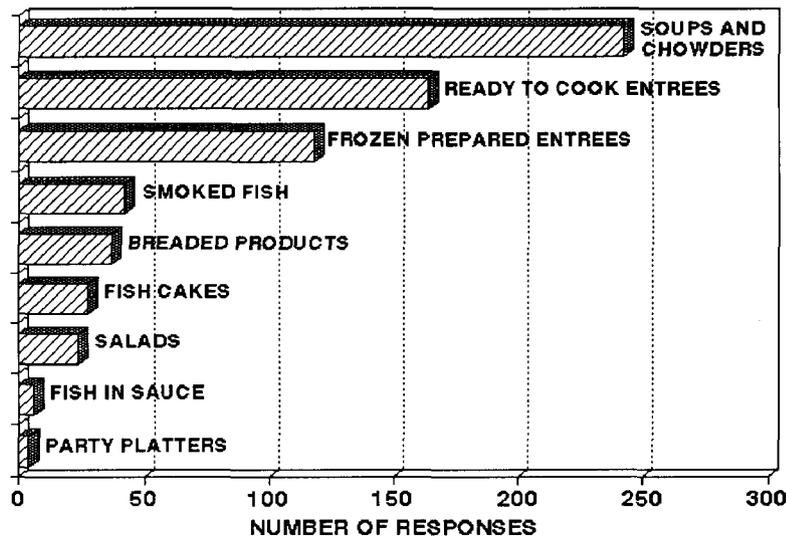
Figure 13. Frequency With Which New York and New Jersey Consumers Purchase Prepared Seafood Products



TOTAL NUMBER OF RESPONSES = 735

Over half (55%) of the consumers surveyed indicated that they sometimes purchased prepared seafood items. Almost one third did not regularly purchase prepared seafood products, with 19% indicating that they rarely purchased these items and 10% reporting that they never purchased them. Sixteen percent (16%) indicated that they were frequent users of prepared products and usually purchased them. Based on these survey results there seems to be considerable market potential for prepared seafood products many of which can be formulated using byproducts of processing operations. Prepared items can also provide an opportunity to realize a higher overall profit margin as compared to simply selling fresh fillets, steaks or whole fish.

Figure 14. Prepared Seafood Products Purchased by New York and New Jersey Consumers



Of the prepared products included in the survey questionnaire, consumers reported that they purchased soups and chowders, and fresh or frozen ready to cook or prepared entrees most often. Seafood soups and chowders were purchased by 36% of the consumers surveyed. Twenty-five percent (25%) had purchased ready to cook fresh entrees like stuffed flounder, and 18% had purchased frozen prepared entrees. Based on these survey results, it seemed clear that consumers were interested in prepared products that could be used for a main course or for an accompaniment to a typical meal. Soups and chowders are traditional products in the Northeast especially during the colder months of the year, and many consumers are reluctant to prepare these dishes at home because of the time and expense involved. In many cases it is much easier and simpler to purchase enough soup or chowder for a meal which can then be quickly heated and served at home. These items also can provide a quick luncheon meal. Many consumers also reported that they purchased ready-to-cook entree items. One of the most common products in this category in the New York and New Jersey area is stuffed flounder or other lean white fish fillets that are wrapped around some type of seafood or other stuffing. These products offer the convenience of a home cooked seafood meal with no preparation or mess. Frozen prepared entrees which have also been a popular prepared product for many years also offer this type of convenience.

Of the other choices of prepared items listed in this survey, 6% indicated that they purchase smoked fish, 5% reported buying breaded products, 4% purchased fish cakes, and 4% purchased salads. All of these products are commonly sold in retail stores in the New York and New Jersey area. The low response to “fish in sauce” may be related to a poor understanding of what types of products this included. The low number of responses to “party platters” may also be related to the fact that this survey information was primarily collected in the summer and early fall, and consumers traditionally purchase these items most frequently during the winter holiday season.

In the European market, these prepared products are more readily available, and demand is growing. Many of the more sophisticated prepared products sold in Europe such as frozen paellas, seafood pizzas, and elaborate lunch salads are not currently widely sold in the United States. Women tended to purchase more salads, fish cakes, and prepared entrees. Men reported that they purchased more of the chowders and soups. A significant number, 49%, of those consumers in the highest income category (greater than \$100,000 household income) also reported purchasing more soups and chowders. Market opportunities for these prepared items is further discussed in section 4, Value Added Products.

During the focus group discussions, consumers were shown color photographs of prepared items such as paellas, pizzas, patés, and terrines that are often available in European markets. A majority indicated they would purchase such products if they were available at a reasonable price. The definition of reasonable price was different for many individuals. The upstate New York focus group had a lower price threshold for purchase resistance (\$6.99 per pound) compared to the metropolitan/coastal group whose threshold was around \$9.99 per pound. In the coastal focus group discussions, two consumers indicated that they had purchased salmon paté and trout paté. Both were very satisfied with the product, but felt that the price was too high. One consumer made her purchase in a liquor store in the gourmet snack section. According to another purchaser, "They use spices and herbs to give it a very good flavor. It would be impossible to re-create the paté at home." Both consumers characterized these products as "special or luxury items".

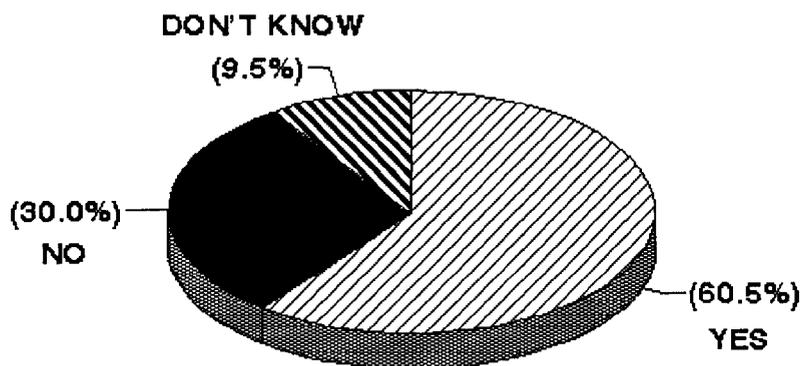
It was interesting to note that during the focus group discussions, most people had very positive feelings about lobster. However, when shown some prepared paella dishes in retail packs, consumers were unhappy with the head-on shrimp. Most focus group consumers were also uncomfortable with whole fish in a prepared seafood dish or as an entree. Consumers were also shown a variety of different packaging styles for fresh fish. Most were not impressed by the packaging, and felt that product was fresher if it was simply overwrapped at the market.

AQUACULTURE PRODUCTS PURCHASED BY NEW YORK AND NEW JERSEY CONSUMERS

Consumers were asked whether or not they had ever purchased aquaculture (farm-raised) seafood products. Three response choices were provided: yes, no, and don't know. Of the consumers who answered this question, 61% indicated that they had purchased aquaculture or farm-raised products, 30% indicated that they hadn't, and 10% indicated that they didn't know. Those who had purchased aquaculture products were evenly distributed across all age and income levels. A larger portion of the men who completed a survey had purchased aquaculture products, with 68% of the men responding yes compared to 55% of the women. This may simply be a matter of men being more aware of aquaculture and which products are currently being farm-raised. Forty-nine percent of the consumers in the lowest income group (less than \$30,000) had purchased aquaculture product. This may be related to the fact that catfish is often promoted as being farm-raised and usually has a reasonable price. More New Jersey (80%) and non-coastal (79%) consumers reported purchasing farm-raised product compared to consumers in metropolitan New York (50%). It is also significant to note that approximately 10% of those surveyed did not know if they had purchased aquaculture products. Aquaculture produced products are not frequently identified as such in retail stores, and many consumers are unaware of which products in the market are farm-raised. Merchandizing materials and consumer education could play a significant role in developing a market identity for aquaculture

products, which in turn could help to increase their market share in areas like New York City where consumer recognition of these products was somewhat lower than might be expected.

Figure 15. Consumer's Response to the Question: "Have You Ever Purchased Aquaculture or Farm Raised Products?"



TOTAL NUMBER OF RESPONSES = 587

Survey respondents were also asked to indicate which aquaculture (farm-raised) products that they had purchased. A list of choices was provided that included: farm-raised shrimp, farm-raised oysters, farm-raised mussels, farm-raised salmon, farm-raised clams, catfish, trout, tilapia, hybrid striped bass and Other. Respondents were asked to check all of the products that they had purchased.

Farm-raised salmon and catfish were the two aquaculture produced products that were purchased by the consumers surveyed most often, followed by clams, trout, mussels, shrimp, tilapia, hybrid striped bass and oysters. The following table summarizes the frequency with which the consumers reported that they had purchased each of the aquaculture produced products that were listed.

TABLE 4. AQUACULTURE PRODUCTS PURCHASED MOST OFTEN BY NEW YORK AND NEW JERSEY CONSUMER SURVEY RESPONDENTS

SPECIES	FREQUENCY	PERCENT
SALMON	79	23%
CATFISH	75	22%
CLAMS	44	13%
TROUT	41	12%
MUSSELS	39	11%
SHRIMP	27	8%
TILAPIA	15	4%
HYBRID STRIPED BASS	10	3%
OYSTERS	7	2%

The total number of individuals who responded to this question = 345.

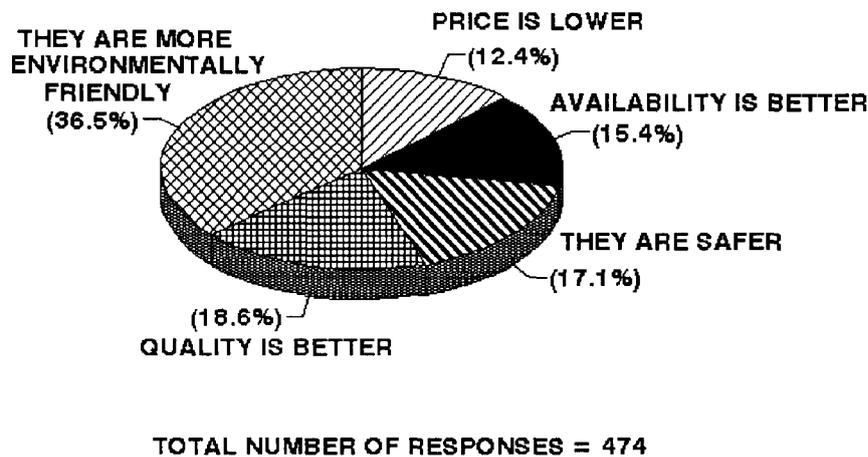
There were several differences among consumers from New York, New Jersey, and non-coastal areas in terms of the aquaculture products purchased that they reported purchasing. Forty-three percent (43%) of the consumers from the non-coastal area reported purchasing farm-raised salmon as compared to 17% in New Jersey and 24% in New York. Tilapia was purchased by 9% of the consumers in New Jersey as compared to only 1% in New York and none in the non-coastal sample. This difference is likely to be related to the fact that tilapia is currently being actively promoted by supermarket chains in New Jersey. Although consumers in the non-coastal focus group were unfamiliar with tilapia and reported that they had never seen it in the market, one chain visited after the focus group discussion was actively promoting it. When counter personnel were asked about this product, they indicated that it was a new item.

For the bivalve shellfish (clams, oysters, and mussels) included in this survey, it was not clear whether or not the products that consumers had purchased were actually labelled or marketed as aquacultured or farm raised or whether consumers simply perceived that at least some of the product that they had purchased was farm raised.

CONSUMER PERCEPTIONS ABOUT AQUACULTURE PRODUCTS

Consumers were also asked to indicate what perceptions they have about aquaculture products. To standardize the responses a list of possible perceptions were provided that included: I think they're safer; I believe the quality is better; I believe that the availability is better; I believe the price is lower than wild caught products; I believe that they are more environmentally friendly.

Figure 16. New York and New Jersey Consumer's Perceptions About Aquaculture Products



Of the possible responses provided, more consumers indicated that they believed that aquaculture products were more environmentally friendly than any of the other choices. Thirty-six percent (36%) of the consumers surveyed regarded aquaculture as being more environmentally friendly than wild harvest because it does not upset the balance of the natural environment. This statement may have been somewhat misleading to some consumers, and may have been chosen by some simply because of an overall general concern about the environment. However, it does indicate that there is a general perception among many consumers that aquaculture is a “green or environmentally friendly” alternative source of seafood products. This perception is likely to continue as information about the depletion of wild stocks of some traditional fish species becomes more widely publicized. Aquaculture producers who can demonstrate the “environmentally friendly” nature of their operations may have an opportunity to market their products as an alternative to wild stocks that are fully or over exploited.

Nineteen percent (19%) of the consumers surveyed believed that the quality of aquaculture products was better, and 17% felt that they were safer. Because aquaculture producers can exert more control over the growth, harvesting and processing of their products they may be able to make substantiated claims about quality and possibly safety that could be used to more effectively market their products. Fifteen percent (15%) of those surveyed believed that aquaculture products were more available. Consumers who checked this response may have been thinking about specific products like shrimp, salmon, and catfish that have become widely available in this market. Twelve percent (12%) believed that the price of aquaculture products was lower. Many consumers were probably relating this question to moderately priced products like catfish. In contrast, when retailers were asked a similar question about the disadvantages of aquaculture products many indicated that the a major disadvantage was that the price was too high. Again this perception is likely to be related to experiences with specific products.

Some respondents also provided some specific comments. One consumer indicated that he ate seafood because “it is not factory farmed or chemically fed.” One survey respondent felt, “For the most part, aquaculture products are less environmentally friendly when all factors including energy, are considered.”

TABLE 5. CONSUMER PERCEPTIONS ABOUT AQUACULTURE PRODUCTS BY REGION OR AREA

	NEW YORK	NEW JERSEY	NON-COASTAL AREAS
ENVIRONMENTALLY FRIENDLY	39%	34%	39%
BETTER QUALITY	16%	24%	6%
SAFER	18%	16%	16%
LOWER PRICE	13%	11%	19%

During the consumer focus group discussions, a number of concerns were raised about aquaculture products. Some consumers felt that they were not natural and that hormones and drugs were being used. Others felt that they were less flavorful than wild caught fish. Many consumers seem to relate wild-harvest to a more natural product. One individual believed, "when I think of aquaculture product, I just feel that I am missing something." On the issue of safety, focus group participants were asked whether they regarded farm raised clams and oysters as being preferable to wild harvest. The vast majority believed that wild and farm raised were equal.

Many marketers believe that aquaculture products are perceived as high quality, safe alternative. However, many consumers do not recognize aquaculture is at the retail or food service level. This is an area where simple consumer education can play a major role. The simplest mechanism to raise consumer awareness is to work through retailers and food service operators. These are the industry sectors with the greatest potential for direct consumer interaction. This can be done by using menu descriptors such as "farm-raised Atlantic salmon." One focus group consumer felt that salmon should be marketed as "Fjord grown rather than farm-raised." He felt that this had more of a romantic, clean water, outdoors connotation. At retail, the availability of price pins, shelf-stickers and other simple merchandizing aids, can draw the consumers attention and provide greater recognition for the growing aquaculture sector of the seafood industry.

SUMMARY OF MARKETING OPPORTUNITIES:

- 1). Consumers are not widely aware that many of the products they purchase are aquaculture produced or farm-raised. Public education efforts and merchandizing materials designed for use in retail stores and restaurants would help consumers identify and better understand aquaculture products.
- 2). Aquaculture producers should be aware that taste and nutrition are two of the most important positive attributes of seafood products to consumers. Education and merchandizing techniques that address these attributes could be effectively used to market aquaculture products.
- 3). Consumers consider product "freshness" as the most important factor that determines what they buy. Educational and promotional materials that describe potential quality or "freshness"

advantages associated with controlled aquaculture production could be used to more effectively market these products.

- 4). Aquaculture producers should consider how consumers prepare seafood most frequently, and should be aware that many consumers prefer products that are convenient and easy to prepare. Primary processed products such as fillets and steaks that can be readily prepared by baking, broiling, barbecuing or stir frying would be desirable in the New York and New Jersey marketplace.
- 5). Aquaculture producers should consider the type of value added or prepared seafood products that consumers purchase in this area. Soups, chowders, and both fresh and frozen ready to cook entrees are the most frequently purchased products for every day use. Other alternative products such as fish cakes, smoked fish spreads and patés that can be constructed using by-products of the primary processing operation could be produced as specialty items.
- 6). Consumers are concerned about the price of seafood products. Production strategies that create a reasonable and stable consumer price structure will be needed to significantly stimulate increased consumption.
- 7). Consumers are frequently motivated to purchase seafood when recipes are available. Aquaculture producers might consider working more closely with retailers to ensure that both simple recipes as well as more complicated gourmet recipes are readily available to their customers.
- 8). Many consumers view aquaculture production as being an environmentally friendly alternative to harvesting seafood from the wild. Aquaculture producers may benefit from additional studies that further characterize and define this perception, and use this information in their education and merchandizing programs.
- 9). Consumers in the New York and New Jersey area purchase seafood from both supermarkets and independent fish markets, and buying clubs are increasing their market share for bulk items. Retailers should carefully consider how these businesses operate and their differing needs when evaluating what products to sell and their distribution mechanisms.
- 10). Some consumers are concerned about the source of seafood products and seafood safety. Aquaculture producers should consider these concerns when refining production techniques and when developing marketing and merchandizing strategies.

MARKET SURVEY
OF
SEAFOOD RETAIL MARKETS
IN
NEW YORK AND NEW JERSEY

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RETAIL MARKET SURVEY

PURPOSE AND METHODS

The purpose of this portion of the study was to develop a profile of seafood species, product forms, sales, attitudes, and marketing needs in retail stores in New York and New Jersey. Survey data was gathered from independent retailers and supermarket chain stores. The purpose of the survey was: 1) to gain a better understanding of the type of seafood products most acceptable at the retail level, 2) to identify the types of products or services that would be required for aquaculture companies to gain a larger share of the seafood retail marketplace, 3) to determine which potential retail markets may exist for value-added seafood products, and 4) to determine what attributes of farm raised seafood can be utilized in promotional programs to develop a better overall market position for aquacultured products.

To obtain this information a retail survey instrument was developed and mailed to retailers in New York and New Jersey in 1993. A postage-paid return envelope was included with each survey to encourage retailers to respond. Additional survey data was collected throughout the project during training programs and meetings coordinated by the project investigators. Retailers were asked to provide information on a number of different aspects of their operation. Each of the following summarize the results obtained from each of the questions included in the survey instrument. In some cases groups of similar questions are discussed in a single section.

RETAIL SURVEY RESPONDENT PROFILE

Surveys from 497 New York and New Jersey retailers were completed and returned. Of these, 350 responses (70%) were completed by seafood departments in 12 different supermarket chains, and 147 responses (30%) were completed by independent retail seafood or fish markets. The retail stores who returned surveys were located on Long Island, in New York City, upstate New York, and New Jersey. Seventy-five percent of the retailers surveyed characterized their business location as urban, 19% characterized their operation as being suburban, 3% reported operating in rural locations, and 3% were located in a vacation or leisure community.

TABLE 1. SURVEY RESPONDENT'S REPORTED BUSINESS LOCATION

URBAN	SUBURBAN	RURAL	VACATION/LEISURE
369 (75%)	91 (19%)	16 (3%)	13 (3%)

Seventy-two percent of all the retailers surveyed reported that their total annual seafood sales were between \$0.5 and \$1 million. Eighteen percent reported annual seafood sales less than \$0.5 million, and 10 percent of the retailers surveyed had total annual seafood sales greater than \$1 million. For most supermarket chains, products such as canned tuna and some prepared seafood items such as seafood salads, smoked fish, etc., may be handled through other departments like grocery and deli, and would not have been included in the sales figures reported for the seafood department. Independent retailers, however, would have been more likely to have included all seafood products in their sales estimates.

TABLE 2. SURVEY RESPONDENT'S REPORTED AVERAGE ANNUAL SEAFOOD SALES

> \$1 MILLION	\$0.5-\$1 MILLION	< \$0.5 MILLION
48 (10%)	362 (72%)	92 (18%)

The majority of the retailers surveyed (65%), were unable to put a dollar figure on their average seafood sale per customer. Most of the supermarket chain stores did not provide this information. However, of the 174 retailers who did provide an estimate of their average seafood sale per customer, 13% reported that their average sale was between \$10 and \$15, 11% reported an average sale greater than \$15, and 11% reported average sales less than \$10.

TABLE 3. SURVEY RESPONDENT'S REPORTED AVERAGE SEAFOOD SALE PER CUSTOMER

>\$20	\$15-\$20	\$10-\$15	<\$10	Unknown
24 (5%)	31 (6%)	64 (13%)	54 (11%)	329 (66%)

The majority (89%) of retailers who completed a survey characterized their customers as being primarily "middle income". Six percent characterized their clientele as being primarily "upper income", and 5% as primarily "low income". Most of those who identified their customers as primarily upper or low income were independent retailers. This assessment of customer income category was based solely on the retailers' perception of the terms "high, middle, and low" income. No attempt was made to define these categories in the survey instrument, and it should be recognized that regional differences in perceptions about income levels are likely to exist.

TABLE 4. SURVEY RESPONDENT'S REPORTED CLIENTELE INCOME PROFILE

	UPPER INCOME	MIDDLE INCOME	LOW INCOME
All Retailers	29 (6%)	443 (89%)	26 (5%)
Chain Stores	2 (1%)	344 (98%)	4 (1%)
Independents	27 (19%)	97 (66%)	22 (15%)

BEST SELLING SEAFOOD SPECIES

Respondents were asked to list their five best-selling seafood species in 1992. This was a recall question and cannot be construed to be a direct indication of sales volume. Four items emerged as the major sellers in both chain and independent retail stores in the New York and New Jersey area. Shrimp, salmon, and flounder were clearly the leading retail items in both chain and independent retail stores. Cod was also an important species in both types of operations. The top selling species listed by these retail stores closely mirrors overall U.S. seafood consumption. For the other species identified as top sellers in 1992 there were significant differences between chains and independents.

**TABLE 5. TOP SELLING SEAFOOD SPECIES IN CHAIN
AND INDEPENDENT RETAIL STORES**

CHAIN STORES		INDEPENDENT RETAILERS	
SHRIMP	99%	SHRIMP	68%
SALMON	99%	FLOUNDER	68%
FLOUNDER	98%	SALMON	58%
CATFISH	97%	COD	41%
COD	95%	SWORDFISH	31%
ORANGE ROUGHY	4%	LOBSTER	24%
SNAPPER	1%	CLAMS	21%
SOLE	1%	SCALLOPS	20%
HADDOCK	1%	TUNA	18%
POLLOCK	1%	WHITING	15%

The % figures indicate the percentage of all retailers in each category who included that species in their list of the Top 5 best selling species in 1992.

Seafood sales in chain stores appeared to be focused on large volumes of a limited number of species. This is probably related to central purchasing and chain-wide advertising. Based on survey results, five species were consistently identified as the top sellers by chain stores in the area, and appeared to account for a large portion of total sales. Shrimp and salmon were included in the list of the Top 5 selling species by 99% of the chain stores surveyed. Flounder and catfish were also major sellers listed by 98% and 97% of the chain stores respectively. Cod was included in the list of Top 5 sellers by 95% of the stores. Flounder was likely to have been used in the context of an all-inclusive term for a variety of different flatfish species and the survey question did not prompt respondents to be specific. The term flounder probably includes a variety of species like yellowtail flounder, blackback or winter flounder, fluke or summer flounder, American plaice or dabs, windowpane flounder, and witch flounder (grey sole). Greenland turbot could also fall into this category in some locations. The only other species identified by more than 2 or 3 chain store survey respondents as a top selling item was orange roughy. Overall, chain stores or supermarkets appear to be concentrating their sales efforts on traditional species with the most universal demand pattern. It is also significant that no shellfish products, other than shrimp, were identified by chain stores as top sellers in 1992.

Shrimp, flounder, salmon, and cod were also the most frequently identified top sellers by independent retailers. The number of choices offered in independent markets was more varied as they frequently target sales to appeal to specific consumer groups in their immediate area. These groups often represent a wide range of income levels, age groups, and ethnic backgrounds. Independent retailers tended to have a more diverse mix of products than chain stores. This probably relates to traditional supply channels such as the Fulton Fish Market and the Philadelphia Fish Market frequently used by independent retailers. Product can be purchased in smaller quantities and a greater variety of different species are readily available at these local wholesale fish markets. Many independent retailers often purchase product 2 or 3 times a week in these markets. This allows them the flexibility to take advantage of supply and price shifts frequently associated with seafood products harvested from the wild which are susceptible to a variety of factors including weather, seasonality, number of boats fishing, etc. These factors can drastically affect both the supply and product price in a short period of time.

Although catfish was one of the leading sellers in chain stores, it was only identified as a top seller by 9 of the independent stores. This may be related to a lack of an appropriate distribution mechanism for independent retailers. Chains can more easily order in advance and purchase large quantities of commodity species like catfish and distribute them to individual stores on a regular basis. Many independent retailers are actively seeking supplies of lower priced products like catfish, and sales in independent stores is likely to increase in the future. However, chain stores are likely to continue to hold a competitive edge due to volume buying.

Shellfish species other than shrimp were clearly a much more important product in independent retail stores. Clams, lobsters, and scallops were among the top selling items in independent markets while only shrimp was identified as a top seller by chain stores. Shellfish products like clams, lobsters, and scallops are traditional seafood items in the New York and New Jersey market. There are likely to be a variety of reasons why shellfish sales were reported to be higher in independent markets. Chain stores may find it more difficult to obtain consistent supplies of these products, while independent retailers are likely to have more experience sourcing these products from a variety of local suppliers. Chain stores may also be more reluctant to carry some of these products because of the special equipment needed (ie. lobster tanks), and the special handling considerations and record keeping requirements necessary for live molluscan shellfish products like clams and oysters. These products are items that area consumers have traditionally purchased from specialty stores in the past. Although scallops are an important product commonly sold in both independent and chain stores in the area, the chain stores surveyed did not include scallops in their lists of top selling seafood items.

