

AN ANALYSIS OF SEAFOOD CONSUMPTION PATTERNS
AND PRODUCT PERCEPTIONS IN TEXAS

by

Samuel M. Gillespie
Michael J. Houston
Department of Marketing
Texas A&M University

Partially supported through Institutional Grant 04-3-158-18 to
Texas A&M University, by the National Oceanic
and Atmospheric Administration's
Office of Sea Grants, Department of Commerce

August 1975

TAMU-SG-75-216

\$2.00

Order from:

Department of Marine Resources Information
Center for Marine Resources
Texas A&M University
College Station, Texas 77843

TABLE OF CONTENTS

	Page
ABSTRACT	iv
INTRODUCTION	1
I. CONSUMER ATTITUDE TOWARD SEAFOOD	2
Consumption Patterns of Finfish and Shellfish compared to Other Meat Items	2
Consumption Patterns of Seafood	7
Social Acceptance of Seafood	9
Purchase Patterns (of Seafood)	11
Preparation Patterns (of Seafood)	11
Product-Form Preference (of Seafood)	13
Awareness of Selected Seafood Species	15
Consumer Perception of High-Volume Users of Seafood	17
Conclusion: Consumer Attitude Toward Seafood	18
II. USE OF A CONSUMER BEHAVIORAL MODEL TO HELP EXPLAIN CONSUMPTION PATTERNS FOR SEAFOOD	19
III. SOCIO-ECONOMIC DIMENSIONS OF SEAFOOD CONSUMPTION	24
FOOTNOTES	27
APPENDICES	28
A. Detailed Tables Regarding Socio-Economic Dimensions of Seafood Consumption	29
B. Statement of Sample Design	41
C. Questionnaire Used in Study	44

ABSTRACT

Attitudes toward seafood as a meat item were examined by sampling 675 households in three Texas cities: Austin, Corpus Christi, and Waco. This report is divided into three sections. The first section describes consumer consumption patterns and attempts to explain these patterns in terms of consumer's attitudes and perceptions toward seafood. Eight separate areas are analyzed:

1. Finfish and shellfish consumption patterns compared to other meat items
2. Consumption patterns of seafood in general
3. Social acceptance of seafood
4. Purchase patterns of seafood
5. Preparation patterns of seafood
6. Seafood product-form preference
7. Awareness of selected seafood species
8. Consumer perceptions of high-volume users of seafood

The findings suggest that although consumers do not consume seafood in quantities comparable to red meats and poultry they do perceive it as a nutritious and relatively economical meat item. They reported that they could easily find stores which handle fresh or frozen seafood. The major impediment to the purchase of seafood was the consumers' negative reactions to preparation and purchase.

The second section reports on the findings of a behavioral model developed to explain consumption patterns. The model supports the generalizations inferred in the first section; that is, preparation ease and family tastes are determinant attitudes in seafood consumption and have a dampening effect on consumption frequency.

The final section analyzes seafood consumption patterns based on a variety of socioeconomic attributes. Three major observations emerge. First, people living near the coast when growing up consume seafood in the home more frequently in later life. Second, as one moves up the social class ladder his frequency of consumption of seafood also increases. Third, there is no discernible market segment for finfish (except coastal proximity). Seafood demonstrates heterogeneous segmentation characteristics.

INTRODUCTION

For a firm to effectively develop and successfully implement a marketing strategy, a thorough understanding of the nature and behavior of the market toward which this strategy is directed is necessary. This monograph is written to provide firms in the seafood industry with some recent findings concerning the nature and causes of seafood consumption behavior of consumers in three Texas cities: Austin, Waco and Corpus Christi. The data for the study were obtained through a self-administered questionnaire distributed on probability sampling bases to 900 households in these three cities. A total of 675 usable questionnaires were returned with a response rate of 75%. Respondents were those individuals in the household who typically prepare family meals.

Unlike a recent government study which only reported consumer panel consumption patterns of fishery products,¹ this study examines not only consumption patterns but purchase patterns, seafood meal preparation behavior, and underlying beliefs, attitudes, and perceptions which help explain why consumers behave toward seafood as they do.