For three of the five seafood products identified by retailers as best sellers in 1992, a large portion of the local supply is derived from aquaculture sources. Shrimp and salmon were prominent in the list of top selling species for both chains and independent retailers, and catfish was a leading seller in chain stores in the area. In recent years the supply of aquaculture produced shrimp, salmon, and catfish has increased, prices have stabilized, and supplies have become more consistent. Several other important aquacultured species were not identified by many stores as best overall sellers. Not one store reported tilapia as a top selling species, and only 3 stores identified mussels as a top seller. One store identified striped bass which is likely to be a hybrid striped bass since the sale of wild striped bass is currently prohibited in New Jersey and highly restricted in New York.

With a consistent supply, an appropriate price structure, and attention to effective promotional strategies, there appears to be a significant opportunity to increase the market share for both traditional and newer aquaculture species. For many chain stores in the New York and New Jersey area aggressive marketing through newspaper advertising and special sales has been successful, and consumers frequently report that they make purchase decisions based on advertisements and special sales. The purchasing power of the supermarket chains frequently allows them to offer many special sales. Farmed products such as catfish and shrimp, and to a lesser extent salmon, tend to be commodity products where large volumes are routinely available.

Stores in both the higher and lower annual sales volume categories had less dependence on the traditional species and offered a greater variety of products that appeal to customers who shop in their particular area. The popularity of shrimp, as demonstrated by the survey, was evenly distributed in all locations, urban, suburban, and rural areas as well as vacation communities. Flounder, salmon, and catfish were all major sellers in the urban stores. Catfish was most consistently identified

as a top seller in the urban stores. Retailers in suburban locations also included flounder, salmon and cod in their list of top sellers. Cod and catfish were not identified as top selling items in those stores that were located in vacation communities. These stores, which are frequently located near coastal areas, sell a wider variety of locally harvested species, and their customers may also be more willing to experiment with new products while on vacation and enjoying their leisure time.

TABLE 6. FIVE TOP SELLING SPECIES COMPARED TO TOTAL ANNUAL SEAFOOD SALES

SPECIES	>\$1.0 MILLION	\$0.5-\$1 MILLION	\$0.1-\$0.5 MILLION	<\$0.1 MILLION
SHRIMP	81%	97%	62%	52%
SALMON	63%	97%	53%	52%
FLOUNDER	79%	100%	62%	56%
COD	25%	94%	43%	41%
CATFISH	31%	90%	10%	0%
SWORDFISH	23%	4%	34%	36%

Table 6 compares top selling retail species to total annual seafood sales. The three top species, shrimp, salmon, and flounder, were prominent items in retail stores with sales ranging from over \$1 million to less than \$100,000. Because most of the responses in the \$0.5-\$1 million annual sales category were from the chain stores, the large percentages of shrimp, flounder, salmon, cod, and catfish primarily reflect their sales. Independent retailers of all sizes also consistently listed shrimp, salmon, flounder, and cod as leading sellers. Swordfish was the fifth most frequently identified top seller, and it appears to be used consistently by the independent stores of all sizes. The low percentage of responses in the \$0.1 to \$0.5 million category for swordfish is likely to be artificially low, since most chains reported that their total sales fell in this range and none of them included swordfish as a top selling item.

TABLE 7. FIVE TOP SELLING SPECIES COMPARED TO AVERAGE CUSTOMER PURCHASE

SPECIES	>\$20	\$15-\$20	\$10-\$15	<\$10
SHRIMP	65%	65%	88%	58%
SALMON	57%	65%	73%	50%
FLOUNDER	61%	74%	82%	50%
COD	13%	45%	35%	50%
CATFISH	4%	7%	27%	15%
SWORDFISH	43%	45%	37%	16%

Table 7 compares the top five species to reported average sales per customer (primarily reported by independent retailers). Shrimp, salmon, and flounder were listed as top sellers by retailers with average sales per customer from less than \$10 to greater than \$20. Retailers with the highest average sale per customer sold less cod and catfish. For retailers with a lower average purchase amount per

customer, catfish and cod tended to be better sellers because of lower prices and product familiarity. Catfish was virtually unknown in the New York metropolitan area market until five years ago. Market acceptance appears to be largely driven by an acceptable price structure and aggressive marketing efforts. Many American consumers prefer a white-fleshed, mild-tasting boneless fillet and catfish has become an acceptable lower priced alternative to flounder. Many retailers feature a cajun catfish with a hot, spicy coating. This product is becoming so popular that one supermarket manager listed cajun catfish as one of their top selling species.

PRODUCT MIX: FRESH, FROZEN, AND PREPARED ITEMS

In order to develop a more extensive profile of the types of products carried by retailers in this area, respondents were asked to report the average number of various types of products that they sell. Three product categories were considered: fresh, frozen, and prepared or ready-to-eat. To standardize the responses the survey question specifically asked the respondents to identify the number of items in their display case on Friday which was assumed to be one of the busiest and most well stocked days of the week.

TABLE 8. NUMBER OF FRESH, FROZEN, AND PREPARED SEAFOOD PRODUCTS IN RETAIL STORES ON A TYPICAL FRIDAY

ALL RETAILERS

# OF ITEMS	FRESH	FROZEN	READY-TO-EAT
3-5	3%	10%	84%
5-10	4%	8%	6%
10-20	81%	76%	5%
OVER 20	12%	6%	5%

N=495

N=458

N=447

CHAIN STORES

# OF ITEMS	FRESH	FROZEN	READY-TO-EAT
3-5	0%	4%	97%
5-10	1%	2%	2%
10-20	97%	93%	0%
OVER 20	2%	1%	1%

N=350

N=347

N=346

INDEPENDENT RETAILERS

# OF ITEMS	FRESH	FROZEN	READY-TO-EAT
3-5	9%	28%	37%
5-10	12%	28%	24%
10-20	41%	25%	21%
OVER 20	38%	19%	18%

N=140

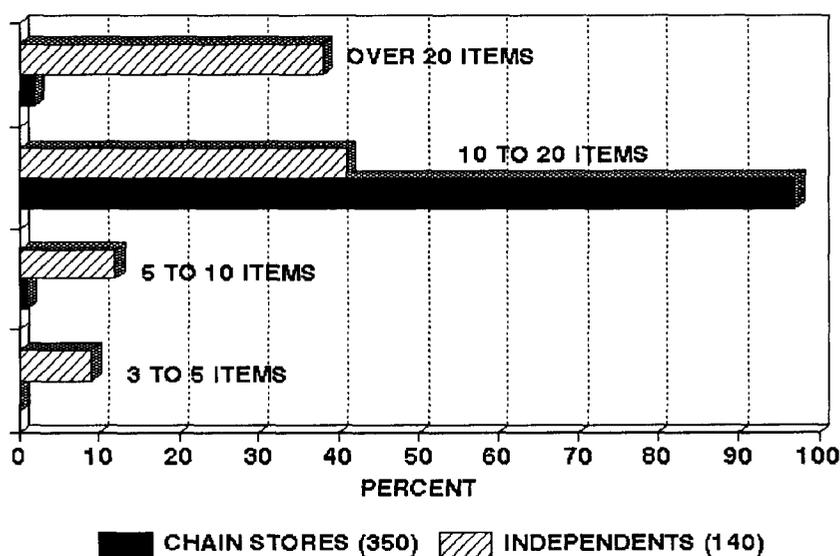
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N=98

FRESH SEAFOOD PRODUCTS

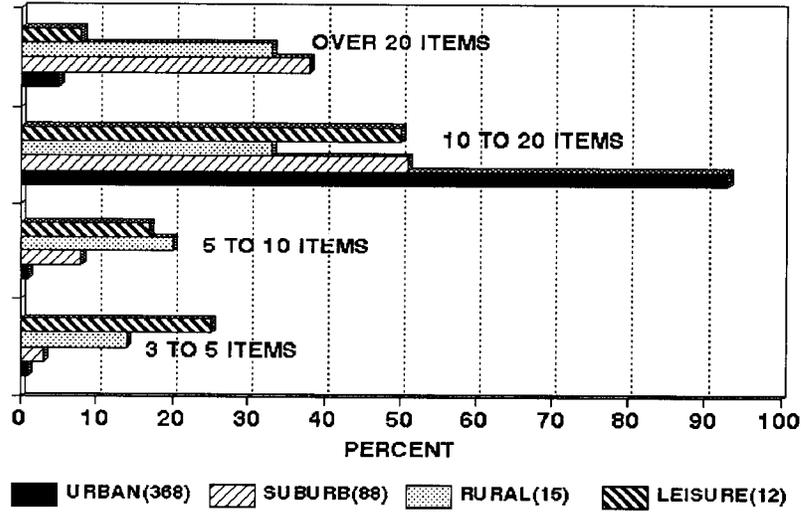
Ninety-seven percent of the chain stores had between 10 to 15 fresh items in the case on a typical Friday. Forty-one percent of the independent retailers had 10 to 20 fresh items in their case, and 38% had an even larger assortment with over 20 fresh items. No distinction was made between “fresh” and “previously frozen” product. It was impossible to determine whether individual respondents counted different sizes of shrimp or different product forms such as salmon steaks and salmon fillets separately. Many of the independent retailers offered a greater range of items. Greater variety at the independent retailer’s seafood counters can be offered because of smaller purchasing requirements and greater customer interaction which would allow for more custom orders. Chain stores, because of central purchasing and advertised specials, tend to move a greater volume of product, but often offer less variety.

Figure 1. Number of Fresh Products in the Display Case on Friday in Chain and Independent Retail Stores



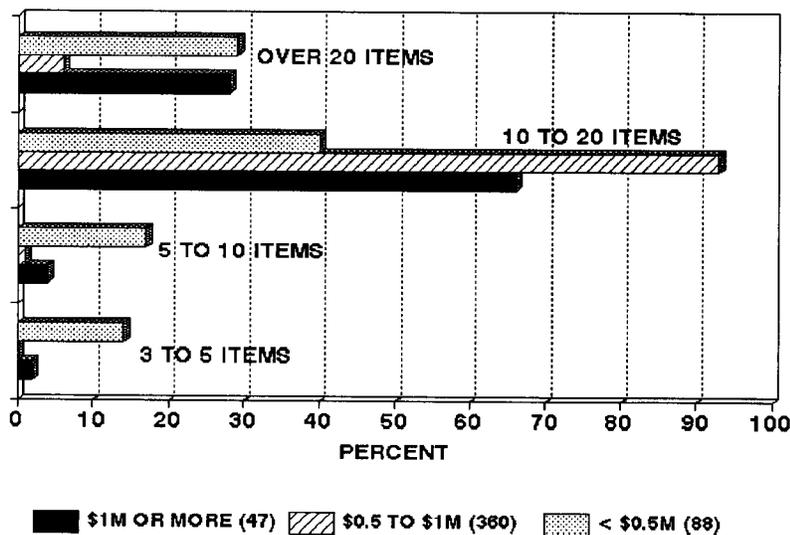
Stores located in urban areas routinely had between 10 and 20 fresh seafood items in the case. One possible explanation may be that urban stores serve a more culturally diverse population which creates a demand for greater variety. Population density and the number of individuals in the target market would also influence the product mix. Many of the traditional retail training programs advocate having between 12 and 17 species of fresh finfish and shellfish in the case. The majority of suburban stores also tended to have between 10 and 20 fresh seafood items, but a significant number (38%) had more than 20 items in their display case. Independent retail markets which were frequently located in suburban areas in New York and New Jersey tended to offer a wider variety of different products, and were most likely to have reported having more than 20 fresh items. Of the small number of retail stores located in rural and vacation communities who returned surveys, rural stores were more likely to carry more than 20 fresh items than those in vacation or leisure communities.

Figure 2. Number of Fresh Products in the Display Case on Friday in Various Community Settings



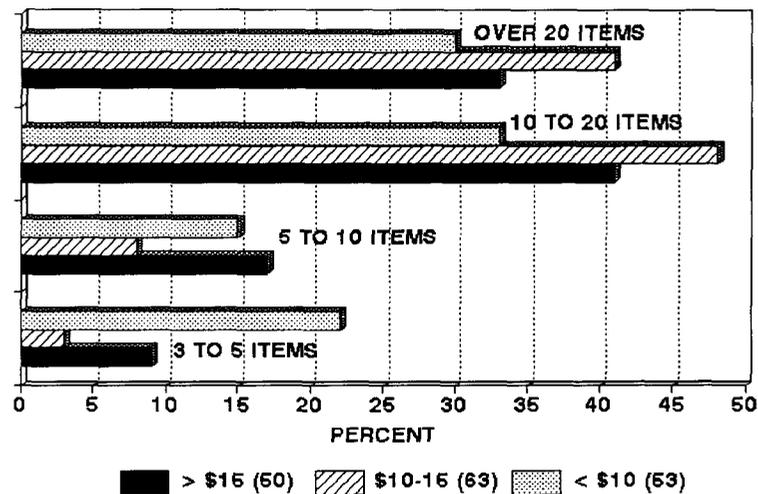
Stores with annual sales between \$0.5 to \$1 million routinely offered between 10 and 20 items in the case. Chain stores typically predominated in this category. As expected, retailers whose annual seafood sales were greater than \$1 million tended to carry more fresh seafood items, with a significant portion of these stores having more than 20 items on a typical Friday. In contrast, stores reporting the lowest total annual seafood sales, less than \$0.5 million, reported having the fewest number of fresh items. However, a significant number of these smaller operations did report having a diverse product mix with 20 or more fresh items.

Figure 3. Number of Fresh Products in the Display Case on Friday Compared to Total Annual Seafood Sales



Those stores with the greatest variety of fresh products also had the highest average sale per customer. Retailers with a large variety of products may have the opportunity to encourage their customers to select several different types of seafood. Many consumers don't understand that they can purchase enough seafood for several meals, and that they can store products at home in the refrigerator. In many neighborhoods, there is only one store that regularly sells seafood and this makes planned purchase a necessity. Time and place of purchase limitations can also be a major barrier to greater seafood consumption. If customers purchase seafood for later use, it is critical that they know how to handle and store the product correctly.

Figure 4. Number of Fresh Items in the Display Case on Friday Compared to Average Sale Per Customer

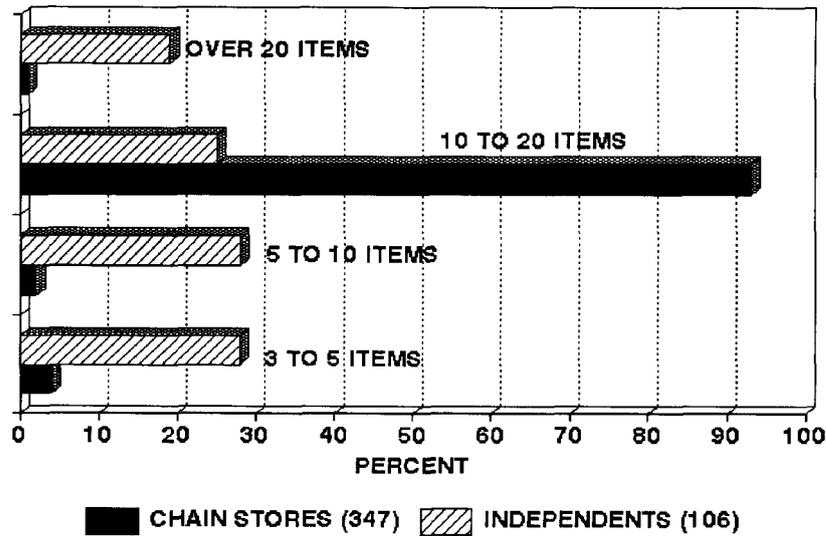


FROZEN SEAFOOD PRODUCTS

Chains typically displayed between 10 and 15 frozen items. In some cases, this may have included frozen product that had been thawed (slacked out) for display in the fresh case. Many chain stores indicated that the most desirable product form was a frozen steak. In some chains, frozen prepared items such as sticks and portions are sold through the "frozen food" department and would not appear in the product mix offered by the seafood department. Given the nature of the survey, it was impossible to determine exactly what types of products were included by individual respondents. Chains can easily access frozen product from the central warehouse on an "as needed basis". In addition, many of the chain stores operate on the "float" which means that they traditionally pay their suppliers on 60-90 day terms. This allows them to use their receivables for a period of time before making payment. Because they are using their capital, they can operate on a narrower gross margin than an independent retailer.

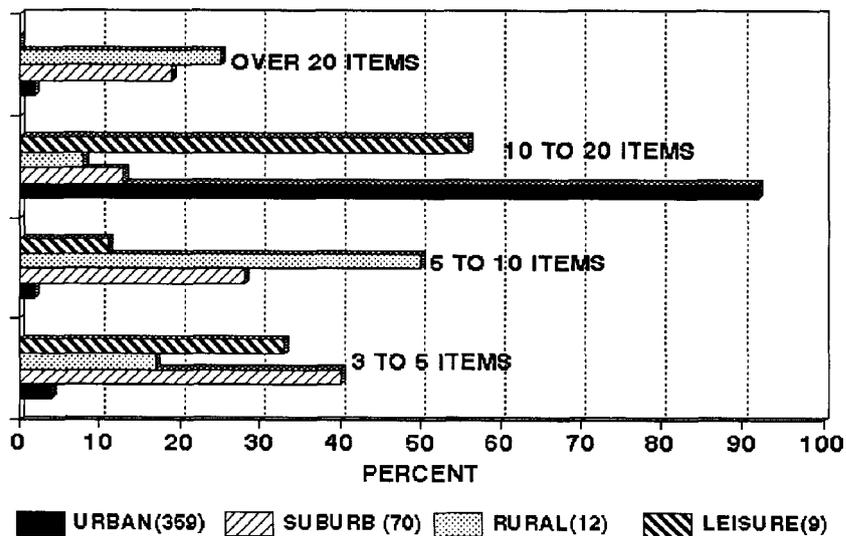
Independent retailers tended to have fewer frozen choices, with over half reporting ten items or less. This is probably related to a lower likelihood that many of the smaller independent retailers will carry a large inventory of frozen items. However, some of the larger independent retailers appear to have increased their assortment of frozen products, with almost 20% reporting that they normally carry over 20 frozen items on a typical Friday.

Figure 5. Number of Frozen Products in the Display Case on Friday in Chain and Independent Retail Stores



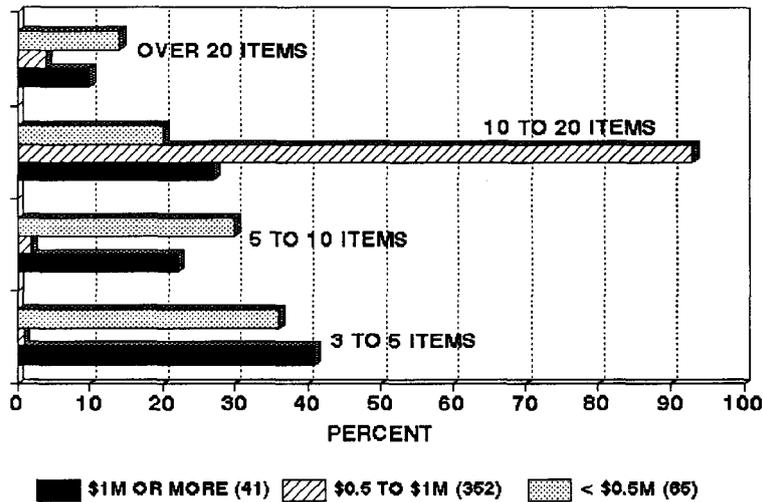
Most of the retailers located in urban areas carried between 10 and 20 frozen items in their stores. This observation closely matches the number of items reported by the chain stores which were predominately located in urban areas. Over half of the suburban stores also had between 10 to 20 frozen items, but a significant portion (40%) of suburban stores, most of which were independent retailers, had less than 5 frozen items. About one fourth of the rural stores who completed this survey carried more than 20 frozen items. Consumers in rural areas are likely to have to travel greater distances to purchase seafood and may be more accustomed to purchasing larger quantities of frozen products and storing them at home for future use.

Figure 6. Number of Frozen Products in the Display Case on Friday in Various Community Settings



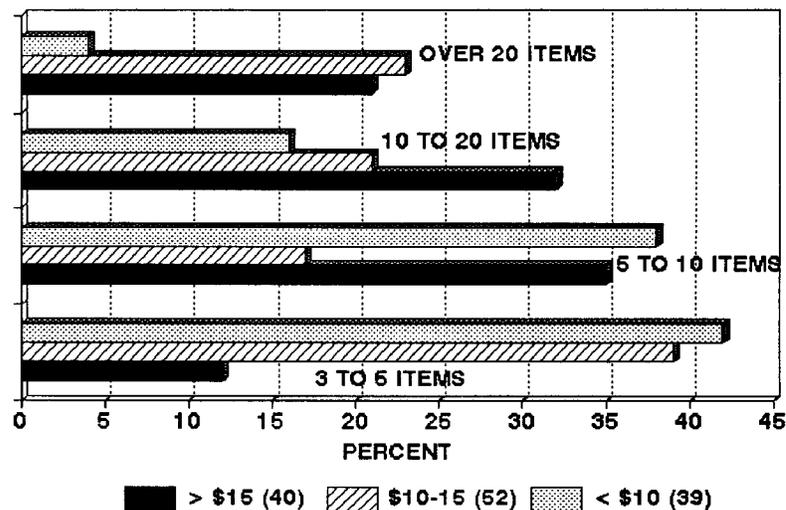
Sixty-three percent (63%) of those with annual seafood sales greater than \$1 million had 10 or less frozen items. Ninety-three percent (93%) of those with sales between \$.5 and \$1 million had 10 to 15 items. Most of the supermarket chains reported having between 10 and 20 frozen items as well as total annual seafood sales between \$0.5 to \$1 million. Sixty-eight percent (68%) of those with sales under \$0.5 million carried fewer than 10 frozen items in their store on a typical Friday.

Figure 7. Number of Frozen Products in the Display Case on Friday Compared to Total Annual Seafood Sales



Over half of the retail stores who reported an average sale per customer of \$15 or more had more than 10 frozen items or more, and 21% had over 20 frozen items. Many frozen products such as lobster tails, shrimp, crab, etc. tend to have a high price tag. This may account for higher average purchase. Generally, certain frozen products such as shrimp and scallops are sold in bulk packages. Many stores routinely run advertised specials featuring five pound boxes of frozen shrimp. These bulk sales would tend to make the average sale much higher, even when they are on sale. Those retail stores who reported the lowest average sale per customer, \$10 or less, also had the lowest number of frozen items, with 80% reporting that they carried 10 frozen items or less.

Figure 8. Number of Frozen Products in the Display Case on Friday Compared to Average Sale Per Customer

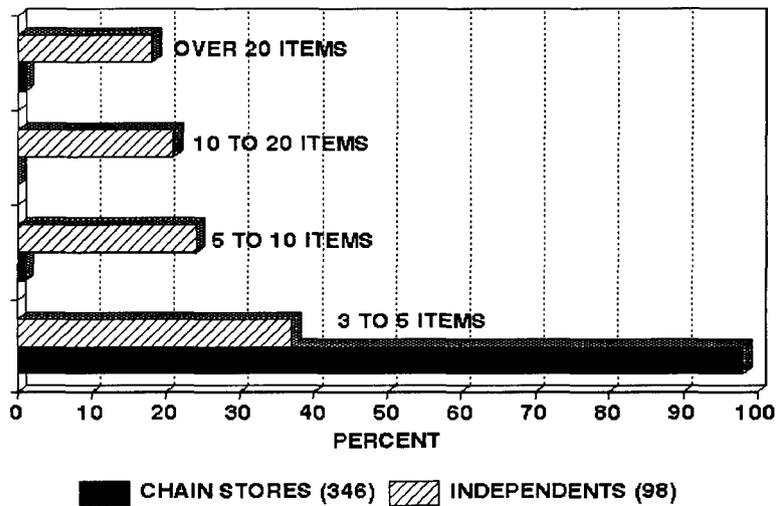


PREPARED OR READY-TO EAT SEAFOOD PRODUCTS

Prepared items could include a wide variety of different products that utilize many different types of seafood as well as other ingredients. Some common prepared or ready-to-eat products sold in New York and New Jersey retail stores include soups or chowders, salads, prepared oven ready entree items like stuffed flounder, seafood kebabs, fish or shellfish cakes or patties, and pre-breaded fish portions. Almost all of the chains stores carried very few prepared or ready-to-eat products with 98% reporting that they had only 3 to 5 items. Eighteen percent (18%) of the independents offered more than 20 prepared items, and 21% offered between 10 and 20 prepared items. About one-fourth of the independent stores (24%) had between 5 to 10 prepared or ready-to-eat items.

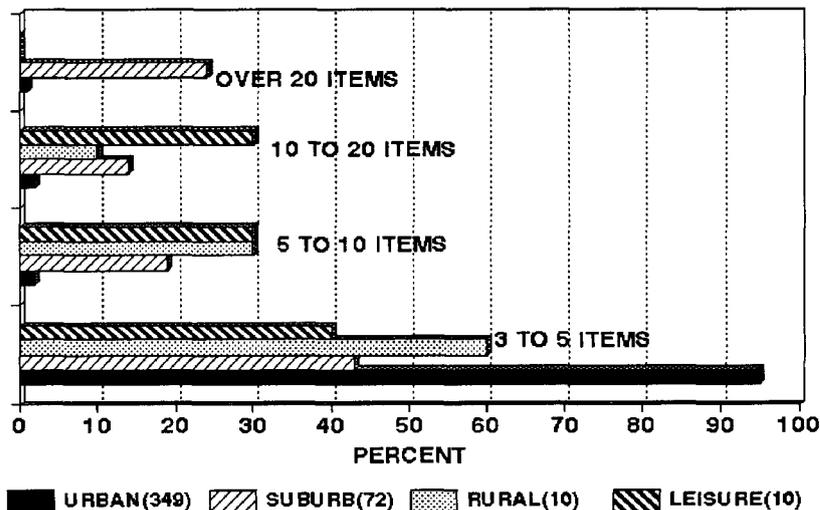
Independent retail markets are more likely to carry a line of prepared or ready-to-eat products than chains. Much of this preparation occurs on-site in the retail store. In many cases, independent retailers are eager to develop new products especially those that can be assembled using by-products of filleting and steaking operations. These value-added products can frequently provide a more favorable profit margin than fresh product. Many of the prepared seafood products such as "Sea Legs Salad" or other imitation shellfish products may be sold through the deli department in a chain store. This would entail different ordering and inventory centers. The seafood department would not be credited with these sales, and they would not have been reported by those who completed this survey.

Figure 9. Number of Prepared Products in the Display Case on Friday in Chain and Independent Retail Stores



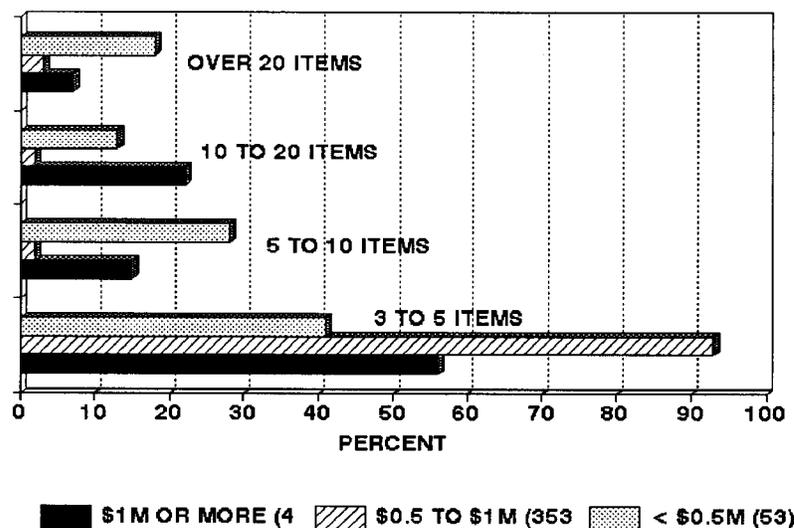
Almost all of the urban stores (95%) reported carrying between 3 to 5 prepared or ready-to-eat items. Again, this figure reflects the number of prepared items carried by chain stores who were primarily operating in an urban location. For the suburban stores, 43% also reported having only 3 to 5 prepared items, 19% carried between 5 to 10 prepared items, and 38% had more than 10 prepared products. Almost one fourth of the suburban stores reported that they had over 20 prepared items on a typical Friday. The importance of ready-to-eat and prepared items in suburban stores is likely to be related both to the lifestyle of their customers, and the increasing number of two-wage earner families where quick meals are in greater demand. In addition, a significant number of independent retail stores who completed surveys were from suburban areas, and these stores are more likely to feature prepared products. Sixty-percent (60%) of those in rural locations carried 3 to 5 prepared items, 30% had between 5 and 10 items, and 10% had more than 10 prepared items. No retailers in rural locations had more than 15 prepared items. Forty percent (40%) of those retailers in vacation or leisure communities reported having between 3 and 5 prepared items, 30% carried between 5 and 10, and 30% had more than 10. No one in this category reported having more than 20 prepared items.

Figure 10. Number of Prepared Products in the Display Case on Friday in Various Community Settings



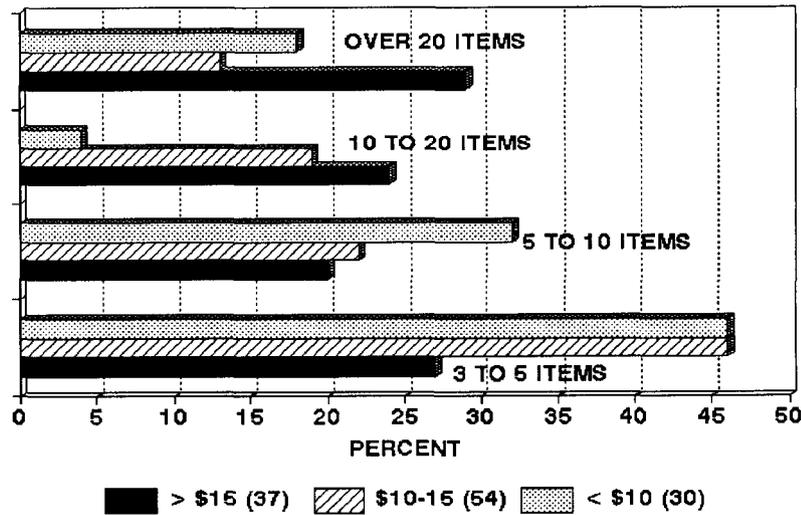
Ninety-four percent (94%) of those stores with sales volume between \$0.5 and \$1 million had 3 to 5 prepared items. This figure was consistent with the number of prepared items reported by chain stores most of which also reported total annual seafood sales between \$0.5 and \$1 million. Retailers with both the highest and lowest total annual sales featured the largest number of prepared items. More retailers with total sales less than \$0.5 million had more than 20 items than stores with higher sales. This most likely reflects the need for these smaller operations to maximize profits by minimizing waste and featuring products with a higher gross margin. Of those retailers who carried between 10 to 20 prepared items, stores with annual seafood sales greater than \$1 million made up the largest portion of this category. This is likely related to both the overall size and variety of products offered at these stores as well as the lifestyle and amount of expendable income of their customers.

Figure 11. Number of Prepared Products in the Display Case on Friday Compared to Total Annual Seafood Sales



Of the retail store operators who reported their average seafood sale per customer, those with higher average sales tended to offer more prepared items. Twenty-nine percent (29%) of those retailers with an average sale of \$15 or more had more than 20 prepared items, and another 24% had between 10 and 20 items. Forty-six percent of the retailers who reported average customers sales of \$15 or less had only 3 to 5 prepared items. Retail stores with average sales less than \$10 tended to have more prepared items than those with average sales between \$10 and \$15. These stores may be strongly motivated to sell more prepared items that provide a higher profit margin without greatly increasing overhead costs.

Figure 12. Number of Prepared Products in the Display Case on Friday Compared to Average Sale Per Customer



PURCHASING CHANNELS

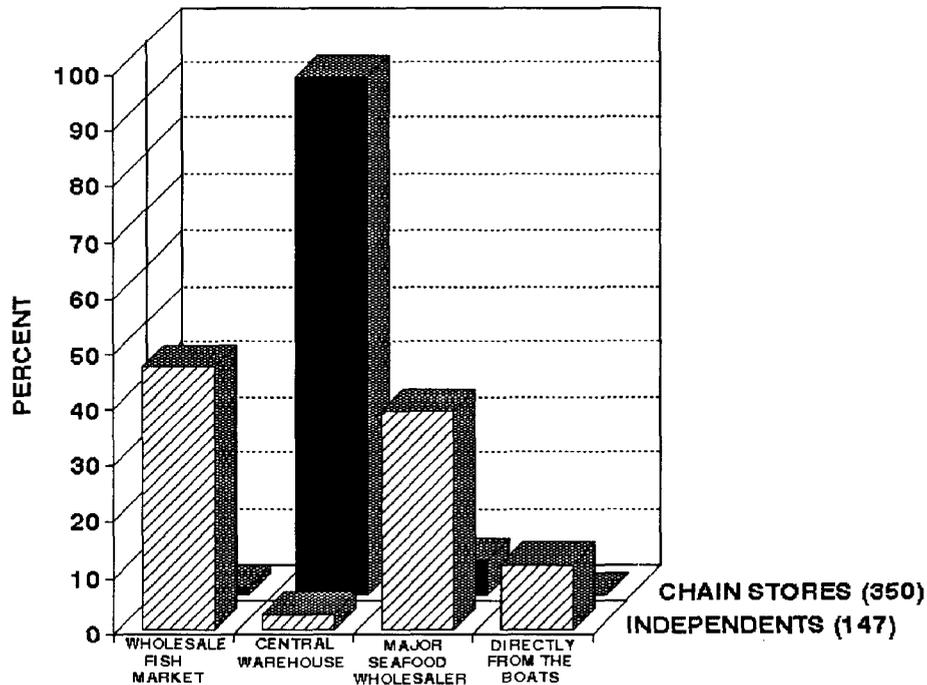
Most of the supermarket respondents (93%) received their product from a central warehouse. With central purchasing, individual store managers may have little knowledge about the source of their products. There have been stories about consumers asking about the source of a particular product, and being told, "It came from the central warehouse." Training is important to ensure that counter personnel have an understanding of the products they sell and where these products come from. Educational materials developed and distributed by suppliers of various products could also play an important role in increasing counter personnel and managers knowledge about the source of their products.

Forty-seven percent (47%) of the independent retailers purchased their products from a wholesale fish market. Independent retailers in the New York City metropolitan area and southern New Jersey frequently buy product from one of the two major wholesale markets, the Fulton Fish Market for the New York City area or the Philadelphia Wholesale Fish Market for southern New Jersey. This hands-on experience in purchasing their products gives them the opportunity to select product based on both quality and price. Direct contact with the product at this level also adds to the knowledge base of the individual retailer. In addition, retailers who purchase at a major wholesale market may have the opportunity to eliminate one or more middlemen involved in the seafood distribution chain. By reducing the number of links in the chain, savings can be achieved and passed on to the consumer. In addition to this major source of product, 39% of the independent retailers indicated that their products came from a major seafood wholesale distributor. About 12% of the independent retailers reported that they purchased seafood directly from harvesters or fishermen.

Information about where retailers purchase their seafood can help suppliers identify how to more effectively market their products. Independent retailers are more likely to buy smaller amounts of product direct from fishermen or aquaculture producers. Placing products in regional wholesale fish

markets or wholesale distributors can also provide an effective way to reach independent retail buyers. For chain stores, producers must be able to provide larger volumes of product and arrange deliveries that will be compatible with the central warehouse purchasing and distribution system used by these retail stores.

Figure 13. Sources of Seafood Purchased by Chain and Independent Retail Stores



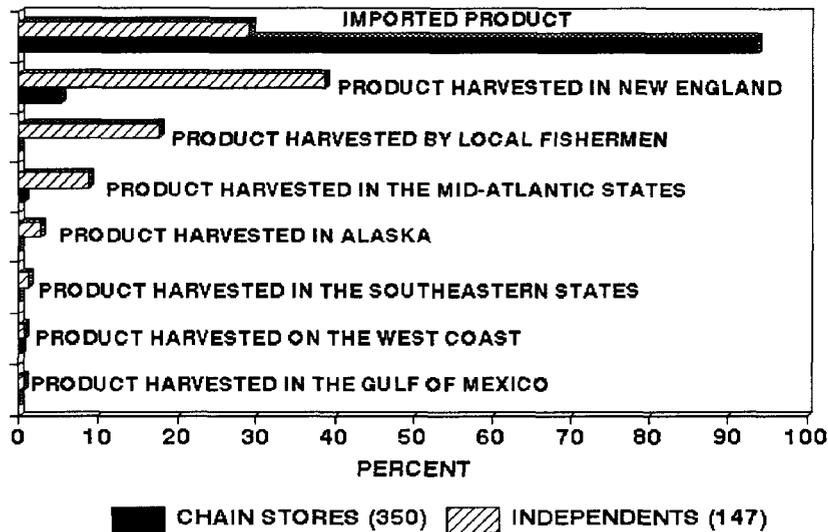
PRODUCT ORIGIN

Most of the chain stores surveyed (94%) believed that the majority of the products they sell were imported. Five percent (5%) believed that their products came from the New England states. Because a definition of “imported product” was not provided, it is difficult to accurately characterize what sources these stores were referring to. It does seem clear that chain stores believe that most of the products they sell come from somewhere other than their local region. Since all of the major regions of the U.S. were included as potential responses, it seems likely that “imported product” was interpreted to mean seafood that comes from other countries. For some of the major species like shrimp, salmon, and possibly cod and flounder this could indeed be the case. For catfish, however, which was also listed as a top seller by chain stores, it is likely that the product comes from domestic sources in the southern states.

Independent retailers believed that the products they sell come from a variety of different locations. Thirty-nine percent (39%) identified the New England area as a source of some of their products, 29% believed that some products were imported, 18% included local fishermen as a source of product, and 9% identified the Mid-Atlantic region as being a source of product. About 1% believed that some of their products came from either the Southeast, Gulf of Mexico, or the West Coast. The perceptions about product source reported by independent retailers is consistent with the kinds of products frequently found in regional wholesale seafood markets like the Fulton Fish Market and the

product line of many local wholesale distributors. Because of their experience and involvement in procuring products, independent retailers appeared to have a good understanding of the current market conditions in the New York and New Jersey area. It was also interesting to note that even though the state of Alaska has been actively marketing their products in this region, few retailers included Alaska as a source of products that they sell.

Figure 14. Geographical Source of Seafood Purchased by Chain and Independent Retail Stores



NUTRITION-RELATED PROMOTIONAL TECHNIQUES

Ninety-four percent (94%) of all the retailers surveyed indicated that they promoted seafood as being “heart healthy”. All of the chain stores reported using this promotional strategy, but only 80% of the independent retailers reported using this strategy. There was slightly less promotion in those stores with lower total annual sales and an average purchase per customer of less than \$5. These stores may not actively engage in any promotional activities. Ninety-eight percent of the retail stores in urban areas reported that they promote seafood as being “heart healthy”, while only 88% of the suburban stores reported using this strategy.

Ninety-four percent (94%) of those surveyed also indicated that they promoted seafood as being a low calorie food. Ninety-nine percent (99%) of the chain stores used this attribute of seafood products in promotions while only 81% of the independent retailers used this promotional technique. Ninety-eight percent (98%) of the urban stores identified seafood as “low calorie” as compared to 88% of the suburban stores.

Overall, those retailers who focused on seafood’s positive nutritional attributes were equally likely to identify seafood as being both “heart healthy” as well as “low calorie”.

Figure 15. Frequency With Which Retailers Promote Seafood as Being “Heart Healthy”

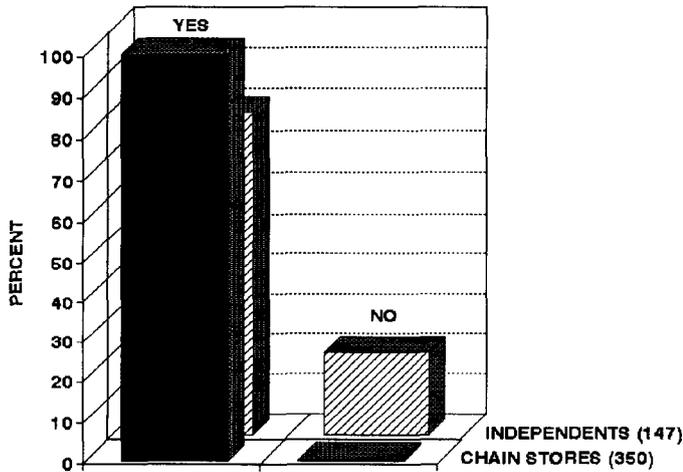
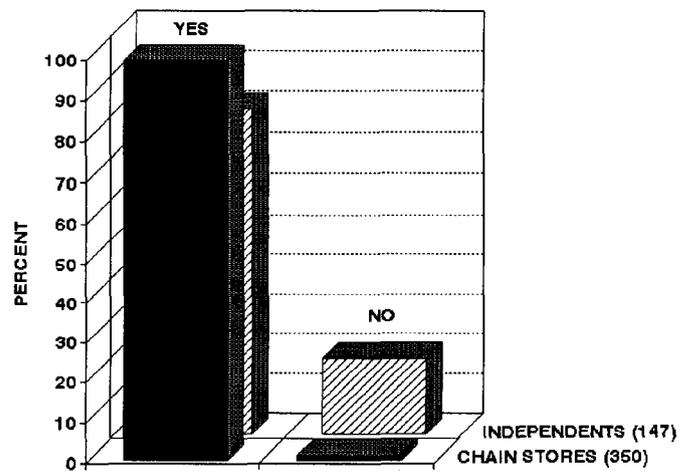


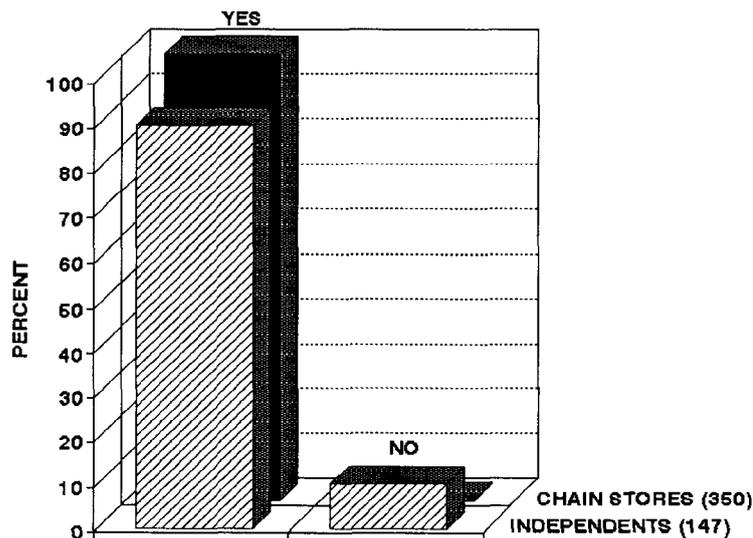
Figure 16. Frequency With Which Retailers Promote Seafood as Being “Low Calorie”



DEMAND FOR AQUACULTURED PRODUCT

When asked if they used aquacultured or farm raised seafood products, 97% of all of the retailers surveyed indicated that they did use them. Over 99% of the chain stores reported using aquacultured products, as compared to 90% of the independent retail stores.

Figure 17. Use of Aquaculture Products in Chain & Independent Stores



Those retailers who reported using aquacultured or farm raised product were asked to identify which products they used from a list of commonly available aquaculture products including shrimp, oysters, mussels, catfish, trout, tilapia, clams, salmon, and hybrid striped bass. Space was also provided for retailers to identify other products. Chain stores identified tilapia, hybrid striped bass, mussels,

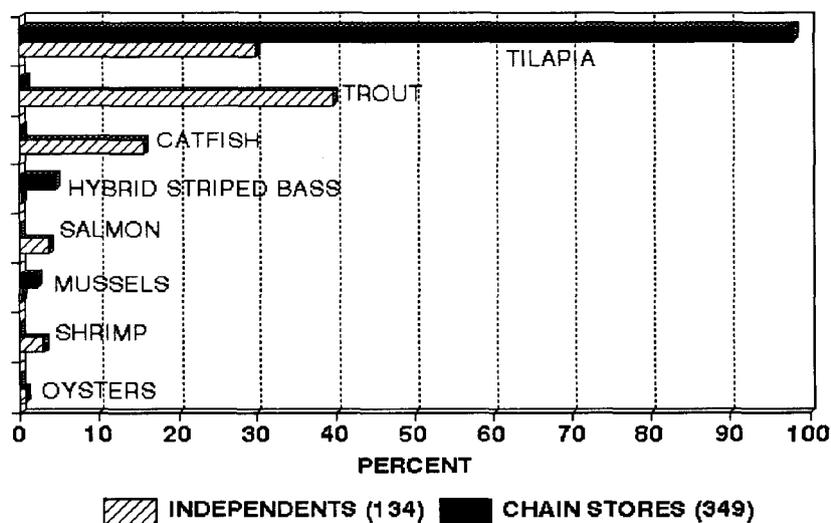
and trout as the only aquaculture products that they used. Independent retail stores identified trout, tilapia, and catfish as the aquacultured products used most frequently. Other possible aquacultured products identified by some of the independent retailers included salmon, shrimp, oysters, mussels, clams, and hybrid striped bass.

TABLE 9. AQUACULTURE PRODUCTS USED BY CHAIN AND INDEPENDENT RETAIL STORES

SPECIES	ALL STORES	CHAINS	INDEPENDENTS
TILAPIA	383	342	40
TROUT	56	2	53
CATFISH	25	2	21
HYBRID STRIPED BASS	7	1	6
SALMON	5	0	5
SHRIMP	4	0	4
MUSSELS	4	1	3
OYSTERS	1	0	1
CLAMS	1	0	1

Tilapia was the most commonly used aquaculture product overall. Almost all of the chain stores (98%) reported using tilapia while only 30% of the independent retailers reported using it. Tilapia is being actively marketed by a number of wholesalers in the region, and producers have identified it as a farm raised product in their promotional and educational efforts for consumers and seafood department personnel.

Figure 18. Specific Aquaculture Products Used by Chain and Independent Stores



It was evident that many individuals from both chain stores and independent markets who completed a survey were unaware that some of the other products they sell are aquaculture produced or farm raised. Although most chain stores reported that catfish was one of their best selling seafood items, less than 1% of the chain stores reported that they used farm-raised catfish. In contrast, independent retail stores did not indicate that catfish was a major seller, but 16% identified catfish as an aquaculture product that they used. In urban areas, where catfish was a major seller, only 2% of all of the retail stores indicated that they had purchased farm-raised catfish. A large portion of the shrimp and salmon sold in this area are also farm raised products, and both chain stores and independent retail markets identified these two species as being top sellers. However, none of the chain store respondents identified these products as being aquacultured or farm raised. Only 3% of the independent retailers identified the shrimp they purchase as farm raised, and 4% identified salmon as a farm raised product that they used.

From this information it seems clear than many retailers do not have a high level of awareness that many of the products they sell are farm-raised. Although independent retailers were more likely to identify farm-raised products, education is needed for both types of retail operations to heighten their understanding and awareness. Aquaculture producers may be able to further increase their market share through carefully designed educational and promotional programs designed to help both retailers and consumers better understand their products. A major opportunity for the aquaculture industry would be to educate counter personnel. These are often the individuals that have the most contact with the consumer and can pass on the most knowledge. Merchandising strategies that include developing promotional materials for display or distribution in retail stores would also be useful. Stand-alone promotional materials offer the advantage of not being affected by staff turnover, which is a particular problem at seafood counters in some chain stores.

TABLE 10. AQUACULTURE PRODUCTS USED BY RETAILERS COMPARED TO TOTAL ANNUAL SEAFOOD SALES

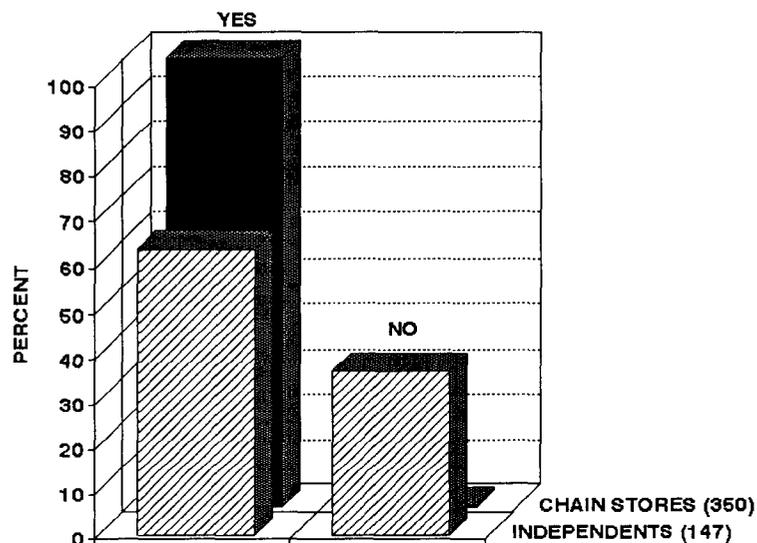
SPECIES	>\$1 MILLION	\$0.5-\$1 MILLION	<\$0.5 MILLION
TILAPIA	21	343	19
TROUT	14	12	30
CATFISH	4	3	18
HYBRID STRIPED BASS	2	2	3
SALMON	1	0	4
SHRIMP	1	0	3
MUSSELS	0	0	4
OYSTERS	1	0	0
CLAMS	1	0	0

All of the 343 respondents from chain stores who reported using tilapia also reported that their average annual sales were between \$0.5 and \$1 million. Retailers with total annual sales above \$1 million and less than \$0.5 million were almost all independent retail stores. These stores used the widest variety of aquacultured seafood products, and were also heavier users of some of the less expensive aquacultured products like trout, tilapia and catfish. Retailers with annual sales greater than \$1 million reported using tilapia and trout most frequently.

PERCEIVED VALUE OF AQUACULTURE AS A MARKETING TOOL

Eighty-nine percent (89%) of all the retailers who completed a survey reported that they used the phrase “farm-raised” or “aquacultured” as a marketing tool. Ninety-nine percent (99%) of the chain stores reported using this phrase as a marketing tool. Only 63% of the independent retail stores used this marketing strategy. This difference may be related to the centralized merchandising strategies utilized by chain stores that include standardized newspaper advertising, sales, in-store demonstrations, and recipes. Recent promotions involving tilapia by local wholesalers probable played a significant role in influencing the large number of positive responses received from chain stores. Many respondents were familiar with tilapia as a farm-raised product as a result of this promotion. This would tend to support the notion that supplier developed promotions can play a significant role in creating a market identity for aquaculture products and in increasing sales. Promotional materials that could be used by both chain stores as well as independent retail stores would be likely to have the greatest impact on sales in the New York and New Jersey area.