The report is divided into three sections. The first section, using aggregate data, reports consumer consumption patterns and attempts to explain these patterns in terms of consumers' attitude and perception of seafood. The second section reports on the findings of a behavioral model developed to explain consumer consumption patterns. The final section takes a traditional market segmentation approach, by analyzing consumption patterns on a variety of demographic attributes: age, income, coastal proximity, occupation, and family size.

The authors believe that this three-facet approach to the study, particularly the inclusion of the behavioral model as an analytical tool, will provide added insight for industry businessmen and government agencies toward understanding the complexity of consumer behavior toward seafood, and inputs for developing marketing strategies which enhance consumer demand for seafood.

A copy of the questionnaire used in this study and a statement of how the sample for the study was chosen are provided in appendices B and C.

CONSUMER ATTITUDE TOWARD SEAFOOD

This section of the report discusses the responses of all respondents to a series of questions intended to indicate consumer attitude toward seafood. Eight separate areas are analyzed.

1. Consumption Patterns of Finfish and Shellfish compared to Other Meat Items
2. Consumption Patterns of Seafood
3. Social Acceptance of Seafood
4. Purchase Patterns of Seafood
5. Preparation Patterns of Seafood
6. Seafood Product-Form Preference
7. Awareness of Selected Seafood Species
8. Perceptions of High-Volume Users of Seafood

Consumer Consumption Patterns of Finfish and Shellfish Compared to Other Meat Items

The starting point in studying consumption patterns of seafood is a consideration of how frequently seafood is eaten by consumers. To obtain a useful perspective, these consumption patterns were related to consumer consumption of beef, pork, and poultry.

These results, reported in Tables 1 and 2, agree, with national data on the ordering of per capita consumption of meat items. In 1973, the reported U.S. Department of Agriculture average U.S. per capita consumption of red meat (beef, veal, lamb, and pork) was 189 pounds, with 116 of those pounds pertaining to beef alone. Also, average per capita consumption of poultry was 52 pounds with 43 of those pounds pertaining to chicken. In comparison, seafood was consumed in the amount of 12.4 pounds per person.²

TABLE 1

Current Consumption Patterns of Meat Items

"About how often do you prepare each of the following?"

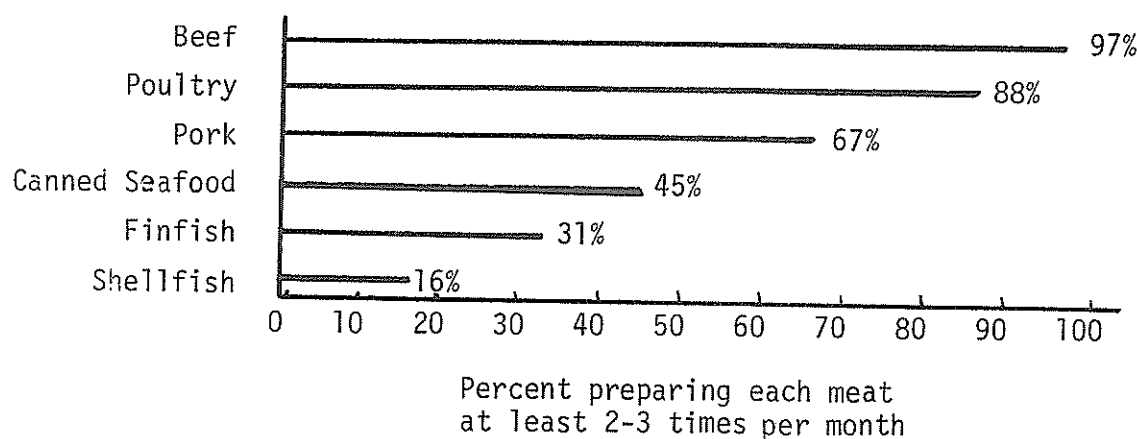
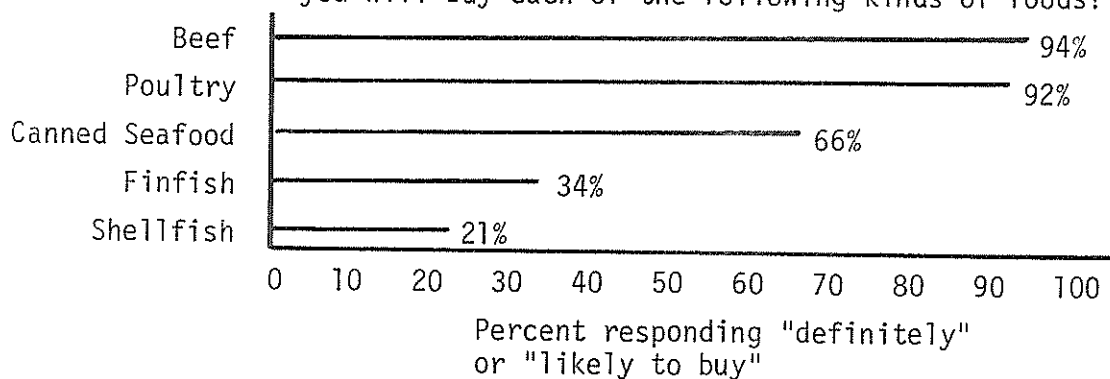


TABLE 2

Future Consumption Intentions for Meat Items

"On your next visit to the store how likely is it that you will buy each of the following kinds of foods?"



To gain insight into why seafood does not enjoy the status of other meats as a menu item, consumer perceptions of the ability of beef, pork, poultry, finfish and shellfish to provide benefits relating to nutrition, ease of preparation, family taste, and price were measured using seven-point rating scales.³ An example of the rating scale used for beef follows:

<u>Beef Products</u>							
not at all nutritious	1	2	3	4	5	6 7	very nutritious
difficult to prepare	1	2	3	4	5	6 7	easy to prepare
family dislikes	1	2	3	4	5	6 7	family likes
over-priced	1	2	3	4	5	6 7	good dollar value

Table 3 presents the proportion of positive responses (a rating of 5, 6, or 7) for each meat item on each attribute. Also, the mean value of all ratings is presented for each item on each attribute.

TABLE 3
Consumer Perceptions of Benefits of Meat Items

<u>Benefit</u>	<u>Score</u>		<u>Benefit</u>	<u>Score</u>	
	%	\bar{x}		%	\bar{x}
<u>Nutrition</u>			<u>Family Tastes</u>		
Beef	95	6.38	Beef	94	6.49
Pork	65	5.05	Pork	76	5.45
Poultry	91	6.04	Poultry	86	5.98
Fish	94	6.34	Fish	66	5.21
Shellfish	87	5.90	Shellfish	65	5.16
<u>Ease of Preparation</u>			<u>Price</u>		
Beef	86	6.00	Beef	43	4.03
Pork	78	5.61	Pork	40	4.00
Poultry	76	5.62	Poultry	65	5.05
Fish	66	5.16	Fish	61	4.82
Shellfish	72	4.57	Shellfish	30	3.37

Several observations are evident from the findings. First, all items with the exception of pork are perceived favorably on the nutrition attribute by nearly 90% of the respondents. If nutrition were the sole criterion for a consumer's purchase decision, seafood products would be purchased almost as frequently as other items. Second, finfish rates highly as an economic value (price). Notice that consumers appear to perceive all of the meat items as expensive since only for poultry does the mean scale value exceed 5.0. Shellfish rates poorest on price which is not surprising since demand/elasticity studies on shrimp by the National Marine Fisheries Service suggest that shrimp is highly income-elastic.⁴ Finfish, however, rates best among all meat items. It should be apparent also, that finfish and shellfish rate poorest on the attributes of ease of preparation and family tastes. The question which needs further investigation is the extent to which each of these attributes influences consumer purchases. This question is discussed in detail in section two of the report. Suffice it to say at this point that perceptions of seafood are favorable in terms of nutrition benefits, relatively favorable for finfish price benefits, but relatively unfavorable for ease of preparation and family taste.

Consumers were asked to respond to a series of statements on seafood by indicating on a five-point rating scale how strongly they agree or disagree with the statement. These statements, reported in Table 4, are divided into three categories: Health Fears, Price/Costs, and Taste. For purposes of simplification, response percentages are collapsed to: agree, neutral, and disagree.