Figure 19. Do You Use of the Phrase “Aquacultured” or “Farm Raised” as a Marketing Tool (Chain versus Independent Retail Stores)



PERCEIVED CUSTOMER ATTITUDES ABOUT AQUACULTURE PRODUCTS

Retailers were asked to identify what they viewed were advantages of aquacultured products from their customers' point of view. Three choices were provided: better quality, safer, and price. Of these choices, 94% of the chain stores indicated that safety was a major advantage of aquacultured products from their customer's viewpoint, 6% indicated that an advantage was price, and less than 1% indicated better quality. Independent retailers also viewed safety as an important advantage of aquacultured products, but not to the same extent as chain stores. Forty-one percent (41%) of the independents indicated that safety was an advantage, 38% indicated lower prices, and 21% better quality. Overall, independent retailers were more likely to identify a broader range of advantages to aquacultured products for their customers than chain stores, and may have been better able to distinguish between safety and quality advantages. Safety was also identified as an advantage of aquaculture products most frequently by retailers who were located in urban areas (94%) the majority of whom were chain stores.

If we compare this information to information collected in the consumer survey portion of this study, there are several differences. When consumers were asked to identify advantages of aquacultured or farm-raised products, only 17% indicated that they felt that they were safer, 19% believed that they were better quality, and only 12% indicated that they offered a lower price. Overall, independent retailer's perceptions of the advantages of aquacultured products were more consistent with the advantages actually identified by consumers. The most consistent advantage of aquaculture products identified by consumers was that they were more "environmentally friendly" (36%). Despite the considerable attention that has been focused on seafood safety issues, it would seem that in reality, consumers are less concerned about safety and safety advantages associated with specific types of products than retailers in general and chain stores in particular. Consumers appeared to be more concerned about freshness and quality, and perceived aquaculture as a more environmentally friendly or "green" alternative source for seafood products. Both of the positive attributes identified by consumers (better quality and environmentally friendly) might provide a major marketing opportunity for aquaculture producers as well as retailers.

Figure 20. Advantages Perceived by Retailers of Aquaculture Products From Their Customer's Point of View

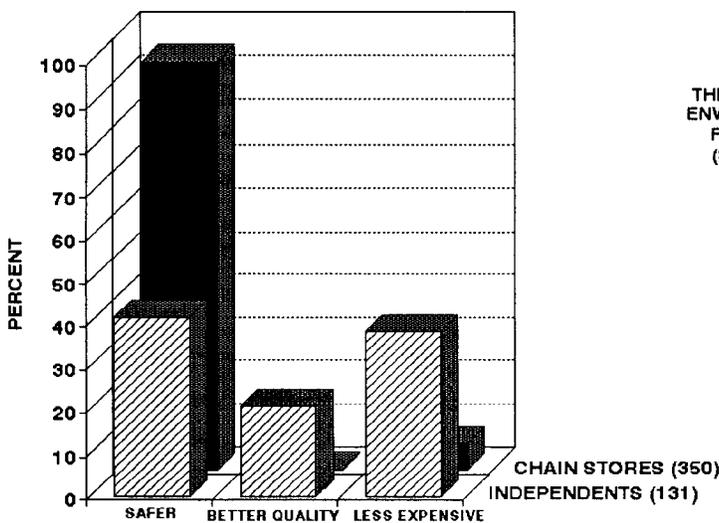
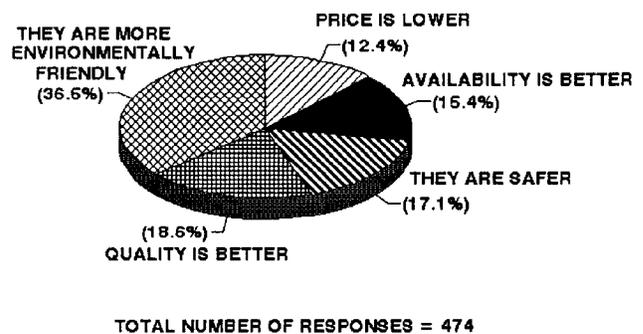


Figure 21. Advantages of Aquaculture Products Identified by New York and New Jersey Consumers



PERCEPTIONS ABOUT AQUACULTURED PRODUCTS FROM THE RETAILER'S POINT OF VIEW

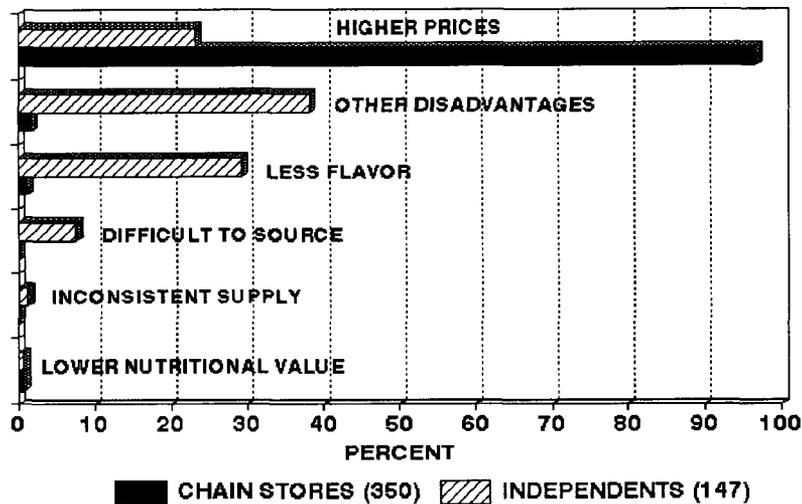
Retailers were asked to identify both advantages and disadvantage of aquaculture products from their own point of view. A list of possible advantages that included consistent supply, consistent price, lower price, better portion control, and safer were provided. A list of possible disadvantages that included less flavor, lower nutritional value, difficult to source product, inconsistent supply, and higher prices, were also provided.

From the retailers' point of view, 78% viewed aquaculture products as being safer than wild caught product. Safety was a major factor among urban stores (92%) (which were primarily chain stores), as compared to 42% in suburban markets which were primarily independent retail stores. Only nine percent (9%) rated consistent price as a major advantage. Six percent (6%) viewed consistent supply

as an advantage. Four percent (4%) viewed portion-control positively. Only 3% felt that aquacultured products had a lower price than wild caught product. Educational and promotional strategies that emphasize safety, and consistent product size and price advantages would appear to be useful to help retailers understand these positive attributes of aquaculture products.

Seventy-four percent (74%) believed that farm-raised product was higher in price than wild caught product. This perception was much more prevalent in chain stores in which 97% saw higher price as a disadvantage as compared to only 23% of the independent retailers. Ten percent felt aquaculture products had less flavor. Twenty-nine percent of the independent retailers perceived less flavor as a disadvantage as compared to only 1% of the chain stores. Seven percent of the independent retailers felt that aquaculture products were difficult to source. Distribution systems that do a better job of targeting independent retailers could address this concern. Very few retailers, less than one percent of the chains or independent stores viewed lower nutritional value or an inconsistent supply as disadvantages of aquaculture products.

Figure 22. Disadvantages of Aquaculture Products Identified by Chain and Independent Retail Stores



Based on this survey information, retailers seem to perceive aquaculture products as being higher priced than wild products, and this was viewed as a major disadvantage. Positive perceptions about product safety and quality were viewed as the most important advantages of aquaculture products. Aquaculture producers who understand retailer's perceptions can more effectively use educational and promotional strategies to better position their products in the retail marketplace. There is clearly a need for more retail education to effectively position aquacultured products in the market. Availability of farm-raised salmon and shrimp was a driving force behind the decline in the price of both products, but few retailers recognize these price trends. Consistency of supply and price should have been viewed as major advantages, especially when considered in relation to the large number of consumers who routinely shop the newspaper ads and sales. Often sales and ads must be planned well in advance to insure placement. This has been difficult for retailers who are dependent upon fresh, wild-harvest

product. Consistent supply and price allows retailers to preplan their sales and advertising. Blind taste tests with major buyers might also provide a good mechanism to convince buyers of the quality of farm-raised products. This has been done with tilapia in the region and has met with considerable success.

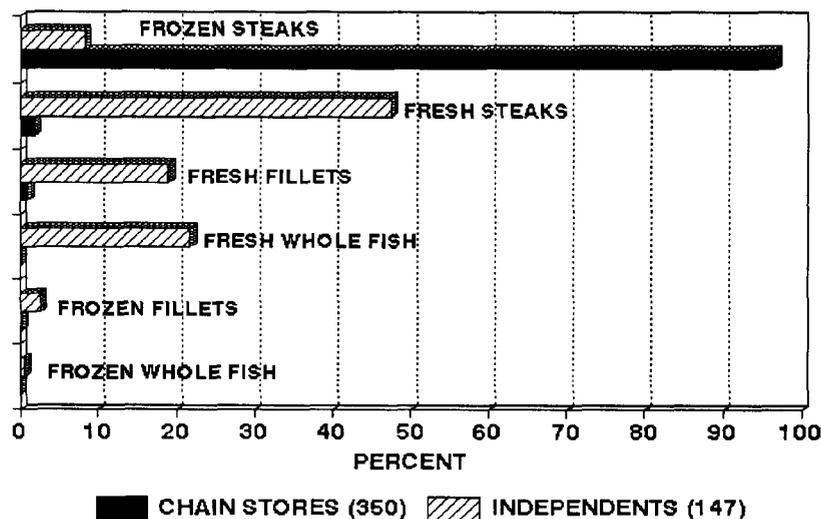
MOST DESIRABLE PRODUCT FORMS FOR AQUACULTURED PRODUCTS

Retailers were asked to identify which product forms are most suited to their operation. A list of choices including fresh and frozen whole fish, fillets, and steaks was provided.

Chain stores overwhelmingly indicated that frozen steaks were the most preferred product form for their operation. Frozen products are ideally suited to the central warehousing and distribution system used by most chain stores. Frozen steaks are easy to handle, and many consumers are familiar with traditionally steaked product such as salmon, cod, shark, swordfish and tuna. There is also very little shrink because product can be thawed as needed. Chain stores also identified fresh steaks and fillets as being desirable product forms, but no chain stores reported an interest in either fresh or frozen whole fish.

Independent retailers overwhelmingly preferred fresh products over frozen product. Fresh steaks were identified by 48% of the independent retailers as a suitable product form, fresh whole fish by 22% and fresh fillets by 18%. Overall, independent retailers are primarily oriented toward fresh products as compared to frozen. As a group, many independent retailers also have more experience in handling product and processing it in different ways as needed. This makes it more desirable to deal with whole fish. In many chain stores, counter personnel may not be as familiar with fish filleting or steaking products and it is easier to purchase processed products or have them processed in a central warehouse. Frozen steaks were most popular in stores that had an average order of between \$10 and \$15. Fresh fillets were also popular in this price range. Fresh whole fish were a more common product form in those stores with an average order between \$5 and \$10.

Figure 23. Finfish Product Forms Most Suited to Chain and Independent Retail Operations



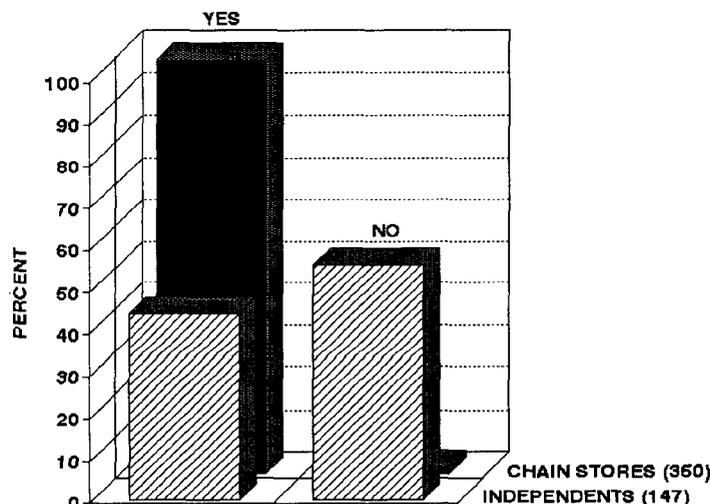
This survey information would seem to indicate that aquaculture producers should carefully consider their target market when determining what product forms to sell. Just within the retail sector of the seafood industry various types of operations have different needs and preferences. Chain stores are looking for products that do not need in-store processing, and do not consider whole fish a desirable market form. Some chains have also moved away from full service counters and are now offering overwrapped, self-serve counters. It is labor-intensive to purchase whole fish and process it at store-level. An ability to process product must be a consideration when aquaculture producers define their target markets. Chain stores also have a greater ability to utilize frozen products and find them more desirable for their type of operation. Independent retailers, however, are primarily oriented towards using fresh products, and are more likely to purchase whole fish as well as fresh steaks and fillets.

MARKET POSITION AND PREFERENCES FOR PREPARED PRODUCTS

One of the goals of this study was to obtain information on what prepared or value-added products might be suitable for retail stores in the New York and New Jersey area. Just as retailers look to prepared products to increase their profit margin and minimize waste, aquaculture producers that process their products may be able to realize similar advantages. This survey attempted to identify how frequently retailers purchase prepared products, and what types of prepared products are suited to their operations. Those retailers who indicated that they purchased prepared products were asked to identify which products are best suited to their operation from a list of choices that included the following: microwaveable prepared entrees, oven ready prepared entrees, prepared portions, portions in sauce, pasta sauces, shelf stable salads, all natural sauces, pates, mousses, terrines, and shellfish in sauce.

Eighty-two percent (82%) of those surveyed indicated that they purchase prepared seafood items. An overwhelming majority of the chain stores (98%) indicated that they purchased prepared products, but only 44% of the independent retailers reported that they purchase these items. In terms of store location, 92% of the urban stores purchased prepared products compared to 52% of the suburban stores, 63% of the rural stores, and 69% of the stores in vacation locations. As expected, independent retailers with total annual sales greater than \$1 million were more likely to purchase prepared items than those whose sales volume was lower.

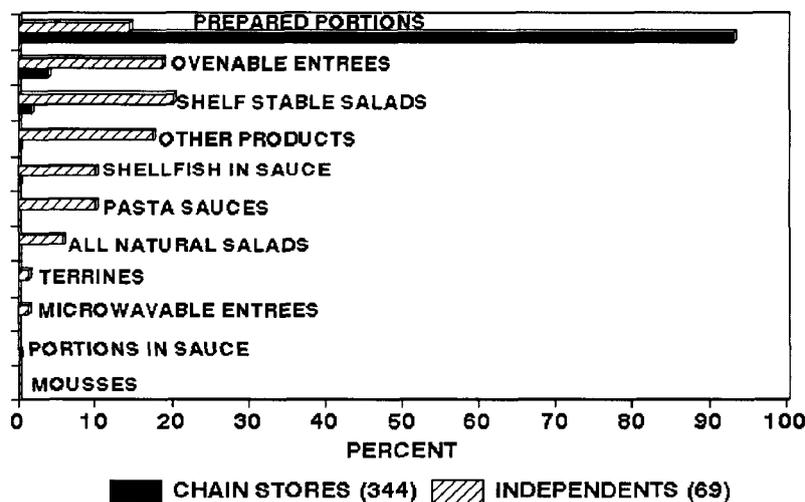
Figure 24. Percent of Chain and Independent Retail Stores Who Purchase Prepared Seafood Products



When asked which types of prepared products were best suited to their operations, prepared portions were the most desired product (80%) overall. Most of the chain stores (93%) identified prepared portions as the prepared product most suited to their operation, 4% of the chains felt that oven-ready portions would be suitable and 2% indicated shelf stable salads. It was unclear whether retailers interpreted “prepared portions” to mean simply portion controlled steaks and fillets or products that were ready to cook or eat. Because oven ready entrees were also identified as being desirable and the question specifically asked about prepared products, it seems likely that the respondents from chain stores considered this item to mean seafood portions ready to be cooked. The chain stores surveyed showed little interest in microwavable entrees, seafood in sauces, and specialty items like pates and mousses. It was unclear whether or not those who completed the survey had a clear understanding of what these products were.

Independent retailers were most interested in oven ready entrees (19%) and shelf stable seafood salads (20%). Overall, independent retailers were interested in the broadest range of prepared products. Fourteen percent (14%) felt that prepared portions would be suitable for their operation, 10% were interested in pasta sauces and shellfish products in sauce. About 6% of the independent retailers also expressed an interest in “all natural salads” although neither the survey instrument or those retailers who identified this item attempted to define what “all natural” would mean. Presumably some retailers may have interpreted this to mean a product free of additives or preservatives. Anecdotal stories indicate that many consumers in the area have expressed concerns about preservatives in products and some object to the “chemical” taste present in some salads and other prepared products. Interest in microwavable product was very low among all groups.

Figure 25. Prepared Products Identified by Chain and Independent Seafood Stores as Being Suitable for Their Operation



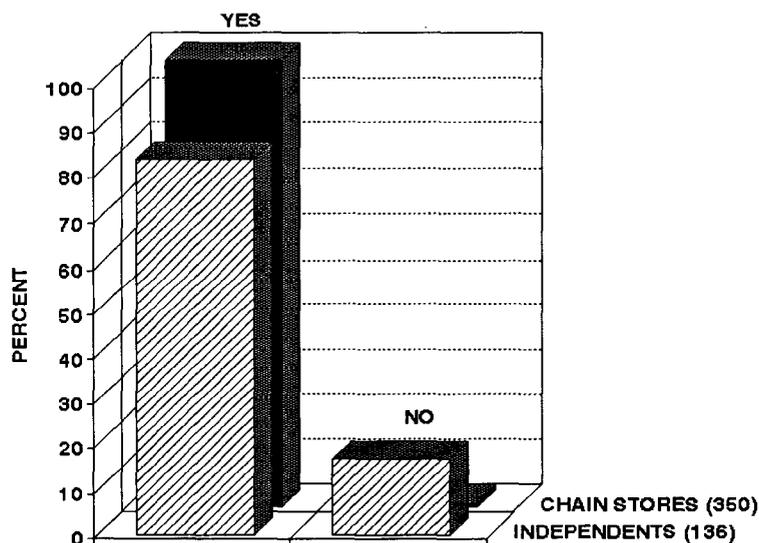
The information obtained from retailers about their likelihood to purchase prepared products and the types of products suitable for their operations may be useful to aquaculture producers who process their products and may be able to produce a variety of value added products for retail sale. Retailers appear to be most interested in portion controlled products that require no further preparation

in the store and are ready for customers to eat or can be simply heated at home in the oven. For those aquaculture producers who raise shellfish, chain stores seem to have little interest in shellfish products, but independent retailers may provide a suitable market for prepared items. Retailers in the area do not appear to be interested in specialty products like pates, mousses, and terrines that are popular in Europe, and producers who are interested in producing these products from frame mince or trimmings from filleting or steaking operations would need to actively market and promote these products and provide merchandising support to the retailer.

USE OF CO-MERCHANDISING STRATEGIES

Retailers were asked whether or not they co-merchandise non seafood items like sauces, breading etc. at their retail counters. Ninety four percent (94%) of those surveyed indicated that they did sell these items at their seafood counter. Ninety-nine percent (99%) of the chain stores used this merchandising strategy, compared to 83% of the independent retailers. Because many consumers are confused about how to prepare seafood, it is often important to provide a variety of sauces, breading mixes and coatings at the seafood counter to make seafood preparation simpler and easier. Because this merchandising strategy is so common in retail stores, aquaculture producers may be able to identify opportunities to engage in cooperative promotions with companies that produce products like cooking sauces, seasonings, and breading.

**Figure 26. Do You Co-Merchandise Non-Seafood Items
(Chain versus Independent Retail Stores)**



COMMENTS FROM RETAIL SURVEY RESPONDENTS

A number of retailers elected to include a variety of different comments in their surveys. Many were concerned about rising prices and a lack of consumer education efforts. As a direct result of passage of the Magnuson Act, funding was made available during the 1970's and early 1980's to actively promote American seafood products. These funds were used primarily for consumer education and

market promotion. Loss of these generic marketing programs has had an impact on many of the independent retailers in the New York and New Jersey area.

The following is a summary of the typical comments provided by retailers:

“Let's all try to do a better job by producing a better product, we need more television ads, and more farmed products. Keep prices reasonable so that people can use seafood.”

“I think people should get more information about seafood. It might be a little more expensive than other foods but it's a healthier choice.”

“I think that the biggest problem facing fish dealers is the cost of product. Why eat seafood when chicken and meat are so much cheaper. More often the publicity is bad rather than good. There are no advertisements. Television commercials about beef make you feel like running to the store for a steak.”

“The wholesale price is too high. Most people choose chicken.”

“Is there any hope of aquacultured cod or haddock? Every time there is a storm in the North Atlantic, my business suffers. The natural supplies seem to be over fished.”

“Fish prices are very expensive and business is slow.”

“Very disappointed lately in the quality of haddock and scallops.”

“I am continuously looking for new products in the shellfish line, particularly crab products. There seems to be a growing market for processed or prepared items.”

“Seafood is not a favorite food for most people. They think it is very expensive and not safe. Low priced pasta dishes and oriental stir fries are the easiest ways to sell seafood.”

“People are still ignorant of what to do with and expect from seafood.”

SUMMARY OF MARKETING OPPORTUNITIES:

- 1) Better educational and promotional campaigns that target retail seafood counter personnel and store operators are needed. Such a campaign could stress both the quality control and environmentally friendly aspects of farm-raised products since these are major concerns of consumers, and the safety, price, and supply advantages that these products can provide to retailers.
- 2) There is a need to help retailers better recognize and understand which products are aquaculture produced or farm-raised. Potential strategies to increase product recognition utilizing tags, stickers, price cards, and other means can eventually lead to increased sales, and increased recognition of aquaculture produced products as a desirable alternative to products from wild sources.

- 3) Local independent retailers should be a target market for smaller aquaculture producers. The typical retail mark-up in an independent store is 60%. This often makes it critical to eliminate as many of the middlemen as possible. Selling directly to independent markets can, in some instances, reduce the wholesale price and allow the retailer to apply an adequate mark-up before experiencing customer price resistance. Direct selling to these stores which must purchase smaller quantities will also reduce the problems that some markets have in sourcing aquacultured products.
- 4) Both retailers and consumers are concerned about the price of seafood products in general and aquaculture products in particular. Aquaculture products must have a reasonable and stable price structure for consumption to increase significantly.
- 5) Aquaculture producers should carefully consider the product preferences of various types of retailers. Chain stores prefer frozen products and processed products like steaks and fillets. Independent retail markets primarily purchase fresh products and are more likely to utilize whole fish as well as fresh steaks and fillets.
- 6) Aquaculture producers who wish to sell prepared or value added seafood products should be aware that independent retail stores and retail stores in suburban areas tend to purchase these products most often, and chain stores in urban areas tend to purchase them least often.
- 7) Aquaculture producers who engage in further processing or the production of value added prepared products should carefully consider retailers needs and preferences. Most retailers are interested in portion controlled products. Chain stores appear to prefer products that are ready-to-eat or cook at home. Independent retailers also prefer these products but are more likely to consider a wider variety of products and value added shellfish products.
- 8) Aquaculture producers should consider using blind taste tests for potential buyers as one way to eliminate perceptions that aquacultured products are less flavorful than wild products. They might also encourage retailers to conduct similar tests for their customers.
- 9) Promotional materials that can be used to increase product recognition and desirability need to be developed. These materials should be tailored to meet the needs of chain stores that only have a self-serve counter as well as to chain and independent stores that operate a full service seafood counter.
- 10) Aquaculture producers should consider supporting the development of consumer education programs to help consumers better understand the nature of aquaculture, the availability of aquacultured products, and their positive attributes.

MARKET SURVEY
of
RESTAURANTS AND INSTITUTIONAL
FOOD SERVICE BUSINESSES

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FOOD SERVICE SURVEY

PURPOSE AND METHODS

Many Americans still feel more comfortable eating seafood in restaurants or other food service settings rather than preparing it at home. Information about annual expenditures for seafood indicate that consumers in the U.S. spend about twice as much for seafood eaten away from home in restaurants or other food service establishments than for seafood purchased at retail for home consumption (See Introduction). There are a number of reasons why American consumers eat more seafood away from home. Some of the most frequently identified reasons include the following: 1) many consumers have less experience with seafood as compared to other high protein animal foods like beef and poultry, and do not have a great deal of confidence in their seafood handling and preparation skills. These consumers frequently feel that it is less risky to have someone else prepare seafood for them especially when the cost of many popular seafood products is considered; 2) for families in which one or more family members don't like seafood, those who do enjoy seafood are more likely to eat it in a restaurant or other food service setting where each individual family member can order their own entree; 3) many consumers view seafood as a special treat or luxury item that is enjoyed on special occasions like holidays, birthdays, anniversaries, special parties etc. which are often celebrated in restaurants or catering facilities; 4) some consumers may also have an overall perception that restaurants have access to a greater variety and better quality seafood products than retail establishments.

Because of the significant amount of seafood consumed away from home at restaurants or other food service establishments, aquaculture producers and other seafood suppliers need to be aware of their needs and preferences in order to develop effective marketing strategies. This study was designed to: 1) identify which products and product forms were most desirable to food service businesses in New Jersey and New York; 2) identify what supply sources food service businesses utilize; 3) characterize some of the attitudes and perceptions that food service businesses have about aquaculture products; and 4) identify what types of prepared or value-added products might be suitable for various types of food service businesses.

A food service survey was developed to obtain this information. The food service survey data was collected from both restaurant and institutional feeding facilities. Overall, this was the weakest of all three surveys because of the difficulty in obtaining responses. Although over 2,000 questionnaires were distributed, only 100 were returned. The primary survey distribution mechanism that was utilized was a mailing of the New Jersey Restaurant Association to its members. This format precluded the ability to provide return envelopes which might have significantly improved the response rate. In addition approximately 100 surveys were distributed in New York by seafood suppliers during deliveries, and a postage paid return envelope was included. Only three of these surveys were returned.