TABLE 4

Percentages of Responses to Statements Related to Seafood Benefits

	<u>Agree</u>	<u>Percentages Neutral</u>	<u>Disagree</u>
<u>Taste:</u>			
"The taste of fish is too strong"	13	13	74
<u>Price/Cost:</u>			
"The price of fresh fish is usually higher than other meats"	23	31	46
<u>Health Fears:</u>			
"Seafood, like other meats, is federally inspected"	41	43	16
"Fresh fish keeps as long as most other meats"	23	19	58
"It is difficult to tell if fresh fish is really not spoiled"	23	25	52
"There are health dangers in eating fish or seafood"	34	24	42
"Shellfish is better for you than finfish"	7	58	35
"I do not like to buy fish that have bones"	65	14	21
"Fish do not look very good to eat"	26	13	61

From the responses to statements in Table 4 several observations are worth mentioning.

1. Although the previous analysis indicates that families as a whole find the taste of seafood less appealing than other meats, almost three-fourths of the individual respondents indicated the taste of finfish is not disagreeable.
2. The price statement response reinforces the findings in Table 3 on consumer price beliefs.
3. Consumers believe that seafood is federally inspected. However, there is no legislation requiring seafood to be federally inspected as is required of red meat and poultry. Although there are provisions for federal inspection of seafood processing plants, this is provided on a voluntary basis.

4. Apparently, many consumers remember the mercury scare of tuna and swordfish, as they indicate some health hazard concern toward seafood, even though they regard seafood as highly nutritious.
5. Responses to statements about appearance, spoilage, and bones are consistent with expectations.

Consumer Consumption Patterns of Seafood

This section centers on various dimensions of purchasing and consuming seafood products. A brief discussion of the findings for each question is provided.

TABLE 5

Current Consumption of Finfish & Shellfish at Home

"How often do you prepare finfish and shellfish for the evening meal in your home?"

		At least once a week	2-3 times a month	About once a month	A few times a year	Seldom or never
	N	%			68%	
Finfish	(625)	11	20	21	25	23
Shellfish	(606)	5	11	17	31	36
					84%	

Seventy percent of the respondents consume seafood at home less than once a month. Only a small segment of the sample can be considered moderate to heavy users of seafood.

TABLE 6

Current Consumption of Seafood Away From Home

"Whenever your family goes to a restaurant for the evening meal, about how often does at least one family member order fish or seafood?"

Almost Always	25%	} 56%
Often	31%	
Every now and then	34%	
Seldom or never	10%	

The combined value for categories "almost always" and "often" is 56%, indicating that consumers tend to eat seafood away from home more frequently than they do at home.

A reason for this is suggested after additional findings are reported below.

TABLE 7

Past Consumption of Seafood

"When you were growing up, how often would you say your family ate fish or seafood?"

<u>quite often</u>	<u>every now and then</u>	<u>hardly ever</u>
31%	55%	14%

Table 7, compared to Tables 5 and 6, indicates that respondents apparently consumed more seafood in the past than they do today.

TABLE 8

Future Consumption of Seafood Relative to Other Meats

"On your next visit to the store how likely is it that you will buy each of the following kinds of foods?"

	% <u>Definitely Will Buy</u>	% <u>Likely to Buy</u>	% <u>Unlikely to Buy</u>	% <u>Definitely Will Not Buy</u>
Beef	73	21	4	2
Poultry	52	40	6	2
Canned Seafood	22	44	24	10
Finfish	7	27	40	26
Shellfish	4	17	44	35

Except for canned seafood, there is strong evidence that only a relatively small segment of the sample "definitely will buy" or is "likely to buy" finfish (34%) or shellfish (21%). This is consistent with the current consumption patterns of respondents shown in Table 4. Notice how the consumption of seafood differs dramatically from beef (94%) and poultry (92%).

Social Dimensions of Seafood

In an effort to learn of the social acceptability of seafood, consumers were asked if they would serve seafood as a main dish to their guests. Table 9 reports the findings.