FOOD SERVICE SURVEY RESPONDENT PROFILE

Survey respondents were asked to provide information that would help to characterize what types of food service businesses had responded, where their business was located, and an average dinner entree

price. Specific questions asked respondents to describe their operation as a restaurant or institutional food service business. Restaurants were asked to further describe their operation from a list of choices provided on the survey which included: formal dining/white tablecloth, casual dining, family, or fast food. Survey respondents were also asked to indicate whether their operation was in an urban, suburban, rural, or vacation/leisure location, and what their average dinner entree price was from a list of choices that included over \$25, \$20 to \$25, \$15 to \$20, \$10 to \$15, and less than \$10.

Survey responses were divided between restaurants and institutional food service operations such as those in schools and hospitals. Approximately 40 surveys were returned from restaurant operators, 55 from institutional facilities, and 5 did not indicate whether they were primarily a restaurant or institutional feeding operation.

Sixty percent (60%) of the food service businesses surveyed reported that their business was located in an urban area, 24% in a suburban area, 6% in a rural location, and 3% in a vacation or leisure community. Seven percent (7%) did not identify their business location.

TABLE 1. BUSINESS LOCATION REPORTED BY FOOD SERVICE SURVEY RESPONDENTS

URBAN	SUBURBAN	RURAL	VACATION	UNKNOWN
60%	24%	6%	3%	7%

Of the 40 restaurant operations who returned a survey, 52% characterized their operation as family oriented (lower priced entrees with emphasis on choices for a family group including a children's menu; many of the chain restaurants were likely to be in the family category), 25 % were casual restaurants (mid-range, moderately priced menus with a varied clientele), 14% were formal (upscale or white table cloth restaurants with a higher price menu and a more formal ambiance, often with a dress code), and 2% were fast food operations. Seven percent (7%) of the restaurants who completed the survey did not indicate what type of restaurant they operated.

TABLE 2. RESTAURANT SURVEY RESPONDENTS CHARACTERIZED BY REPORTED RESTAURANT TYPE

FAMILY	CASUAL	FORMAL	FAST FOOD	UNKNOWN
52%	25%	14%	2%	7%

The most frequently reported (49%) dinner entree price was less than \$10. This was most likely related to the fact that over 50% of the survey respondents were institutional operations. Twenty-three percent (23%) of the respondents indicated an average dinner entree price of \$10 to \$15, 17% between \$15 and \$20, 2% between \$20 and \$25, and 6% over \$25.

TABLE 3. AVERAGE DINNER ENTREE PRICE REPORTED BY FOOD SERVICE SURVEY RESPONDENTS

<\$10	\$10-15	\$15-20	\$20-25	>\$25	UNKNOWN
49%	23%	17%	2%	6%	3%

BEST SELLING SEAFOOD SPECIES

Food service survey respondents were asked to list their “Top five purchased seafood species” with a prompt asking that they list those species for which the largest volume was purchased. Five blank spaces were provided on the survey instrument. This was a recall question, and although these lists cannot necessarily be construed as indicating total sales volume, they do provide an indication of which species were most important to each food service operator. Specific species suggestions were not provided because of the potential for any given list to bias the responses received.

Overall, restaurants identified a slightly higher number of species (3.3 species per response compared to 3.0 species per response for institutions) in their lists of the five most frequently purchased species. Shrimp was clearly the most important species, and was identified by 75% of all of the food service businesses surveyed. Flounder, cod, crab, and tuna were the other species identified as being purchased most frequently by food service businesses.

Flounder and cod are the most well known of the lean, white flesh, mild tasting fish species preferred by most consumers in this region. The flounder category includes a wide range of flatfish that were not specifically listed under other market names such as grey sole or lemon sole. Some users may have considered each type of flounder as a separate species while others may not have been familiar with the differences. For this reason the use of flatfish as a species category may have been under reported. In addition, when survey results were compiled products listed separately as scrod were not included with the cod responses. Overall, the relative position of each of each of the products on the survey respondent’s lists was likely to have been influenced to some extent by market conditions related to supply and/or price at the time the questionnaires were distributed.

Crab was also an important item, but it was impossible to determine what type of crab was being purchased from the survey responses. In some cases, especially for the restaurants with low menu prices and the institutional operations, some of those who reported purchasing crab may have inadvertently included surimi-based imitation crab products. Tuna was the fifth most frequently identified seafood species, but again it was impossible to determine what type of tuna was being used. Because almost half of the survey respondents were institutional food service operations, it is likely that a significant portion of the reported tuna purchases were canned tuna.

The other five species of the ten reported to be purchased most frequently were scallops, clams, lobster, whiting and salmon. All of these species have been popular menu items in restaurants in the region and around the country for some time. Processed fresh and frozen scallop and clam products are also widely available at reasonable prices for institutional food service operations. Both fresh and frozen salmon and whiting are also readily available at a reasonable price in forms suited to both restaurant and institutional food service operations. Whiting was identified as a frequently purchased item by the institutional operations. Most of this product is not likely to be the locally harvested whiting, but frozen product harvested in the Pacific ocean or southern hemisphere. These imported frozen whiting products are particularly well-suited to institutional buyers because of their relatively low price and increased availability in this market. As the supply of traditional East Coast gadoid species such as haddock and cod have decreased, this lower priced alternative product is filling an important market need.

TABLE 4. SEAFOOD SPECIES PURCHASED MOST FREQUENTLY BY FOOD SERVICE SURVEY RESPONDENTS

SPECIES	% of survey respondents who included each species in their list of most frequently purchased items
SHRIMP	75%
FLOUNDER	33%
COD	33%
CRAB	32%
TUNA	31%
SCALLOPS	25%
CLAMS	25%
LOBSTER	23%
WHITING	19%
SALMON	18%

The two other potentially aquacultured seafood products purchased by a significant number of the food service businesses surveyed were mussels (11%) and catfish (9%). The top ten species plus mussels and catfish comprised 80% of all the responses to this question. After these top twelve traditional products, there was a very steep drop in responses, and no other species was identified by more than one to four survey respondents. This would seem to indicate that there is considerable demand elasticity for less familiar products in this segment of the market. With appropriate market development strategies, there is a major opportunity for suppliers to introduce food service operators to many different less familiar seafood products.

The top species identified by food service businesses surveyed were consistent with the species identified by both retailers and consumers in the New York and New Jersey area with the exception of whiting. The survey results were also consistent with annual seafood consumption patterns in the United States reported by the National Marine Fisheries Service and with national restaurant survey results reported by Seafood Business. In its May/June 1994 issue, Seafood Business reported that the best selling species in rank order on the menu for all types of food service operations were: shrimp, whitefish (cod, haddock, and pollock), salmon, swordfish, flounder, scallops, lobster, tuna, clams, catfish, and mahi-mahi. Swordfish and mahi-mahi were the only two species not identified as top selling species by the food service operators surveyed.

**TABLE 5. AQUACULTURE PRODUCTS INCLUDED IN FOOD SERVICE SURVEY
RESPONDENT'S LISTS OF FREQUENTLY PURCHASED PRODUCTS**

SPECIES	% of survey respondents who included each species in their list of most frequently purchased items
SHRIMP	75%
CLAMS	25%
SALMON	18%
MUSSELS	11%
CATFISH	9%
TROUT	1%

Fish and shellfish species that are currently being produced by aquaculture operations in the Northeast and around the world were identified by food service businesses as some of the products they purchased most frequently. For five of the top twelve species identified by the food service operators surveyed, there is a significant amount of aquaculture produced product in the marketplace. For some species like salmon, catfish, and trout much of the supply is aquaculture produced. There are also likely to be significant amounts of both wild and aquaculture produced shrimp, clams, and mussels in the New York and New Jersey marketplace.

There were some pronounced differences in terms of the species identified by restaurant and institutional food service operators. As expected, cod (41% of the institutional operations versus 22% for the restaurants) and whiting (37% of the institutional operations versus 0 restaurants) were used more frequently by institutional operations as compared to restaurants. This may be related to the availability of frozen portion-controlled cod and whiting products offered by restaurant distributors. For many food service operations and especially for institutional operations, it is important to source products that are moderately priced. Whiting is a good replacement species for traditional cod and haddock, and it seems to be gaining market share in the institutional market. Increasing quantities of products like Greenland turbot which can be substituted for the more expensive flounder species are also becoming more widely available. Several South American countries are moving toward increased aquaculture production of Greenland turbot. As the price of traditional flatfish species continues to increase, there will be a need to find a substitute species with a more reasonable price.

Higher priced products were more commonly identified by restaurants as compared to institutional operations. Those products more frequently identified as important products by restaurants as compared to institutional operations included: salmon (34% vs. 6%), clams (39% vs. 11%), scallops (39% vs. 9%) lobster (18% vs. 1%) and mussels (20% vs. 4%).

There were some differences in terms of the species reported by urban and suburban food service operations. Whiting was more heavily used in urban as compared to suburban areas (28% vs. 0) as was crab (42% vs. 9%). In suburban areas, salmon (35% vs. 10%), clams (35% vs. 17%) and scallops (44% vs. 15%) were used more commonly than in urban settings. Because the majority of

the institutional food service operations reported their business location to be in an urban area, these observed differences are most likely related to differences in species used by institutional operations as compared to restaurants rather than real differences associated with an urban location. Likewise, more restaurants were located in suburban locations and the species use reported for suburban locations closely matches that reported for restaurants overall.

There were some differences between the top species identified by various types of restaurants. Shrimp, cod and flounder were frequently used by all restaurant types. Of the other important species, formal dining establishments tended to list scallops, salmon, lobster, and clams more frequently; casual restaurants also listed clams, scallops, and salmon more frequently; and family restaurants listed crab, whiting, and tuna more frequently. Product form was also likely to be an important factor in the selection of top species. The tuna used by formal restaurants is most likely fresh product. In family restaurants both canned and fresh products may be used. There are also a variety of different crab products that were used by the survey respondents including Alaskan king crab, snow crab, blue crab, picked crab meat, or soft shell crabs. Formal or casual restaurants are likely to have been thinking about these more expensive products while some family or fast food restaurants may have included some surimi-based imitation products when crab was included in their list.

**TABLE 6. FIVE TOP SELLING SPECIES IDENTIFIED BY RESTAURANTS
COMPARED TO AVERAGE DINNER ENTREE PRICE**

>\$20	\$15-\$20	\$10-\$15	<\$10
SHRIMP	SHRIMP	SHRIMP	SHRIMP
LOBSTER	SCALLOPS	CLAMS	COD
CRAB	SALMON	COD	FLOUNDER
TUNA	FLOUNDER	TUNA	CRAB
SCALLOPS	CLAMS	SCALLOPS	WHITING

Shrimp was the leading product in all restaurants with average dinner entrees ranging from less than \$10 to more than \$20. Lobster was only identified by restaurants with higher entree prices. Tuna and crab were difficult to evaluate because of the number of product forms and species covered. Cod and whiting were most popular in the operations with lower priced entrees. Flounder and salmon were popular items for restaurants with entrees in the \$15-\$20 range. Salmon, clams, scallops and mussels were used more frequently by those establishments with entree prices above \$10, while cod and whiting were used most frequently by establishments with entree prices under \$10.

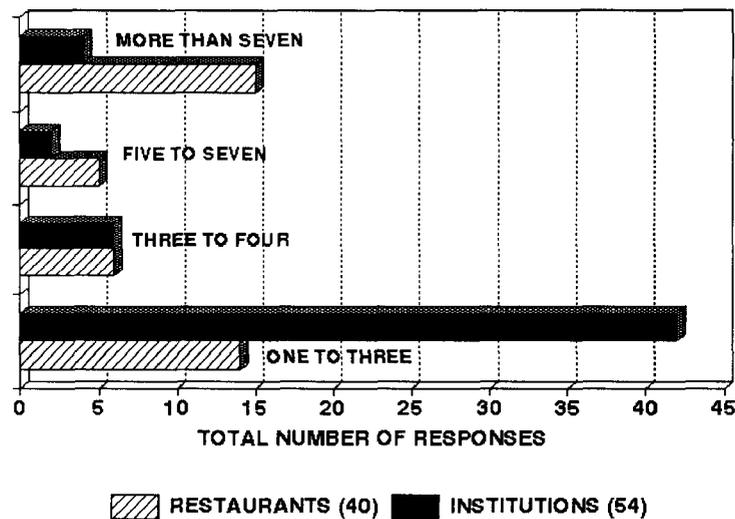
A major marketing opportunity in the restaurant sector would be to identify suggestions for possible menu items that utilize creative and unusual recipes for less expensive fish or shellfish products. This would allow for greater price variety on the menu. According to one restaurateur, "It is very difficult for seafood restaurants to modify their menus when prices increase. Less specialized restaurants have more options for offering lower priced entrees." Chicken entrees are most often offered for the more price-conscious consumer. There is an opportunity for seafood products to fill that menu niche

with the appropriate promotion. Although only 6% of the restaurants listed consistent price as an advantage of aquaculture products, higher priced seafood products are often not competitive with other center of the plate choices. When food prices rise or consumer spending decreases, restaurants substitute less expensive dishes. This is often a major challenge for restaurants that specialize in seafood.

NUMBER OF SEAFOOD ENTREES ON FOOD SERVICE MENUS

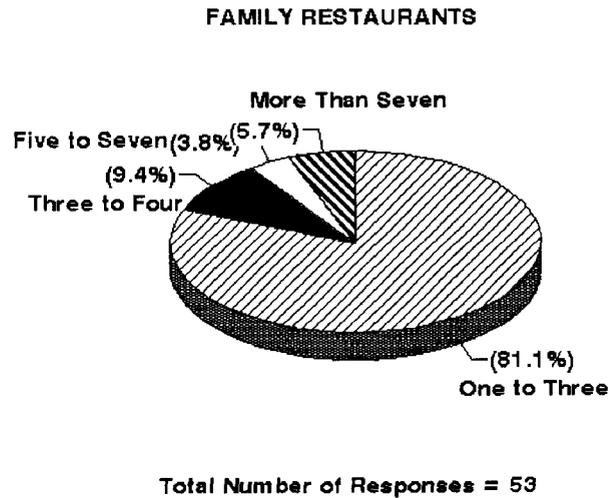
Survey respondents were asked to indicate how many seafood entree items they routinely have on their menus. Four choices were provided including: 1 to 3 items, 3 to 5 items, 5 to 7 items, and more than 7. There were significant differences between restaurant and institutional food service operations in terms of the number of seafood items on their menus. Seventy-eight percent (78%) of the institutions surveyed only offered one to three seafood items on their menu. As expected, institutional operations such as hospitals and schools were likely to have a limited number of seafood items because of cost constraints and staff limitations. Approximately one third of the restaurants also reported having only 1 to 3 seafood items on the menu, but 38% reported having more than seven seafood items on the menu. Those restaurants with more than seven items were likely to be restaurants that feature or specialize in seafood as compared to the rest of the survey respondents who appeared to offer a more general menu. Almost half (48%) of these seafood specialty houses or those operations with more than seven seafood items on the menu were located in the suburbs.

Figure 1. Number of Seafood Entrees on the Menu in Restaurant and Institutional Food Service Operations Surveyed



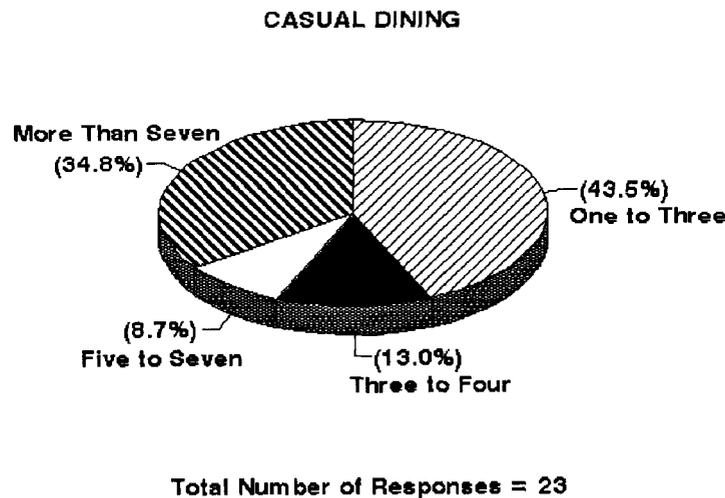
Over 80% of family restaurants surveyed only offered between 1 and 3 seafood entrees, and less than 6% had more than seven seafood entrees. This is most likely related to the fact that these restaurants offer a variety of different types of menu items with several choices each for seafood, red meats and poultry. It may also be related to the kinds of family restaurants who returned a survey as well as the range of entree prices offered or the preferences of the customer population that was targeted.

Figure 2. Number of Seafood Entrees on the Menu of Family Restaurants Surveyed



Forty-three percent (43%) of the restaurants surveyed that feature a casual dining experience had only 1 to 3 seafood entrees on their menu, and 35% offered more than 7 seafood entrees. These restaurants tend to feature a more varied menu with choices that include a broader range of prices. Many of these restaurants may tend to specialize in specific types of food, preparation styles, or dining experiences. Because a significant portion of these restaurants had more than 7 seafood entrees some of the individual operations surveyed may have specialized in seafood products while the others offered a more general menu that would appeal to the widest range of potential customers.

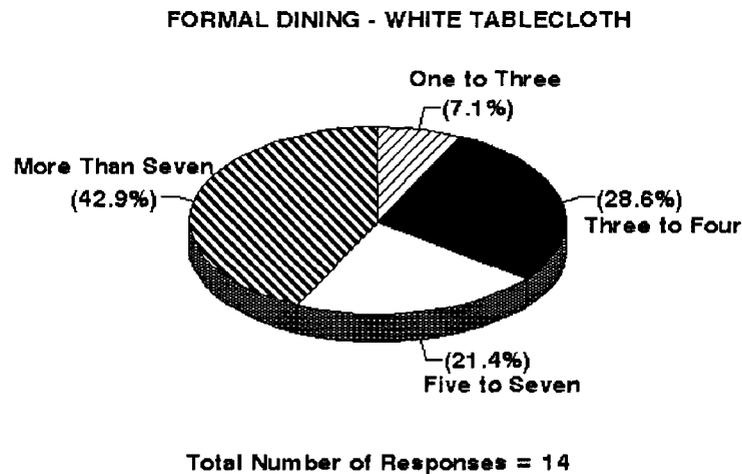
Figure 3. Number of Seafood Entrees on the Menu of Casual Dining Restaurants Surveyed



As a group, white table cloth restaurants or those that offer a more formal dining experience had the greatest number of seafood entrees on their menu. Approximately 43% of these restaurants reported having more than seven seafood entrees compared to 35% for casual dining restaurants, and 6% for family restaurants. Customers who dine at formal restaurants are most likely to be able to afford and be willing to pay the higher prices associated with traditional seafood offerings like shrimp, lobster,

crab, scallops, and some fish species. The clientele at these establishments are also likely to have a broader range of experiences with seafood products, and maybe more interested in trying new species and a broader range of preparation and presentation styles. Many of those restaurants with a high percentage of seafood dishes on the menu probably also specialized in seafood.

Figure 4. Number of Seafood Entrees on the Menu of Formal Dining Restaurants Surveyed



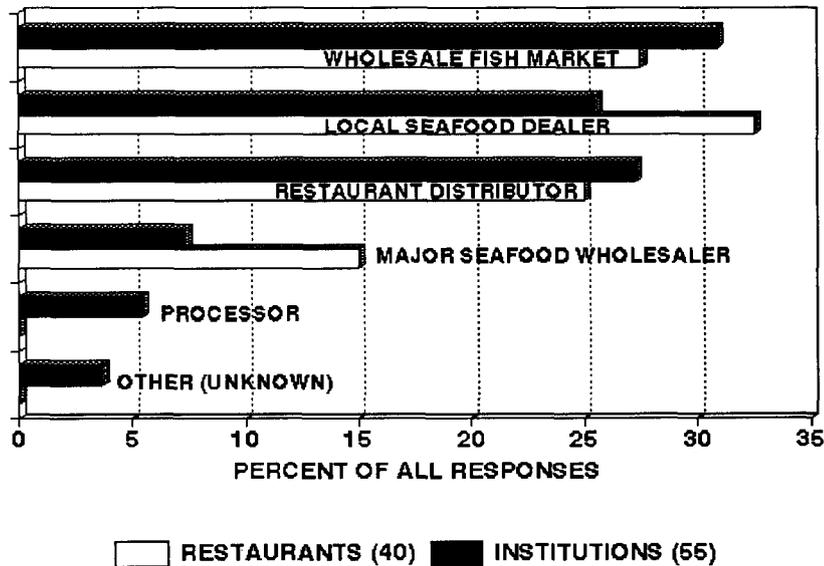
SEAFOOD SUPPLIERS USED BY FOOD SERVICE BUSINESSES

Survey respondents were asked to identify where they purchased the majority of their seafood products. A menu of choices were provided that included the following: wholesale fish market, restaurant distributor, major seafood wholesaler, local seafood dealer, directly from boats or fish farmers, and processors. No attempt was made to define any of the choices that were provided on the survey instrument. Some survey respondents may have had different interpretations as to the types of suppliers listed.

The most common suppliers identified by all food service businesses were wholesale fish markets (29%) and local seafood dealers (29%). In the New York-New Jersey market area, there are two major wholesale seafood markets, the Fulton Fish Market in New York City and the Philadelphia Wholesale Fish Market. Restaurant buyers from the entire region frequently buy directly from these markets on a regular or periodic basis. Many restaurateurs in both of these major cities often promote the fact that they shop for their product at the local wholesale market on a regular or daily basis. This is an integral part of their marketing strategy. Fifty percent (50%) of the restaurants with average entrees over \$20 shopped in the wholesale fish market. Local seafood dealers may or may not be associated with the major regional wholesale markets. These dealers frequently source a variety of local products as well as products from other locations. Urban buyers were most likely to purchase seafood from a wholesale fish market (33%) or a local dealer (32%). This is due in large part to the fact that the wholesale markets and a large number of dealers are located in the major cities or urban areas in the region.

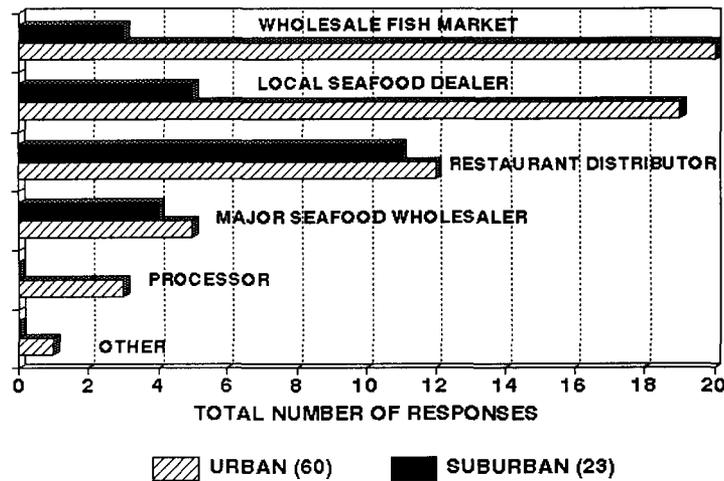
Restaurant distributors were cited as important suppliers by 26% of those surveyed. These suppliers frequently provide a wide assortment of food products in addition to seafood. Although restaurant distributors may not provide as much education and training support for sales and wait staff, they are often capable of developing large promotional programs. Forty-eight percent (48%) of those using restaurant distributors were located in the suburbs. Major seafood wholesale businesses were identified by 23% of those surveyed as a major source of seafood products for their operations. These companies are likely to be regional suppliers that specialize in seafood products. Six percent (6%) indicated that they buy seafood directly from processors, and only two survey respondents indicated that they purchased a majority of their products directly from harvesters or fish farmers. Few food service businesses purchase directly from these sources even though a more favorable pricing structure could be available when buying direct from the suppliers at or close to the harvest source.

Figure 5. Seafood Suppliers Used by Restaurant and Institutional Food Service Buyers



Both restaurant and institutional food service operations purchased seafood products from wholesale fish markets, local seafood dealers, and restaurant distributors most often. Restaurant buyers reported using local seafood dealers more frequently than institutional buyers. Local dealers often have more flexibility, and can procure special items and more easily fill custom orders for restaurant customers. Restaurants also reported using major seafood wholesalers more than institutional operations, and these businesses are also more likely to offer more customized services. Seven percent (7%) of the institutional operations reported that they buy seafood directly from processors, but no restaurants reported buying seafood from this source. Processors are more likely to offer bulk orders for institutional operations whose product specifications often require frozen, moderately priced, portion controlled products. Processors are less likely to pack the smaller, more specialized orders that restaurants are more likely to need.

Figure 6. Seafood Suppliers Used by Food Service Businesses Located in Urban and Suburban Locations



Urban buyers were more likely to use wholesale fish markets. Accessibility to either the Fulton or Philadelphia Fish Markets is likely to be the deciding factor. Urban operations who do not patronize these markets are most likely to utilize local dealers or restaurant distributors that sell smaller amounts and offer more customized services. Suburban buyers used restaurant distributors most frequently. These suppliers are a convenient option since a variety of different food products can be delivered directly to the food service operation. Restaurant suppliers also frequently offer a much larger selection of frozen product than is offered at wholesale fish markets. Suburban operations also used local seafood dealers or major wholesalers and to some extent the wholesale fish markets.

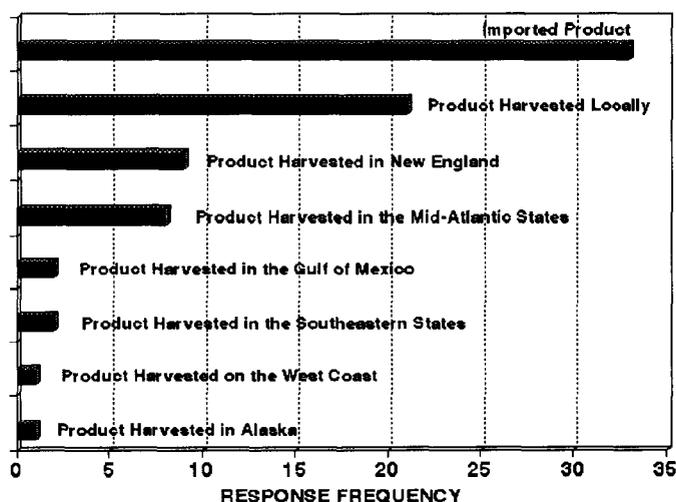
WHERE FOOD SERVICE OPERATORS BELIEVE THEIR SEAFOOD PRODUCTS COME FROM

In an attempt to understand where food service operators believed that the seafood they sell comes from, survey respondents were asked "what they believed was the major source of the seafood that they purchase". A list of possible responses was provided that included: imported product, product harvested by local fishermen, product harvested in the New England states, product harvested in the Mid-Atlantic states, product harvested in the Southeastern states, product harvested on the West Coast, product harvested in Alaska, and product harvested in the Gulf of Mexico. In order to get a sense of the range of geographical areas that food service operators believed their products come from, they were asked to select and rank their top 3 choices.

The largest number of survey respondents (38%) indicated that they believed that imported seafood was the source of the majority of the seafood that they purchased. Because the other responses identified all of the major seafood producing areas in the U.S., it is likely that imported product meant products from other countries around the world. Restaurant distributors and seafood wholesalers in the region generally

handle a wide variety of frozen imported products. The high percentage of those reporting that the majority of their product was imported may also be related to the broader range of portion controlled and frozen products available from outside the United States. Another factor might be product labelling. According to one chef, "Salmon from Norway is a superb product and difficult to compete with as far as taste, quality and appearance." Since Norwegian salmon is often used as a common name for Atlantic salmon, this may lead to confusion about the source of the product. Each of the different types of restaurant operations were equally likely to identify the products they use as imported. Thirty-three percent (33%) of the formal restaurants, 36% of the casual restaurants and 38% of the family restaurants reported that imported products were a major part of their seafood supply.

Figure 7. Geographical Areas That Food Service Businesses Believe Are a Major Source of the Seafood Products That They Sell



TOTAL NUMBER OF RESPONSES = 87

Twenty-one percent (21%) of the respondents believed that locally harvested products were a major source of seafood used in their operation. Many restaurants have traditionally advertised or promoted the fact that they use fresh local products, but as public attention has been focused on environmental issues and pollution in the region some restaurants have shied away from this practice. Another 10% believed that product came from New England, and about 9% believed that they used products from the Mid-Atlantic states. Some ideas about product source may be related to the brand names used on processed products. Co-mingling of products in the distribution chain may also lead to confusion about product source. About 3% of the survey respondents reported that the Gulf of Mexico or the Southeastern states were a major source of product. Products like shrimp, oysters and crawfish which are frequently labelled as being from this region may have prompted these responses. About 1% of the survey respondents identified the West Coast and Alaska as being a major source of product.

NUTRITION RELATED PROMOTIONAL TECHNIQUES

To determine if food service businesses recognized and utilized seafood's positive nutritional attributes in their promotional strategies, survey respondents were asked whether they ever promote seafood as being "heart-healthy" or "low calorie". Overall, 79% of the food service operations surveyed reported that they had used both of these promotional strategies. There is a high level of recognition of these positive attributes of seafood among consumers, retailers, and food service businesses. Most seafood products, depending on the method of preparation, are lower in fat, calories, and cholesterol than many other menu selections. With appropriate positive promotion, restaurants should be able to identify at least one "Heart Healthy" or "Low Calorie" seafood offering on their menu. The American Heart Association has been actively supporting and promoting this type of educational activity for food service customers.

Figure 8. Frequency With Which Food Service Operations Promote Seafood as a "Heart Healthy" Menu Item

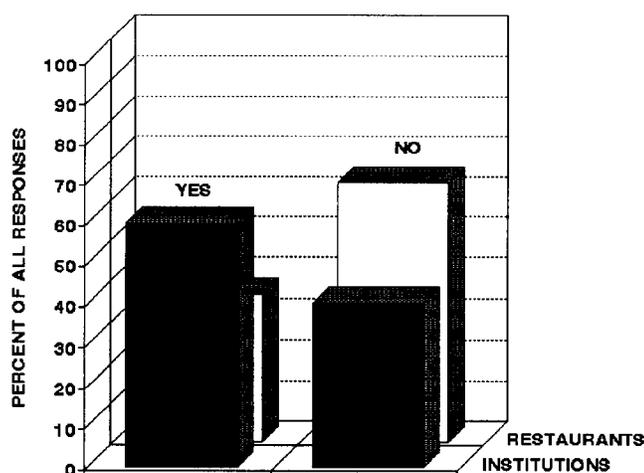
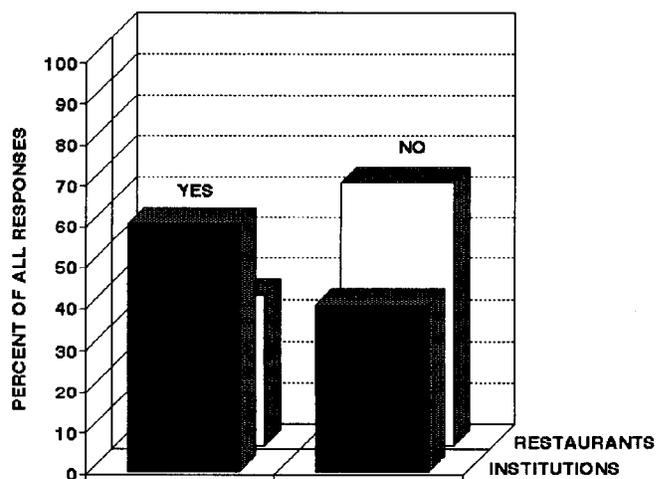


Figure 9. Frequency With Which Food Service Operations Promote Seafood a "Low Calorie" Menu Item

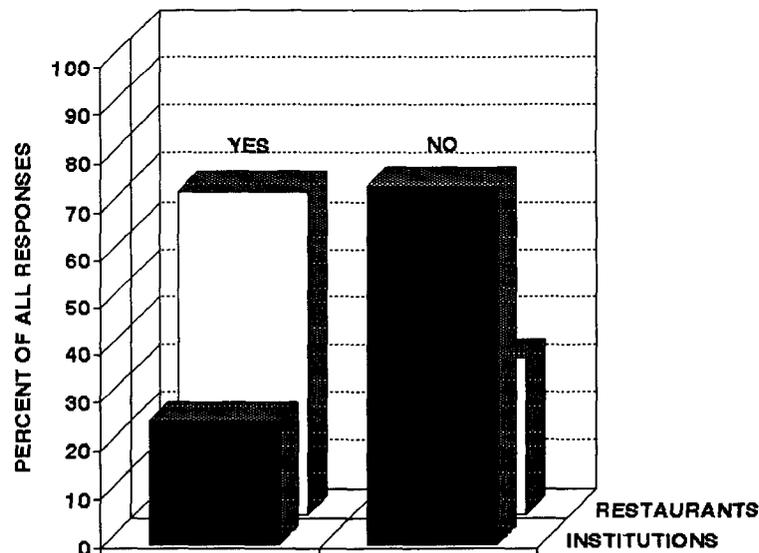


Institutional operations indicated that they promoted seafood as both heart healthy and low calorie more frequently than restaurants. Of the restaurants, family restaurants were most likely to promote seafood in this way and casual restaurants were the least likely to promote seafood in this manner. When the use of these promotional strategies was compared to average dinner entree price, the operations with the most expensive dinner entree price (greater than \$20) and those with the least expensive entree price (less than \$10) were more likely to promote seafood as either heart healthy or low calorie. Restaurant promotion of the low calorie attribute of seafood is often dependent on wait staff suggestions when asked what is low calorie. Since many of the national weight reduction programs strongly suggest increased consumption of seafood for their patrons, there is an opportunity for the restaurateur to offer at least one simple broiled entree and train their wait staff to point out low calorie and/or low fat menu items.

AQUACULTURE PRODUCTS USED BY FOOD SERVICE BUSINESSES

Survey respondents were asked if they ever use aquaculture (farm raised) products. Forty-one percent (41%) of those surveyed indicated that they had purchased aquaculture products while 59% indicated that they had not. Since many aquaculture products frequently are not labelled or marketed as being farm-raised, the relatively low number of positive responses may simply be due to lack of knowledge about which products are aquaculture produced. Additional confusion might exist because of central purchasing procedures that are often used by institutional operations.

Figure 10. Percent of Food Service Businesses Who Reported Using Aquaculture Products

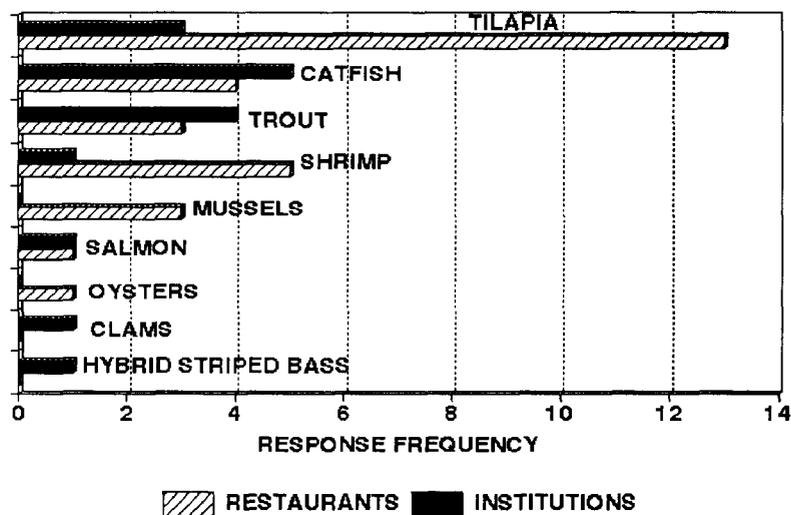


The vast majority of those who had purchased aquaculture products (83%) were located in suburban areas while 72% of those who had not purchased farm-raised products were from urban locations.

Restaurants accounted for 66% of the buyers. Restaurant demand was evenly divided among formal, casual and family restaurants. The majority of non-purchasers (61%) had an average entree price of \$10 and less. Those with entree prices between \$10 and \$15 accounted for another 17% of non-purchasers. Use of aquaculture product seemed to be skewed to the high end user.

Respondents were also asked to indicate which aquaculture (farm-raised) products they had purchased. A list of products was provided that included the following: farm raised shrimp, farm raised oysters, farm raised mussels, farm raised clams, farm raised salmon, catfish, trout, hybrid striped bass, and other.

Figure 11. Aquaculture Produced Species Used by Restaurant and Institutional Food Service Businesses



The species reported to be used most frequently by the food service businesses surveyed was tilapia. Eighty-one percent (81%) of the tilapia users were restaurants. Reported use of tilapia was equally divided between restaurants located in urban and suburban locations. Of the three types of restaurants who made up the bulk of the survey responses, 54% of the formal dining establishments reported using tilapia compared to 36% of the casual dining restaurants and 24% of the family operations. These survey results are likely to be a direct result of the extensive promotion of tilapia that has been conducted by local seafood wholesalers and restaurant distributors over the past several years. Because of this marketing campaign, buyers clearly recognize tilapia as an aquaculture product. Tilapia is an ideal product for this market sector because it can be presented as a mild-tasting, white-fleshed, boneless, portion-controlled fillet with a reasonable price structure. The success of this marketing effort and the level of market acceptance that tilapia has enjoyed in this area as a result of this effort could serve as a model for other new-to-market products.

The reported use of catfish, salmon, and trout was approximately equally divided between restaurants and institutional operations. Although a large percentage of the salmon in the Greater New York marketplace is aquaculture produced, few buyers indicated that they had purchased farm-raised salmon. Both urban and suburban users reported purchasing farm-raised trout. Only 13% of all food service businesses surveyed indicated that they had purchased farm-raised shrimp, and most of these were restaurants. The low number of overall responses for shrimp and the low number of institutional responses may simply be a result of products not being labelled as farm-raised or aquaculture produced. In general, restaurant operators were more likely to use farm-raised shellfish like mussels and oysters than institutional food service businesses.

Most food service operators did not have an understanding of which products were aquaculture produced. Although many food service businesses reported that they used products such as catfish and salmon, they did not realize that much of this product is farm-raised. Shrimp was very seldom listed as a farm-raised product although much of the shrimp in today's marketplace is pond raised in Asia or South America.

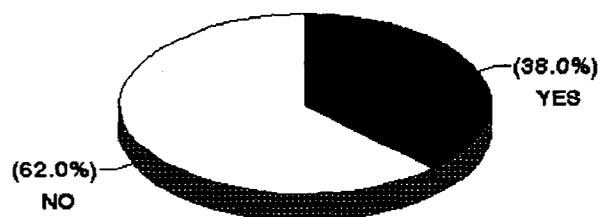
Ninety-three percent (93%) of the formal restaurant respondents indicated that they had purchased aquaculture product. Some factors that may contribute to this high percentage include: 1) interest in experimenting with new products, 2) hands-on chefs who control purchasing and preparation, and 3) quality concerns. White table cloth restaurants that offer a classic or formal dining experience can be an important market segment for farm-raised fish and shellfish produced in the Northeast as well as other regions of the country.

There were few significant differences in reported use of specific aquaculture products relative to average dinner entree price. Mussels were most commonly used in restaurants whose average dinner entree was between \$10 and \$20. Those businesses who reported an average dinner entree less than \$10 reported using the widest variety of aquaculture products including shrimp, clams, salmon, mussels, hybrid striped bass, catfish, trout and tilapia.

USE OF THE TERMS AQUACULTURE PRODUCED OR FARM RAISED AS A MARKETING TOOL

Although most individuals in the aquaculture community are well aware of the advantages of their products and assume that farm raised products are viewed as a premium product by the end user, only 38% of those food service establishments surveyed indicated that they used the term aquaculture or farm raised as a marketing tool. This included using phrases like "farm raised catfish" on menus. Many of those who did report promoting aquaculture product were the formal or white tablecloth restaurants (79%). These operators tend to emphasize product source and quality, and their clientele are likely to be more highly educated and familiar with aquaculture as a source of seafood products. Overall, restaurants were three times more likely than institutions to use aquaculture as a marketing tool. Many of those surveyed felt that customers had positive perceptions of farm-raised products, but they did not use it to market their menu.

Figure 12. Use of the Terms Aquaculture Produced or Farm Raised by Food Service Businesses



TOTAL NUMBER OF RESPONSES = 100

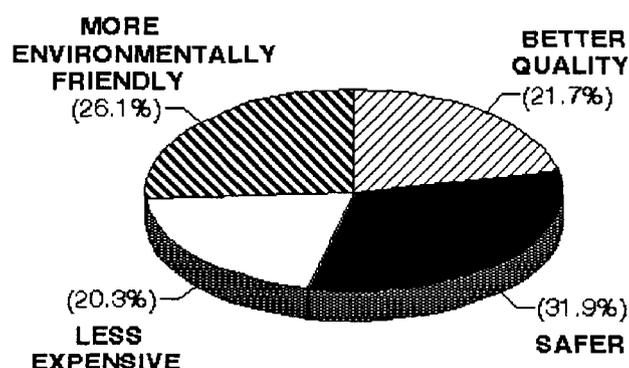
PERCEIVED ADVANTAGES OF AQUACULTURE PRODUCTS FROM FOOD SERVICE CUSTOMER'S POINT OF VIEW

To assist in the development of strategies to promote aquaculture products, food service buyers were asked what advantages their customers perceived as being attributable to aquaculture produced products. A list of four choices was provided that included the following: better quality, safer, less expensive, and more environmentally friendly. Survey respondents were asked to check any of these that they thought applied.

More food service operators indicated that they felt their customers would feel that an advantage of aquaculture products was that they are safer. Thirty-two percent (32%) of those surveyed chose safer as an advantage from their customer's point of view. Thirty four percent (34%) of the urban respondents and 34% of the institutional respondents believed that their customers were concerned about safety. Institutional operators were somewhat more likely to feel that their customers viewed aquaculture products as being safer as compared to restaurants (34% compared to 27%). Of the restaurants, family restaurants were most likely to feel that their customers perceive aquaculture products to be safer, and 33% of these operations picked this response.

The second most frequently identified advantage of aquaculture products from the food service operator's perception of their customer's point of view was that they are more environmentally friendly. There was no attempt to define the term "environmentally friendly", but 26% of those surveyed believed that their customers perceived this to be an advantage of aquaculture products. Thirty-three percent (33%) of the restaurant respondents and 38% of the suburban respondents chose the environmentally friendly response. Formal restaurants were the most likely to indicate that their customers perceived aquaculture products to be environmentally friendly.

Figure 13. Advantages of Aquaculture Products as Perceived by Food Service Operators From Their Customer's Point of View



Twenty-two percent (22%) of those surveyed indicated that they believed their customers viewed aquaculture products as being better quality, and 20% indicated that customers may see aquaculture products as being less expensive. The formal restaurants were most likely to identify better quality as a customer advantage and the family restaurants were most likely to indicate that they were less expensive.

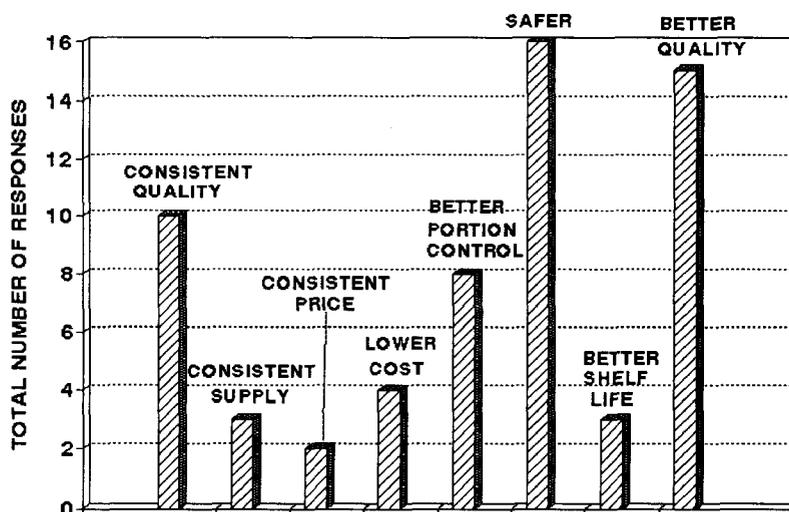
The most expensive restaurants (dinner entrees over \$20) rated quality the most important attribute in the opinion of their customers (50%). Those with average dinner entree prices in the \$15-\$20 range felt that their customers were more concerned with environmental issues (50%) and quality (30%). Those with entree prices between \$10 and \$15, indicated that the most important perceived customer advantages were quality and safety. For the lower priced restaurants with average entree prices under \$10, cost or perceptions related to aquaculture products being less expensive were most important.

FOOD SERVICE OPERATORS' PERCEPTIONS ABOUT ADVANTAGES OF AQUACULTURE PRODUCTS

Survey respondents were also asked to identify advantages of aquaculture products from their own point of view. A larger menu of possible choices was provided that included the following: consistent quality, consistent supply, consistent price, lower cost, better portion control or consistent size, safety, better shelf life, and better quality. Again the respondents were encouraged to check all that applied.

Food service operators themselves viewed safety (16%) as the most important advantage of aquaculture or farm raised products. Both restaurants and institutional operations were equally likely to perceive safety as an advantage. Of the restaurants, casual dining establishments identified safety as an advantage most frequently. Quality was an important advantage of aquaculture products for food service operators. Fifteen percent (15%) felt that aquaculture products offered better quality, and 15% perceived the consistent quality of aquaculture products as an important advantage. Aquaculture producers should consider stressing the quality advantages that controlled production harvesting, and processing can provide to food service businesses when marketing their products. Another important perceived advantage identified by 10% of the survey respondents was better portion control or consistent size (8%). Concerns about consistent size or portion control are of particular importance to institutional and other food service businesses that need to control costs especially for more expensive products like seafood. Surprisingly, consistent supply, consistent price, consistent size and extended shelf-life were not perceived as important advantages of aquaculture products by many survey respondents. It would seem that there is a major opportunity to educate the food service community about these benefits of aquaculture product that can also be associated with controlled production, harvesting, and processing. Very few individuals felt that aquaculture products were less expensive than wild-caught products.

**Figure 14. Advantages of Aquaculture Products
From the Food Service Operator's Point of View**

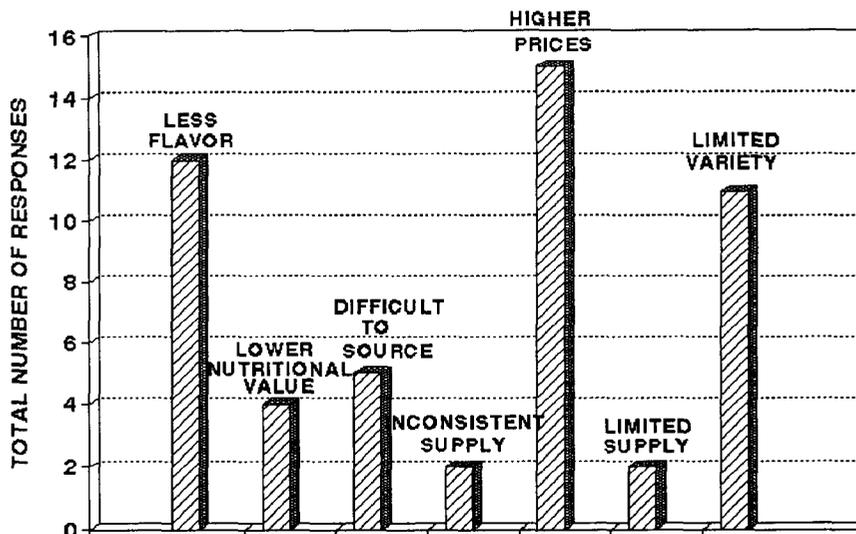


DISADVANTAGES OF AQUACULTURE PRODUCTS FROM THE FOOD SERVICE OPERATORS POINT OF VIEW

Survey respondents were asked to identify any disadvantages of aquaculture products from their own point of view. A list of possible choices was provided that included the following: less flavor, lower nutritional value, difficult to source product, inconsistent supply, higher prices, limited supply, and limited variety. Respondents were asked to check any of these that apply.

Higher price was the most frequently identified disadvantage of aquaculture products by food service operators. Fifteen percent (15%) felt that a higher price tag was a disadvantage of farm-raised product. Twelve percent (12%) of the respondents perceived aquaculture products as being less flavorful while 11% perceived the lack of variety as a major disadvantage. From these survey results it seems as though some food service businesses are concerned about potential trade offs such as higher price and less flavor that could be perceived as disadvantages of aquaculture products. Producers might consider using blind taste tests and information on cost comparisons with wild products in educational or marketing efforts. Inconsistent supply, difficulty in identifying suppliers, limited availability, and lower nutritional value were perceived to be less significant disadvantages than price and flavor. There was no significant difference in perceived disadvantages between restaurants and institutions. Formal restaurant operators believed that aquaculture products were higher priced and were concerned about the limited variety of different aquaculture products available in the marketplace. Operators of casual dining establishments felt that aquaculture products were less flavorful most often, as well as being higher priced than wild caught product. Those restaurants offering entrees in the lowest price range were most likely to identify higher prices as a major disadvantage of aquaculture products.

Figure 15. Disadvantages of Aquaculture Products From the Food Service Operator's Point of View



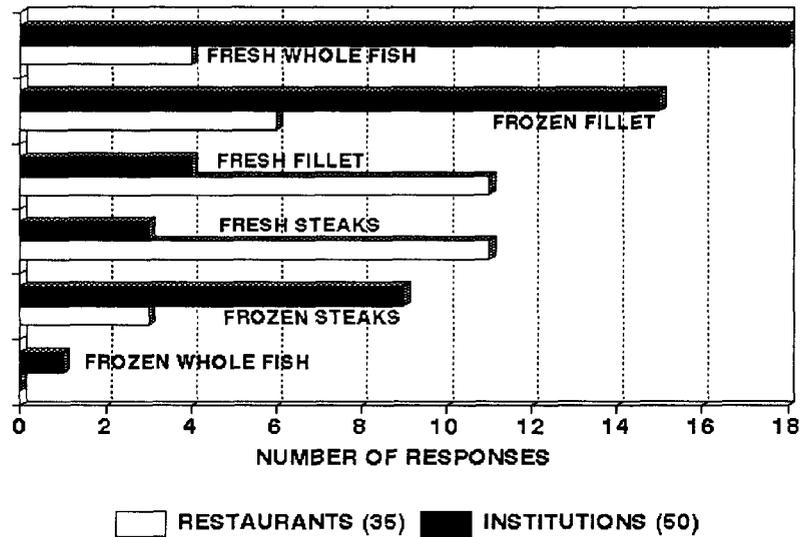
PRODUCT FORMS PREFERRED BY FOOD SERVICE OPERATORS

Survey respondents were asked to indicate which product forms for fish were most suited to their operation. A list of six choices was provided that included: fresh whole fish, fresh fillets, fresh steaks, frozen whole fish, frozen fillets, and frozen steaks.