Because seafood is not consumed frequently in the home, it was expected that respondents might indicate seafood was not a meat item which they would care to serve to guests. The results did not support this suspicion since nearly two-thirds did not agree with the statement. However, had the word "finfish" been inserted rather than the more general term "seafood" the results might have been somewhat different.

TABLE 9

Social Acceptability of Seafood
As A Main Meat Item for Guests

Statement	Agree	Percentage Neutral	Disagree
"Seafood is not the kind of main dish to serve to guests."	20	15	65

Consumer Preparation Patterns of Seafood

TABLE 10

Sources of Seafood

"Whenever you prepare fish or seafood at home, is it usually bought from the store or is it caught by a family member or friend or about half the time for each?"

usually bought from the store	49%
usually caught by family or friend	22%
about half the time for each	29%

TABLE 11

Product Availability

"Does the store at which you buy your seafood sell only frozen, or fresh and frozen seafood?"

only frozen	31%
both fresh and frozen	69%

"To the best of your knowledge is fresh seafood or fish sold in any food store or market within a convenient shopping distance from your home?"

Yes	69%	No	31%
-----	-----	----	-----

TABLE 12
Consumer Perception of Purchasing Seafood

Statement	Agree	Percentage Neutral	Disagree
"I would have no trouble finding a store that sells fresh fish."	65	8	27
"Stores selling fresh fish do not have a big variety to choose from."	53	24	23
"Fresh fish markets are not an enjoyable place to shop."	44	26	32

Consumers apparently have no trouble obtaining fresh fish (Tables 10, 11, 12) but perceive the fresh seafood market as providing neither a wide product assortment from which to choose nor a very pleasant shopping experience (Table 12, statements 2 and 3).

Consumer Preparation Patterns of Seafood

TABLE 13
Manner of Preparation of Seafood

"In your preparation of fish or seafood at home, about how often do you prepare it in each of the following ways?"

	<u>"almost always" or "often"</u>	<u>"every now and then" or "seldom/never"</u>
Fried	77%	23%
Broiled	39%	61%
Baked	31%	69%
Casserole	14%	86%
Fish sticks, patties	24%	76%
Chowder, soup, stew	8%	92%

TABLE 14

Consumer Perceptions of Seafood Preparation

Statement	Agree	Percentage Neutral	Disagree
"I do not mind cleaning whole fresh fish."	26	5	69
"Cooking fish does not smell up the house any more than other meats."	28	7	65

Table 13 shows that consumers, overwhelmingly, prepare their seafood fried, compared to other preparation modes.

Consumers have a distaste for "gill and gutting", scaling, and eviscerating whole fish (Table 14). They also feel that the odor of cooked fish smells up their home. These two statements may be very strong evidence for explaining relatively low-level consumption of seafood and fresh fish, particularly where fresh seafood markets neither make a conscious effort to display fresh fish in dressed or fillet form nor offer to prepare the fresh fish to the customer's liking.

TABLE 15

Consumer Seafood Recipe Variety

Statement	Agree	Percentage Neutral	Disagree
"I know many different recipes prepare a meal with fish."	26	24	23

The findings in Table 13, which indicate that most seafood is fried, appears inconsistent with the response from Table 15 regarding seafood recipe variety. However, consumers may have knowledge of a variety of recipes but

seldom use them. It is interesting to learn that the cookbook is the prime source for new recipe ideas; especially when the seafood industry places heavy emphasis on newspaper food sections for promotion of its seafood (Table 16).

TABLE 16

"Which of the following places do you use most for recipe ideas?"

Cookbooks	68%
Magazines	13%
Food Packages	13%
Newspapers	5%
Store Recipe Racks	1%

Consumer Product-Form Preference of Seafood

TABLE 17

Product Form Preference: Frozen vs. Fresh

"When you buy fish or seafood at the store, do you prefer to buy it frozen or fresh?"

Frozen	49%
Fresh	51%

TABLE 18

Consumer Attitudes Toward Frozen vs. Fresh Seafood

Statement	Agree	Percentage Neutral	Disagree
"Fresh fish is more difficult to prepare than frozen fish."	21	15	64

TABLE 18 (CONTINUED)

Statement	Agree	Percentage Neutral	Disagree
"Fresh fish has a better taste than frozen fish."	83	9	8
"Frozen fish is a good buy for your money."	46	38	16

TABLE 19

Product Form Preference: Breaded vs. Unbreaded

"When you buy fish or seafood at the store, do you generally prefer to buy it breaded or unbreaded?"