Overall, restaurant operations preferred fresh products with 74% of the restaurants indicating that they preferred fresh fillets, steaks, or whole fish, and only 26% identified frozen product as being suitable for their operation. Fresh fish fillets and steaks were the predominant product forms preferred by restaurant operations. Only 11% of the restaurants surveyed indicated that fresh whole fish were suitable for their operation. Both formal and casual dining establishments preferred fresh fillets or steaks. Fresh steaks was the most frequent response (46%) for formal restaurants, and fresh fillets were the most frequent response for casual dining establishments (33%). Family restaurants were the heaviest users of frozen fillets (57%). Frozen fillets tend to be lower cost products and because they can be used as needed, there is less shrink. Frozen fillets were the most frequently identified frozen product form suitable for formal (23%) and casual (19%) restaurants.

Frozen seafood products were most suitable for the institutional buyers surveyed. Thirty percent (30%) of the institutional buyers selected frozen fillets as being suitable for their operation and 18% selected frozen steaks. Fillets were more suitable probably because of the lack of bones, but by definition, fillets do not have to be boneless. Thirty-six percent (36%) of the institutional buyers also indicated that fresh whole fish was a suitable product form. It was unclear why these institutional buyers were interested in fresh whole fish. Whole fish may provide some operators with flexibility in terms of the menu items that are prepared, but they are also likely to require more handling and preparation prior to cooking which may be difficult in some institutional settings. Some of the survey respondents may have been thinking about one or two species or menu items but there was no way to determine what these might be.

Figure 16. Finfish Product Forms Most Suitable for Restaurant and Institutional Food Service Buyers



Urban buyers were more prone to purchase whole fish and frozen fillets while suburban buyers purchase both fresh steaks and fillets. These differences could simply be a factor of availability. Food service businesses with an average dinner entree price greater than \$15 were more likely to find fresh products suitable for their operation, and those with an average entree price less than \$15 were more likely to utilize frozen products. Sixty-two percent (62%) of the frozen fillet users had an average dinner entree price of \$10 or less, and 75% of those who purchased frozen steaks also had an average entree price less than \$10.

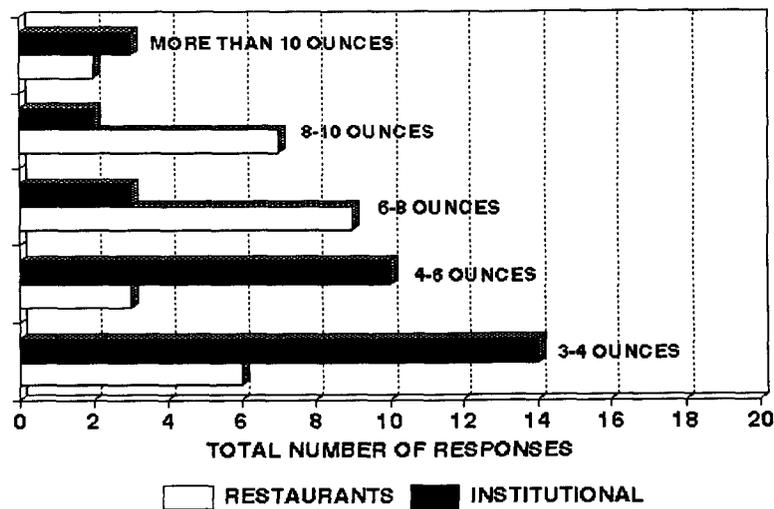
SIZE OF FILLETS, STEAKS, AND WHOLE FISH PREFERRED BY FOOD SERVICE OPERATIONS

To assist fish farmers in identifying suitable markets for their products, food service operators were asked what size (by weight) of the various product forms were most acceptable for their operations. Three different questions, one each for whole fish, fillets, and steaks were included on the survey questionnaire. A list of possible product sizes for each product form was provided. For fresh whole fish, size choices included: less than 10 ounces, 10 to 12 ounces, 12 to 14 ounces, 14 to 16 ounces, 1 pound, 1 and 1/2 pounds, and more than 2 pounds. For fillets, portion size choices were 3 to 4 ounces, 4 to 6 ounces, 6 to 8 ounces, 8 to 10 ounces, and more than 10 ounces. For steaks, the portion size choices were 3 to 4 ounces, 4 to 6 ounces, 6 to 8 ounces, and more than 10 ounces.

For fish fillets, institutional survey respondents preferred a smaller fillet as compared to restaurant respondents. Forty-four percent (44%) of the institutional buyers preferred a 3 to 4 ounce fillet, and 31% preferred a 4 to 6 ounce fillet. For the restaurant respondents, 33% preferred a 6 to 8 ounce fillet and 26% preferred an 8 to 10 ounce fillet. About one third (33%) of the restaurants found a smaller fillet, less than 6 ounces to be suitable for their operation. Of the restaurant types, the formal

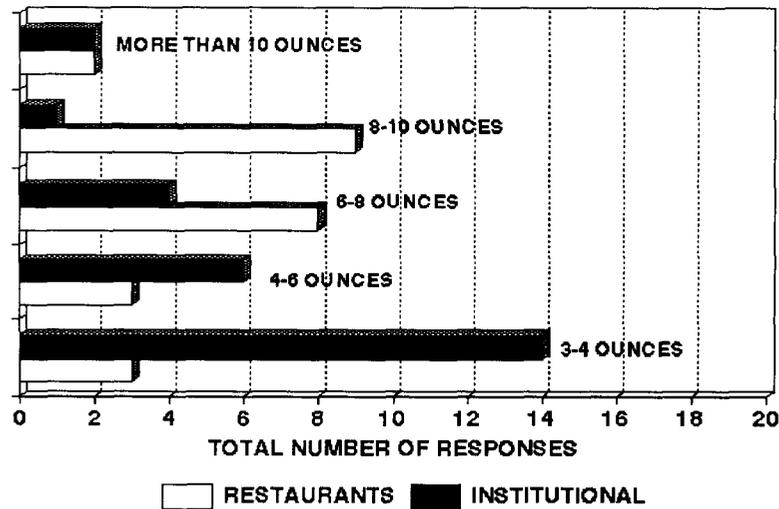
and casual dining operations were most likely to prefer the larger size fillets, between 6 to 10 ounces. Family and fast food restaurants preferred smaller fillets between 3 and 6 ounces. Food service operations with the lowest average dinner menu price, less than \$15, overwhelmingly preferred smaller fillets less than 6 ounces, and those with entrees greater than \$15 generally preferred slightly larger fillets between 6 and 8 ounces.

Figure 17. Portion Size of Fish Fillets Preferred by Restaurant and Institutional Food Service Operations



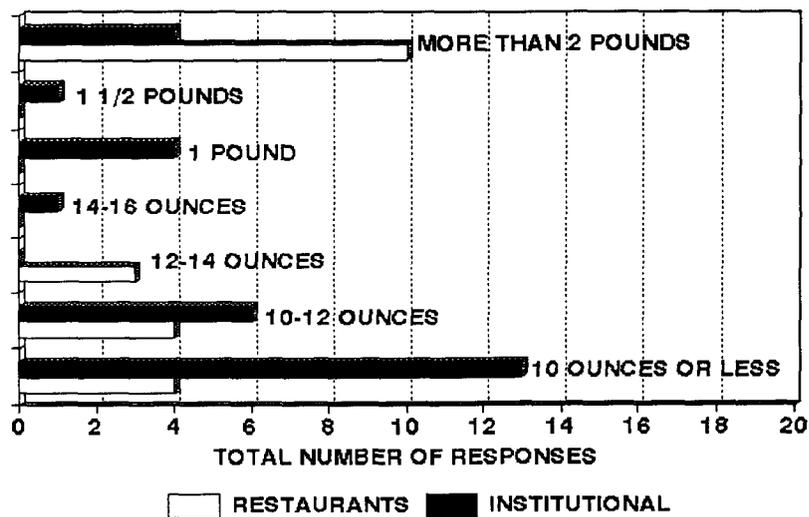
For fish steaks, the same general preferences were observed. Institutional operations tended to prefer smaller steaks than restaurants. Fifty-two percent (52%) of the institutional buyers preferred a 3 to 4 ounce steak, 22% preferred 4 to 6 ounce steaks, and 15% preferred 6 to 8 ounce steaks. For the restaurant buyers, 32% preferred a 6 to 8 ounce steak, and 36% an 8 to 10 ounce steak. Again formal and casual restaurants preferred a larger steak size between 6 and 10 ounces, while family and fast food restaurants preferred steaks less than 6 ounces. Foodservice operations with a higher average menu entree price again preferred larger steaks when compared to those with a lower average entree price.

Figure 18. Portion Size of Fish Steaks Preferred by Restaurant and Institutional Food Service Operations



For whole fish, similar trends in preferred size were observed. This question was somewhat more difficult to interpret because of the wider variation in size that occurs with different species of fish. Survey respondents may have found it more difficult to choose only one preferred size depending on the species that they related the question to. Sixty-six percent (66%) of the institutional buyers preferred whole fish 12 ounces or less, but a significant number (31%) preferred whole fish greater than 1 pound. Restaurant buyers preferred the larger whole fish, and 48% indicated that they preferred whole fish greater than 2 pounds. All of the other restaurant respondents preferred smaller fish 14 ounces or less. Because of the observed variation in the restaurant responses between the larger and smaller sizes it is likely that different respondents were indeed thinking of different species when responding to this question. Smaller fish were desirable for those species such as trout where the fish is served whole, while larger fish like salmon may be filleted or steaked in the food service operation. During the consumer focus group discussions, considerable consumer resistance to whole fish surfaced. It was interesting that most focus group participants viewed whole lobster very favorably, but almost all were uncomfortable with head-on shrimp. There were no striking differences in the size of whole fish preferred by the various restaurant types or average menu price.

Figure 19. Size of Whole Fish Preferred by Restaurant and Institutional Food Service Operations



Overall, institutional businesses preferred frozen over fresh product, and the most acceptable product form was a 3 to 4 ounce frozen fillet or steak. Restaurants as a group tended to prefer fresh products, and fillets or steaks between 6 to 8 ounces or more were the preferred product form. Whole fresh fish were of primary interest to the institutional operations who preferred a wide range of product sizes with the majority preferring whole fish 12 ounces or less. Slightly more than 10% of the restaurant survey respondents were interested in fresh whole fish, and about half of these preferred larger fish greater than 2 pounds.

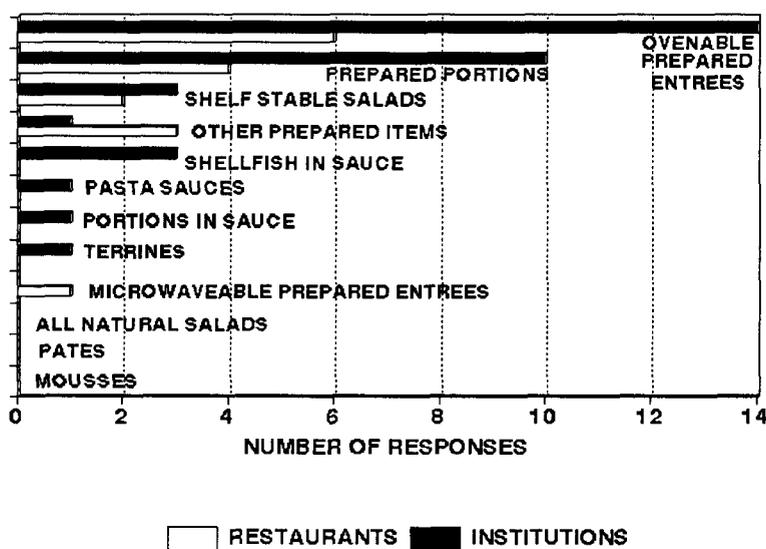
MARKET POSITION AND PREFERENCES FOR PREPARED SEAFOOD PRODUCTS

To identify additional opportunities for aquaculture producers in the area of value added products, food service operators' use of prepared seafood products was investigated. These products can generate additional revenues because they can often be prepared from the by-products of filleting or steaking operations. This would include products such as fish cakes, chowders, salads, etc. On the survey questionnaire food service operators were asked if they ever purchase prepared products, and if so which prepared products were best suited for their operation. To standardize responses, a list of possible prepared products was provided which included: microwaveable prepared entrees, ovenable prepared entrees, prepared portions, portions in sauce, pasta sauces, shelf stable salads, all natural salads, patés, mousses, terrines, shellfish in sauce, and other. No attempt was made to define or further describe the choices that were provided.

Forty-seven percent of those surveyed indicated that they purchase prepared products. Institutional food service operations were twice as likely to purchase prepared products as restaurant operations. Sixty-two percent (62%) of the institutional respondents indicated they purchased prepared products as compared to 32% of the restaurants.

Restaurants often build their reputation based on the skills of their chefs and may be reluctant to admit that they purchase any prepared products. Formal restaurants were least likely to purchase prepared products with only 29% indicating that they would purchase these items compared to 56% of the family operations, and 100% of the fast food businesses. Sixty-five percent (65%) of those establishments with average dinner entree prices under \$10 reported using prepared products. Those operations who indicated that they purchased prepared products were evenly distributed between urban, suburban and rural communities.

Figure 20. Prepared Seafood Products Suitable for Restaurant and Institutional Food Service Operations



The food service operations surveyed were most interested in oven-ready entrees and prepared portioned products. Forty-one percent (41%) of the institutional operators and 38% of the restaurant operators indicated that oven-ready entrees were suitable for their operation. Twenty-nine percent (29%) of the institutional survey respondents and 25% of the restaurants were interested in prepared portions. These two items appear to be best suited to food service operations. Both are basically heat and serve entrees which may also be portion controlled. This type of product offers both convenience and an opportunity to better manage costs in the food service setting. Several survey respondents indicated an interest in shelf stable salads, and both institutional and restaurant businesses felt that this product would be suitable for their operation. One institutional respondent indicated an interest in microwaveable products, and one restaurant operator indicated an interest in seafood terrines. Several institutional respondents were interested in various products in sauce like shellfish in sauce, pasta sauces, and portions in sauce. These products are also likely to be heat and serve items that offer convenience and an opportunity to manage cost based on portion sizes. There was no interest in all natural salads which was likely to be interpreted to mean products without preservatives. The high level of interest in products that are either shelf-stable or frozen would indicate that the ability to reduce shrink is a very important consideration for the food service operator.

During the consumer focus group sessions, participants were asked to describe a memorable fish or seafood meal. Many described the restaurants more exactly than the meal itself. A large percentage of these memorable meals were consumed while on vacation. Capitalizing on vacationers' more adventurous spirit, the French seafood promotion group actively introduces new species through the Club Med chain restaurants. During the focus groups discussions, participants indicated that they had tried new seafood while dining out but were unable to purchase the same product at retail.

Overall, aquaculture producers interested in producing value added prepared products should consider the needs of the institutional market and their concern about portion control and cost. Oven-ready entrees and prepared portions are likely to be successful products for the institutional market as well as for family and fast food restaurants. Interest in specialty items like terrines, patés, and mousses was not evident, but producers who identify opportunities to produce these products are likely to find a larger market among formal or white tablecloth establishments.

SUMMARY OF MARKET OPPORTUNITIES:

- 1) Food service businesses as a group are not highly aware of which products that they use are aquaculture produced. Labelling aquaculture products and educational activities that target food service operators as well as wait staff could help to increase a positive identity for these products in the food service marketplace.
- 2) Because both food service businesses and consumers are unsure about which products are aquaculture produced and what advantages these products provide, producers might consider developing table tents, menu inserts and other promotional or educational materials to increase product recognition and enhance aquaculture products' image.
- 3) Aquaculture producers should be aware of where food service businesses purchase seafood products when developing marketing strategies. In the New York City and New Jersey area food service businesses purchase seafood from wholesale fish markets like Fulton, local seafood dealers, and restaurant distributors most frequently.
- 4) Less than half of the food service businesses surveyed reported having purchased aquaculture products. Institutional food service operations and family and fast food restaurants were least likely to have purchased aquaculture products. Producers might benefit from a more in-depth analysis to determine if there were specific reasons why these types of businesses don't purchase aquaculture products or whether they simply do not recognize the products they use as aquaculture raised.
- 5) The type of products preferred by institutional food service businesses and specific types of restaurants are different. Institutional food service operations are more likely to prefer frozen products, and restaurants are more likely to use fresh products. These preferences should be considered when developing marketing strategies.

- 6) There are also differences in the portion sizes preferred by different types of food service businesses. Institutional operations and fast food and family restaurants prefer smaller sizes (3 to 4 ounce portions) for fillets and steaks. Formal and casual dining establishments are likely to prefer larger sized (6 to 8 ounce portions) steaks and fillets.
- 7) Food service operations view product safety as an important advantage of aquaculture products from both their own and their customer's point of view. Educational or promotional materials that articulate specific safety advantages should be utilized.
- 8) Food service operators also view positive quality attributes of aquaculture products as a major advantage. Educational programs and materials that explain the advantages that controlled production, harvesting, and processing can have on quality could be used to help food service businesses better understand aquaculture products.
- 9) Food service businesses viewed high prices and less flavor as the major disadvantages of aquaculture products. Producers should be aware of the importance of price to most food service operators when developing production strategies, and might consider blind taste tests of aquaculture and wild products to address concerns about taste. Producing and actively promoting alternative lower cost species could also help to address price concerns.
- 10) Food service businesses appear to be most interested in prepared items that are ready to cook and that are portion controlled. These are especially important criteria for institutional food service operations, and family and fast food restaurants. Aquaculture producers should consider these needs when developing prepared or value added products.

**MARKET OPPORTUNITIES
FOR
VALUE ADDED
SEAFOOD PRODUCTS**

MARKET OPPORTUNITIES FOR VALUE-ADDED SEAFOOD PRODUCTS

Products that are transformed in a way that increases the value of the original product components or ingredients can be considered to be “value-added products”. This transformation generally involves one or more processes. While there are costs associated with the processes necessary to convert the product from one form to another, because the finished product is worth more there is an opportunity to realize a higher profit. Most processing operations add value to the raw material being processed, and successful business strategies are designed to produce products that are in demand and can be sold at a profit. Simple primary processed products such as fish fillets could be considered a value added product since its relative value is higher than the whole fish the fillets are taken from. Special premium cuts such as loins or chops could also add value in some markets. Converting fillets or steaks to ready-to-cook or ready-to-eat product forms further increases value and potential profit. In addition, fish filleting operations that utilize trimmings and deboning processes to remove additional meat from fish racks and increase their yield can use these materials in formulations for other value added products like fish cakes, patties, seafood stuffing, patés, or terrines which can further increase overall profit margins. Aquaculture companies who carefully consider opportunities to produce traditional product forms such as fillets or steaks can also develop strategies to maximize profits by more fully utilizing their raw materials and producing and marketing a variety of value added products.

According to a number of country specific marketing reports produced by the United States Department of Agriculture, markets for value-added seafood products are emerging at a rapid rate in both Pacific Rim and European countries. In the United States, however, the number and type of value-added seafood products other than surimi-based imitation crab products, fish sticks and portions is limited. Interest in these products is growing in the U.S., and there is likely to be a significant potential market for a wide variety of value added products.

European and Asian companies have introduced a wide range of prepared seafood products. Products commonly found in these markets include seafood pizzas, terrines, patés, seafood soups and chowders, paellas, and prepared salads. Although many of these products can be expensive to produce, they can be assembled using the by-products of primary processing operations and could offer economic advantages to local producers. Some of the consumer comments from this study’s focus group discussions indicate that there is a potential market for these types of products. When non-coastal consumers were asked to describe a memorable seafood meal, one person mentioned a seafood pizza and several others had sampled the same product with the same positive results. When shown photographs of some of the paella and rice pilaf prepared dishes available in foreign markets, many consumers indicated, that depending on the price, they would purchase them at least once.

There are also market opportunities for raw value-added product forms as well as ready-to-cook or ready-to-eat products. Norwegian companies offer a wide range of salmon cuts including tails, steaks, chops (cross-sections of large fillets), portions, salmon butterfly fillets, loins and blocks. The production of salmon blocks allows processors to more fully utilize each fish harvested, while producing a product with a moderate price structure which meets the needs of cost conscious buyers like institutional food service operators, family restaurants and fast food outlets. An additional advantage of fish blocks is that there are no bones when they are produced from minced fish obtained from deboning processes. Some companies are also experimenting with a re-constructed salmon steak produced from minced fish.

Some Japanese companies produce salmon flakes which are a traditional food product in that culture. The production of a boneless, flaked salmon product that retailers or food service operations could use to make salads, pasta sauces, and salmon loafs, could be feasible in the United States. Salmon cakes similar to crab cakes are another product that can be produced from frame mince and other processing scraps. These products can be produced as by-products of a primary processing operation producing steaks and fillets.

Production of blocks, fish cakes, fish patties or "fishburgers", and salads might be another avenue for aquaculture producers to approach the family restaurants and fast food outlets. To successfully penetrate these markets would require that product be produced in sufficient volume to meet the demand on a regular basis. Large volume production and utilization of processing by-products could help producers address the price concerns expressed by consumers, retailers, and food service businesses alike. These products can be produced from the whole muscle and/or minced flesh or trimmings. Primary processed products like whole fish or fillets or steaks could be produced and sold with a narrower profit margin because of the additional return realized from value added products that utilize trimmings, scraps, and de-boned or minced flesh from fish racks. In many instances, companies depending upon wild harvest have difficulty producing sufficient product volume to meet the needs of fast food outlets and chain restaurants in their local area on a regular basis. Processing and freezing cooperatives could help smaller aquaculture producers address this concern. In some areas, regional outlets affiliated with national chains have participated in promotions for locally produced products. This has occurred with locally produced crab cakes in Maryland and with catfish in some southern states. Tuna and salmon burgers have been successfully introduced into the marketplace by at least one West Coast firm which is marketing them as "Health Burgers" (Seafood Business, March/April 1993).

The Japanese and the French routinely produce elaborate value added seafood products like terrines which are loaves of minced seafood and sometimes vegetables. Terrines are an unusual and sophisticated product that can be served at parties, as first dinner course, or as a luncheon entree. Because a variety of different ingredients can be combined, a product line can be created that spans a number of price ranges. Salmon is one of the most common ingredients. Salmon is frequently supplemented with other seafood such hake, scallops, lobster, monkfish, surimi and various types of fish or shellfish roe. The particular formulation used determines the price of the end product. Many of these products are frozen which makes them well-suited for use in restaurants or other food service operations. In Europe, terrines are often included in airline meals, and are sometimes used in meal selections offered in first-class in the United States. The primary American outlets for these products would most likely be restaurants, caterers, upscale supermarkets, and gourmet or specialty stores.

Gefilte (a term that traditionally refers to stuffed fish) fish products which are very different from those commonly sold in the United States are also available in Europe. These products are whole fish such as salmon which are then stuffed with minced fish and other ingredients. These ready-to-cook products can be sliced after preparation to reveal an attractive pattern for presentation on the plate. These products might be feasible seasonal offerings in the United States for use during holidays and other special occasions. Marketers have found that during holidays, many consumers simply ignore their budgets and purchase high quality foods regardless of the price. They may also be attractive to restaurants that cater to a higher income clientele or catering facilities that provide a full range of services for special occasions and holidays.

In the United States, smoked fish and shellfish products are a common value added product, and smoked salmon products account for the largest portion of this market. According to a recent marketing study (Trends in the U.S. Market for Smoked Salmon, Brooks and Anderson, 1993) U.S. production of smoked salmon ranged between 4000 and 6000 metric tons per year over the period from 1980 to 1988. Most of the smoked salmon production is concentrated in the Mid-Atlantic and Pacific coast regions, and the predominate products are Scottish style smoked salmon, nova smoked salmon and lox, and Northwest style hot smoked salmon. Other smoked seafood identified by this study were scallops, cod, haddock, bluefish, mackerel, whitefish, and trout. Of the 415 retail and food service firms across the country contacted in this study, 22% carried smoked seafoods and 19% carried smoked salmon. Gourmet stores were most likely to carry smoked products followed by retail stores. Restaurants were least likely to carry smoked seafood. Smoked fish sales were also found to peak during the winter holidays. While much of the existing market is supplied by a number of large scale operations, there may be opportunities for smaller aquaculture producers to produce a range of specialty value added smoked products for specific upscale markets in their local area or region.

Also popular in Europe are smoked fish patés that are often produced with full flavored fish like salmon or trout. Several of the consumers from the focus group discussions mentioned purchasing salmon or trout patés. These customers were very satisfied with their purchases and felt that they were special luxury items that could not be produced at home. The price of these products limited their ability to purchase them on a regular basis. One consumer purchased paté in the specialty snack section of a liquor store. There may also be an opportunity to produce less expensive products similar to the spreadable snack cheeses in the \$1.99-2.99 range which would appeal to a broad range of consumers. The British produce a wide range of these products often in a serving dish that can be used for parties or other gatherings. One problem that they experienced was that when they used a ceramic dish, the value-added tax applied in European markets and this drove the price out of an acceptable range for many consumers. A disposable aluminum dish was substituted to avoid this problem. These products are often packed in modified atmosphere packaging (MAP) which can prolong the shelf-life. To minimize potential safety concerns, many of the gas mixes used in these packages contain oxygen. Trout, salmon and shellfish farms that are producing smoked products can easily produce patés from their scraps.

Other specialty products include refrigerated seafood soups, chowders, or bisques that are sold in glass jars. Our consumer survey indicated that the most popular prepared seafood products were soups and chowders. If these products were produced and stored under refrigeration, it might serve to reinforce the consumers' desire for fresh product. Products that are locally produced could also have an advantage in regional markets with appropriate marketing efforts and promotional support materials for local retail outlets.

Another market opportunity for value added products relates to the boom in grilling and barbecuing seafood. In our consumer survey, barbecuing was the third most frequently identified seafood preparation method. There are a variety of potential grill- or barbecue-ready products that could be successfully marketed. Fish steaks or fillets in marinade provide convenience for the consumer and add value to the product. A full line of products could be offered by simply using different marinades. Different preparations with fish, shellfish, and vegetables on skewers to make "fish kebabs" have also been successful in many markets. In the New York and New Jersey area many retailers produce

this type of value added product during the summer grilling season with good success. Alternative products such as pre-packaged marinated portions suitable for foodservice businesses and self service seafood counters may provide an opportunity for aquaculture producers to enhance this line of products.

Although seafood products are generally regarded as a healthy low calorie alternative and are routinely promoted by the diet counseling services, there are a limited number of calorie or portion controlled frozen meals that feature seafood products. The products that are available are traditional items produced by large companies that also produce a wide variety of similar products using other foods. To take advantage of existing markets for consumers on weight loss programs that advocate increased consumption of seafood, smaller companies could develop portion-controlled products that yield a three ounce cooked portion which many programs recommend. Appropriate promotional materials such as a point-of-purchase card or label designs that reinforce the fact that these products are ideal for diet plans could be effective. The number of diet entrees on the American market has increased dramatically, and might be an area where certain aquacultured products can find a niche. To retain an appropriate price structure, value added products might include pasta with fish like salmon or with shellfish, seafood pilaf or other rice dishes, or stir fry entrees with vegetables. At present, there are a limited selection of these entrees that feature seafood.

In the area of non-calorie controlled products, there are a number of party style entrees available in Europe often with different packaging depending upon price. One company produces two different sizes of paella (rice, mussels, scallops, peas, shrimp and squid) that provides from one to three servings. These products may be packed in either a ceramic dish, an aluminum throw away pan, or a teflon paella pan.

During the consumer focus group discussions, participants were shown a variety of tray packs that feature appetizing photos of prepared seafood dishes plus a see-through plastic section. Most consumers felt that they were more satisfied with the traditional supermarket tray packs because they had a fresher appearance. Throughout the quantitative and qualitative portions of the study, consumers were focused on freshness as one of the most important aspects of seafood. Building on the consumer's perception of seafood as a gourmet item, several American supermarkets are moving toward black, plastic trays to better showcase their products.

Consumer packaging can also be critical in selling live bi-valve molluscan shellfish. Often these products are overwrapped when they reach the supermarket, which can suffocate the product. Appropriate consumer packaging can sometimes eliminate these problems. However, education and follow-up are needed. One aquaculture operation that routinely packed their live shellfish product correctly found that supermarkets were then over wrapping the mesh bag to prevent drip.

Given the overall importance of freshness and safety to consumers, retailers, and food service operators, aquaculture companies may be missing an important marketing opportunity by not labelling their products as aquaculture produced or farm-raised. With appropriate educational efforts that target retail counter staff, and food service buyers and wait staff, and promotional materials for consumers there is an opportunity to develop brand loyalty. Retail and food service buyers who are not aware of the advantages that aquaculture product could provide are likely to choose the less expensive product. There are a variety of mechanisms that could help enhance consumer's positive

perceptions about aquaculture products. One strategy could involve the development of a generic marketing program and a product logo that indicates that the product was farm-raised. A standardized market identifier for aquaculture products like the one currently used for recycled paper could help to maximize this type of effort. Individual companies could use these market identifiers when appropriate and cost effective, and market identity would be enhanced each time they were used.

Consumer surveys, including the one conducted for this study, have indicated that many consumers lack confidence in their ability to prepare seafood. The production of value-added ready-to-cook or ready-to-eat products can appeal to a wide range of consumers and increase their comfort level with seafood products. A wide range of value added products can be produced for specific market segments. For every day use, products that are ready-to-cook like oven-ready entrees, soups and chowders, stir fry mixes, and fish cakes and patties appear to be likely candidates for success. With an appropriate price structure, emphasis on freshness, and appropriate packaging, these products would seem to be appropriate candidates for test marketing. There are also a wide variety of value added specialty products like pates, terrines, and stuffed fish that may be appropriate for specific market segments.

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APPENDIX

CONSUMER SEAFOOD SURVEY

IN ORDER TO BETTER SERVE YOU IN THE SEAFOOD DEPARTMENT, WE NEED YOUR HELP. PLEASE TAKE A FEW MINUTES TO ANSWER THE FOLLOWING QUESTIONS. YOUR OPINIONS ARE IMPORTANT TO US.

1. HOW OFTEN DO YOU PURCHASE SEAFOOD THAT YOU PREPARE AT HOME?

- | | |
|---|---|
| <input type="checkbox"/> LESS THAN ONCE A MONTH | <input type="checkbox"/> ONCE A WEEK |
| <input type="checkbox"/> ONCE A MONTH | <input type="checkbox"/> TWICE A WEEK |
| <input type="checkbox"/> ONCE EVERY TWO WEEKS | <input type="checkbox"/> MORE THAN TWICE A WEEK |

Office Use

001

2. HOW OFTEN DO YOU ORDER SEAFOOD IN A RESTAURANT?

- | | |
|---|---|
| <input type="checkbox"/> LESS THAN ONCE A MONTH | <input type="checkbox"/> ONCE A WEEK |
| <input type="checkbox"/> ONCE A MONTH | <input type="checkbox"/> TWICE A WEEK |
| <input type="checkbox"/> ONCE EVERY TWO WEEKS | <input type="checkbox"/> MORE THAN TWICE A WEEK |

002

3. PLEASE LOOK AT THE FOLLOWING REASONS WHY YOU MIGHT CHOOSE TO PURCHASE SEAFOOD. SELECT THREE AND RANK THEM IN IMPORTANCE FROM 1 (MOST) TO 3 (LEAST).

- I LIKE THE TASTE
- I BELIEVE IT IS A HEALTHY FOOD
- I BELIEVE IT IS LOW CALORIE
- I THINK IT IS EASY TO PREPARE
- I LIKE ITS "GOURMET APPEAL"
- I FIND RECIPES IN COOKBOOKS & MAGAZINES THAT I'D LIKE TO TRY
- OTHER REASONS (Please explain) _____

003
004
005

4. HOW DO YOU MOST OFTEN COOK SEAFOOD AT HOME? (PLEASE SELECT TWO)

- | | |
|-------------------------------------|--------------------------------------|
| <input type="checkbox"/> BAKING | <input type="checkbox"/> STIR FRYING |
| <input type="checkbox"/> BROILING | <input type="checkbox"/> PAN FRYING |
| <input type="checkbox"/> BARBECUING | <input type="checkbox"/> DEEP FRYING |
| <input type="checkbox"/> POACHING | |

006
007

5. PLEASE LIST THE FIVE SEAFOOD PRODUCTS THAT YOU PURCHASE MOST OFTEN? (include finfish and shellfish)

1. _____
2. _____
3. _____
4. _____
5. _____

008
009
010
011
012

**6. DO YOU EVER PURCHASE ANY OF THE FOLLOWING PREPARED SEAFOOD ITEMS?
(CHECK ALL THAT APPLY)**

- | | |
|--|--|
| <input type="checkbox"/> SALADS | <input type="checkbox"/> SMOKED FISH |
| <input type="checkbox"/> FISH CAKES | <input type="checkbox"/> PARTY PLATTERS |
| <input type="checkbox"/> FISH IN SAUCE | <input type="checkbox"/> BREADED PRODUCTS |
| <input type="checkbox"/> SOUP AND CHOWDERS | <input type="checkbox"/> FROZEN PREPARED ENTREES |
| <input type="checkbox"/> READY TO COOK ENTREES (e.g. stuffed flounder) | |

Office Use

013	014
015	016
017	018
019	020
021	

7. IF SO, HOW OFTEN?

- NEVER RARELY SOMETIMES USUALLY

022

8. WHERE DO YOU USUALLY PURCHASE SEAFOOD? (SELECT TWO)

- | | |
|--|--|
| <input type="checkbox"/> SUPERMARKET | <input type="checkbox"/> BUYING CLUB |
| <input type="checkbox"/> SPECIALTY STORE | <input type="checkbox"/> INDEPENDENT FISH MARKET |

023

024

9. IF YOU PURCHASE SEAFOOD, DO YOU USUALLY MAKE THE DECISION TO PURCHASE SEAFOOD BEFORE YOU COME TO THE STORE OR WHEN YOU REACH THE SEAFOOD COUNTER IN THE MARKET?

- BEFORE WHILE IN THE MARKET

025

10. WHEN YOU GET TO THE SEAFOOD COUNTER, WHAT ARE THE TWO MOST IMPORTANT FACTORS IN DETERMINING WHAT TO BUY?

- PRODUCT FRESHNESS
- VISUAL APPEAL
- PRICE
- CONFIDENCE IN THE SEAFOOD DEPARTMENT
- KNOWLEDGEABLE COUNTER PERSONNEL
- AVAILABILITY OF RECIPE INFORMATION
- IN-STORE DEMONSTRATIONS
- SAMPLES

026

027

11. WHAT TYPES OF INFORMATION OR SERVICES WOULD INDUCE YOU TO PURCHASE SEAFOOD MORE OFTEN?

028

029

12. HAVE YOU EVER PURCHASED AQUACULTURED (FARM RAISED) PRODUCTS?

- YES NO

030

13. IF SO, WHICH PRODUCTS? (CHECK ALL THAT APPLY)

- | | |
|--|--|
| <input type="checkbox"/> FARM RAISED SHRIMP | <input type="checkbox"/> CATFISH |
| <input type="checkbox"/> FARM RAISED OYSTERS | <input type="checkbox"/> TROUT |
| <input type="checkbox"/> FARM RAISED MUSSELS | <input type="checkbox"/> TILAPIA |
| <input type="checkbox"/> FARM RAISED SALMON | <input type="checkbox"/> HYBRID STRIPED BASS |
| <input type="checkbox"/> FARM RAISED CLAMS | <input type="checkbox"/> OTHER (please list) _____ |

031	032
033	034
035	036
037	038
039	040

**14. WHAT PERCEPTIONS DO YOU HAVE ABOUT AQUACULTURED PRODUCTS?
(CHECK ALL THAT APPLY)**

- I THINK THEY'RE SAFER
- I BELIEVE THE QUALITY IS BETTER
- I BELIEVE THAT THE AVAILABILITY IS BETTER
- I BELIEVE THE PRICE IS LOWER THAN WILD CAUGHT PRODUCT
- I BELIEVE THAT THEY ARE MORE ENVIRONMENTALLY FRIENDLY
(they do not upset the balance of the natural environment)

Office Use

041
042
043
044
045

15. PLEASE INDICATE YOUR:

AGE:

- | | |
|----------------------------------|--------------------------------------|
| <input type="checkbox"/> 18 - 24 | <input type="checkbox"/> 50 - 54 |
| <input type="checkbox"/> 25 - 34 | <input type="checkbox"/> 55 - 64 |
| <input type="checkbox"/> 35 - 44 | <input type="checkbox"/> 65 AND OVER |
| <input type="checkbox"/> 45 - 49 | |

046	047
048	049
050	051
052	

SEX:

- MALE FEMALE

053	054
-----	-----

15. PLEASE CHECK THE BOX WHICH BEST DESCRIBES YOUR TOTAL HOUSEHOLD INCOME:

- | | |
|--|--|
| <input type="checkbox"/> UNDER \$30,000 | <input type="checkbox"/> \$50,000 - \$75,000 |
| <input type="checkbox"/> \$30,000 - \$40,000 | <input type="checkbox"/> \$75,000 - \$99,000 |
| <input type="checkbox"/> \$40,000 - \$50,000 | <input type="checkbox"/> \$100,000 AND ABOVE |

055	056
057	058
059	060

Please Return To:

Linda O'Dierno
New Jersey Department of Agriculture
CN-330
Trenton, NJ 08625

Comments: _____

THANK YOU FOR YOUR HELP!

RETAIL SURVEY

TO ASSIST OUR AMERICAN SEAFOOD INDUSTRY TO DEVELOP PRODUCTS THAT ARE MOST SUITABLE FOR FOOD SERVICE ESTABLISHMENTS, WE ASK YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE.

1. WHAT WERE YOUR FIVE BEST SELLING SEAFOOD SPECIES IN 1992?

Office Use

001
002
003
004
005

2. HOW MANY SEAFOOD ITEMS ARE NORMALLY IN THE CASE ON FRIDAY?

	FRESH	FROZEN	PREPARED, READY TO EAT
3 - 5	_____	_____	_____
5 - 10	_____	_____	_____
10 - 15	_____	_____	_____
15 - 20	_____	_____	_____
OVER 20	_____	_____	_____

Office Use

006
007
008

3. DO YOU EVER PROMOTE SEAFOOD AS BEING:

HEART HEALTHY	YES	_____	NO	_____
LOW CALORIE	YES	_____	NO	_____

009
010

4. WHERE DO YOU PURCHASE THE MAJORITY OF YOUR SEAFOOD?

_____ WHOLESALE FISH MARKET

_____ CENTRAL WAREHOUSE

_____ MAJOR SEAFOOD WHOLESALER

_____ DIRECTLY FROM THE BOATS

011

5. WHAT DO YOU BELIEVE IS THE MAJOR SOURCE OF THE SEAFOOD THAT YOU PURCHASE?

_____ IMPORTED PRODUCT

_____ PRODUCT HARVESTED BY LOCAL FISHERMEN

_____ PRODUCT HARVESTED IN THE NEW ENGLAND STATES

_____ PRODUCT HARVESTED IN THE MID-ATLANTIC STATES

_____ PRODUCT HARVESTED IN THE SOUTHEASTERN STATES

_____ PRODUCT HARVESTED ON THE WEST COAST

_____ PRODUCT HARVESTED IN ALASKA

_____ PRODUCT HARVESTED IN THE GULF OF MEXICO

012

6. DO YOU EVER USE AQUACULTURED (FARM RAISED) PRODUCTS?

YES ____ NO ____

Office Use

013

7. IF SO, WHICH PRODUCTS?

- | | |
|--|--|
| <input type="checkbox"/> FARM RAISED SHRIMP | <input type="checkbox"/> FARM RAISED CLAMS |
| <input type="checkbox"/> FARM RAISED OYSTERS | <input type="checkbox"/> FARM RAISED SALMON |
| <input type="checkbox"/> FARM RAISED MUSSELS | <input type="checkbox"/> HYBRID STRIPED BASS |
| <input type="checkbox"/> CATFISH | <input type="checkbox"/> OTHER (please list) _____ |
| <input type="checkbox"/> TROUT | <input type="checkbox"/> OTHER _____ |
| <input type="checkbox"/> TILAPIA | <input type="checkbox"/> OTHER _____ |

014	015
016	017
018	019
020	021
022	023
024	025

8. DO YOU SEE ANY ADVANTAGES OF AQUACULTURED PRODUCTS? (check any that apply)

A. FROM THE CUSTOMER'S VIEWPOINT:

- BETTER QUALITY
 SAFER
 PRICE

Office Use

026

027

028

B. FROM THE YOUR POINT OF VIEW AS A RETAILER:

- CONSISTENT SUPPLY
 CONSISTENT PRICE
 LOWER PRICE
 BETTER PORTION CONTROL
 SAFER

029

030

031

032

033

9. DO YOU SEE ANY DISADVANTAGES OF AQUACULTURED PRODUCTS? (check any that apply)

- LESS FLAVOR
 LOWER NUTRITIONAL VALUE
 DIFFICULT TO SOURCE PRODUCT
 INCONSISTENT SUPPLY
 HIGHER PRICES

034

035

036

037

038

10. DO YOU INCLUDE EITHER THE TERM "FARM RAISED" OR "AQUACULTURED" AS A MARKETING TOOL?

YES ____ NO ____

039

11. WHICH PRODUCT FORMS ARE MOST SUITED TO YOUR OPERATION?

- | | |
|---|--|
| <input type="checkbox"/> FRESH WHOLE FISH | <input type="checkbox"/> FROZEN WHOLE FISH |
| <input type="checkbox"/> FRESH FILLETS | <input type="checkbox"/> FROZEN FILLETS |
| <input type="checkbox"/> FRESH STEAKS | <input type="checkbox"/> FROZEN STEAKS |

040	041
042	043
044	045

12. DO YOU EVER PURCHASE PREPARED PRODUCTS?

YES ____ NO ____

Office Use

046

13. IF SO, WHICH SEAFOOD PRODUCTS ARE BEST SUITED TO YOUR OPERATION?

- MICROWAVEABLE PREPARED ENTREES
- OVENABLE PREPARED ENTREES
- PREPARED PORTIONS
- PORTIONS IN SAUCE
- PASTA SAUCES
- SHELF STABLE SALADS
- ALL NATURAL SALADS
- PATES
- MOUSSES
- TERRINES
- SHELLFISH IN SAUCE
- OTHER _____

047	048
049	050
051	052
053	054
055	056
057	058

14. DO YOU COMERCHANDISE SAUCES, BREADINGS, ETC. AT YOUR SEAFOOD COUNTER?

YES ____ NO ____

059

15. WHAT BEST DESCRIBES YOUR OPERATION?

- CHAIN - HOW MANY UNITS?
- INDEPENDENT

060
062

16. AVERAGE YEARLY SEAFOOD SALES

- OVER \$1 MILLION
- \$500,000 - \$1 MILLION
- \$100,000 - \$500,000
- UNDER \$100,000

063

17. AVERAGE SEAFOOD SALE PER CUSTOMER

- OVER \$25
- \$20 - \$25
- \$15 - \$20
- \$10 - \$15
- \$5 - \$10
- LESS THAN \$5

064

18. DO YOU CONSIDER YOUR CLIENTELE PRIMARILY:

- UPPER INCOME
- MIDDLE INCOME
- LOW INCOME

065

19. WHAT IS THE PRIMARY ETHNIC BACKGROUND OF YOUR CLIENTELE?

- BLACK
- HISPANIC
- ORIENTAL
- CAUCASIAN
- OTHER (please indicate) _____

066

20. ARE MOST OF YOUR STORES LOCATED IN AN:

- URBAN SETTING
- SUBURBAN SETTING
- RURAL SETTING
- VACATION/LEISURE COMMUNITY

067

Please Return To:

**Linda O'Dierno
New Jersey Department of Agriculture
CN-330
Trenton, NJ 08625**

Comments: _____

THANK YOU FOR YOUR HELP!

FOOD SERVICE SURVEY

TO ASSIST OUR AMERICAN SEAFOOD INDUSTRY TO DEVELOP PRODUCTS THAT ARE MOST SUITABLE FOR FOOD SERVICE ESTABLISHMENTS, WE ASK YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE.

1. WHAT ARE YOUR TOP FIVE PURCHASED SEAFOOD SPECIES? (largest volume purchased)

Office Use

001
002
003
004
005

2. HOW MANY SEAFOOD ENTREE ITEMS DO YOU ROUTINELY HAVE ON THE MENU?

___ 1 - 3

___ 3 - 5

___ 5 - 7

___ MORE THAN 7

006

3. DO YOU EVER PROMOTE FISH AND SEAFOOD AS BEING:

HEART HEALTHY YES ___ NO ___

LOW CALORIE YES ___ NO ___

007
008

4. WHERE DO YOU PURCHASE THE MAJORITY OF YOUR SEAFOOD?

___ WHOLESALE FISH MARKET

___ RESTAURANT DISTRIBUTOR

___ MAJOR SEAFOOD WHOLESALER

___ LOCAL SEAFOOD DEALER

___ DIRECTLY FROM THE BOATS OR FISH FARMER

___ PROCESSOR

009

5. WHAT DO YOU BELIEVE IS THE MAJOR SOURCE OF THE SEAFOOD THAT YOU PURCHASE?
(Please rank 1, 2 AND 3)

___ IMPORTED PRODUCT

___ PRODUCT HARVESTED BY LOCAL FISHERMEN

___ PRODUCT HARVESTED IN THE NEW ENGLAND STATES

___ PRODUCT HARVESTED IN THE MID-ATLANTIC STATES

___ PRODUCT HARVESTED IN THE SOUTHEASTERN STATES

___ PRODUCT HARVESTED ON THE WEST COAST

___ PRODUCT HARVESTED IN ALASKA

___ PRODUCT HARVESTED IN THE GULF OF MEXICO

010

6. DO YOU EVER USE AQUACULTURED (FARM RAISED) PRODUCTS?

YES _____ NO _____

Office Use

011

7. IF SO, WHICH PRODUCTS?

- | | |
|--|--|
| <input type="checkbox"/> FARM RAISED SHRIMP | <input type="checkbox"/> FARM RAISED CLAMS |
| <input type="checkbox"/> FARM RAISED OYSTERS | <input type="checkbox"/> FARM RAISED SALMON |
| <input type="checkbox"/> FARM RAISED MUSSELS | <input type="checkbox"/> HYBRID STRIPED BASS |
| <input type="checkbox"/> CATFISH | <input type="checkbox"/> OTHER (please list) _____ |
| <input type="checkbox"/> TROUT | <input type="checkbox"/> OTHER _____ |
| <input type="checkbox"/> TILAPIA | <input type="checkbox"/> OTHER _____ |

012	013
014	015
016	017
018	019
020	021
022	023

8. DO YOU SEE ANY ADVANTAGES OF AQUACULTURED PRODUCTS COMPARED TO WILD CAUGHT PRODUCTS?
(check any that apply)

A. FROM THE CUSTOMER'S POINT OF VIEW:

- BETTER QUALITY
- SAFER
- LESS EXPENSIVE
- MORE ENVIRONMENTALLY FRIENDLY

024
025
026
027

B. FROM YOUR POINT OF VIEW AS A FOOD SERVICE OPERATOR:

- CONSISTENT QUALITY
- CONSISTENT SUPPLY
- CONSISTENT PRICE
- LOWER COST
- BETTER PORTION CONTROL (consistent size)
- SAFETY
- BETTER SHELF LIFE
- BETTER QUALITY

028
029
030
031
032
033
034
035

9. DO YOU SEE ANY DISADVANTAGES OF AQUACULTURED PRODUCTS COMPARED TO WILD CAUGHT PRODUCTS?
(check any that apply)

- LESS FLAVOR
- LOWER NUTRITIONAL VALUE
- DIFFICULT TO SOURCE PRODUCT
- INCONSISTENT SUPPLY
- HIGHER PRICES
- LIMITED SUPPLY
- LIMITED VARIETY

036
037
038
039
040
041
042

10. DO YOU INCLUDE EITHER THE TERM "FARM RAISED" OR "AQUACULTURED" ON YOUR MENU AS A MARKETING TOOL?

YES _____ NO _____

043

11. WHICH PRODUCT FORMS ARE MOST SUITED TO YOUR OPERATION?

- | | |
|---|--|
| <input type="checkbox"/> FRESH WHOLE FISH | <input type="checkbox"/> FROZEN WHOLE FISH |
| <input type="checkbox"/> FRESH FILLETS | <input type="checkbox"/> FROZEN FILLETS |
| <input type="checkbox"/> FRESH STEAKS | <input type="checkbox"/> FROZEN STEAKS |

Office Use	
044	045
046	047
048	049

12. IF YOU PURCHASE PORTION CONTROLLED PRODUCTS, WHICH SIZES ARE BEST FOR YOUR OPERATION?

WHOLE FISH:

- LESS THAN 10 OUNCES
- 10 - 12 OUNCES
- 12 - 14 OUNCES
- 14 - 16 OUNCES
- 1 POUND
- 1 1/2 POUNDS
- MORE THAN 2 POUNDS

050
051
052
053
054
055
056

FILLETS:

- 3 - 4 OUNCES
- 4 - 6 OUNCES
- 6 - 8 OUNCES
- 8 - 10 OUNCES
- MORE THAN 10 OUNCES

057
058
059
060
061

STEAKS:

- 3 - 4 OUNCES
- 4 - 6 OUNCES
- 6 - 8 OUNCES
- 8 - 10 OUNCES
- MORE THAN 10 OUNCES

062
063
064
065
066

13. DO YOU EVER PURCHASE PREPARED PRODUCTS? (breaded, products in sauce, etc.)

YES NO

067

14. IF SO, WHICH SEAFOOD PRODUCTS ARE BEST SUITED TO YOUR OPERATION?

- | | |
|---|---|
| <input type="checkbox"/> MICROWAVEABLE PREPARED ENTREES | <input type="checkbox"/> ALL NATURAL SALADS |
| <input type="checkbox"/> COOKED PREPARED ENTREES | <input type="checkbox"/> PATES |
| <input type="checkbox"/> PREPARED PORTIONS | <input type="checkbox"/> MOUSSES |
| <input type="checkbox"/> PORTIONS IN SAUCE | <input type="checkbox"/> TERRINES |
| <input type="checkbox"/> PASTA SAUCES | <input type="checkbox"/> SHELLFISH IN SAUCE |
| <input type="checkbox"/> SHELF STABLE SALADS | <input type="checkbox"/> OTHER _____ |

068	069
070	071
072	073
074	075
076	077
078	079

15. ARE THERE ANY SEAFOOD DISHES THAT YOU CURRENTLY PREPARE ON-SITE BUT WOULD LIKE TO BE ABLE TO PURCHASE IN PREPARED FORM?

080

16. IS YOUR FOOD SERVICE OPERATION LOCATED IN AN:

- URBAN SETTING
- SUBURBAN SETTING
- RURAL SETTING
- VACATION/LEISURE COMMUNITY

Office Use

081

17. WHICH BEST DESCRIBES YOUR OPERATION?

- RESTAURANT - HOW MANY SEATS?
- INSTITUTIONAL - HOW MANY MEALS?

082

083

18. TYPE OF RESTAURANT:

- FORMAL DINING/WHITE TABLECLOTH
- CASUAL DINING
- FAMILY
- FAST FOOD

084

19. AVERAGE DINNER ENTREE PRICE:

- OVER \$25
- \$20 - \$25
- \$15 - \$20
- \$10 - \$15
- LESS THAN \$10

085

If you would like to be added to our retail and aquaculture mailing list, please attach a business card.

Please Return To:

Linda O'Dierno
New Jersey Department of Agriculture
CN-330
Trenton, NJ 08625

Comments: _____

ORDER FORM

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