Breaded	22%
Unbreaded	78%

TABLE 20

Product Form Preference: Whole, Dressed, Filleted

"When you buy fresh finfish at the store, do you generally prefer to buy it whole, dressed, or filleted?"

Whole	9%
Dressed	21%
Filleted	70%

TABLE 21

Consumer Attitude Toward Price of Whole vs. Filleted Fish

Statement	Agree	Percentage Neutral	Disagree
"Whole fish is a better buy than filleted fish."	36	33	31

The purpose of the questions in Tables 17 through 20 was to learn of consumer preferences and attitudes toward various product forms of seafood. It is interesting that consumers are split in terms of their preference of fresh or frozen fish purchases. One might suspect that fresh fish would have preference over frozen; however, the earlier statement found in Table 3 which indicates most consumers do not believe fish keep as long as other meats suggests this may dampen the preference for fresh fish. Consumers tend to believe fresh fish tastes better than frozen and is easier to prepare. However, fresh fish tends to be perceived as more expensive than frozen fish. As one might expect consumers prefer unbreaded over breaded (however, the convenience of breaded portions may offset, in part, a taste or psychological preference for unbreaded) and prefer filleted over dressed and whole fish.

The finding that consumers prefer filleted fish is not surprising. However, the response in Table 21 that consumers lack consensus agreement as to the best buy between whole, dressed and filleted fish might explain why many fresh seafood markets continue to display fresh finfish in the round or only gill and gutted form. Retailers are able to price whole fish much less per pound than filleted fish since the consumer is purchasing the head, fins, and frame. Then the consumer requests that the retailer fillet the fish for her so that she will not have to discard them at home.

Consumer Awareness of Selected Seafood Species

It is reasonable to suspect that relatively low consumption of seafood results in low familiarity with the wide variety of seafood potentially available to consumers in the seafood market. Table 22 below reports the findings of an attempt to learn of consumers' familiarity with common

finfish found in Texas coastal waters. The findings suggest that the more popular fish such as flounder, gulf trout, red fish, red snapper are well known and have been eaten by consumers. Somewhat surprising is the consumers' lack of familiarity with species such as black drum, gafftop and grouper which often find their way to fresh seafood markets and restaurants. Unfortunately, what often happens is that because these species lack appealing appearance or names, and because the consumer cannot differentiate their meat taste from red fish, trout, or snapper, merchants often sell these "undesirable" species, in fillet form, to consumers as the more preferred finfish. Consequently, these less expensive, yet equally fine-tasting species, are mislabeled at the store or the restaurant or are unidentified as part of a "fishermen's platter" on the menu. The consumers' lack of familiarity with Black Drum (actually Red Fish, Black Drum, and Croaker are of the same general species and have similar taste properties yet considerable differences in appearance) is particularly disturbing when landings data report that over one million pounds of Black Drum were harvested by commercial fishermen on the Texas Coast in 1973. This volume, surprisingly, was surpassed only by Trout and Red Fish.⁵

Many of the species such as Croaker, Gafftop, Spanish Mackerel and Sheepshead are abundant in Texas waters but lack sufficient consumer demand to provide an attractive price incentive for commercial harvesting. This suggests a readily available protein source if market development efforts can be implemented effectively.

TABLE 22

Consumer Awareness of Texas Foodfish Species

"We would like to find out your experience with certain kinds of fish. For each fish list, circle that statement which best describes your experiences with that kind of fish."

	Have Eaten %	Have heard of but not eaten %	Have never heard of %
Flounder	84	12	4
Red Snapper	79	16	5
Gulf Trout	79	16	5
River Catfish	78	17	5
Red Fish	63	21	16
Farm-raised Catfish	56	31	13
Spanish Mackerel	19	47	34
Croaker	18	42	40
Black Drum	15	37	48
Sheepshead	13	44	43
Gafftop	11	35	54
Grouper	7	46	47
Mullet	6	72	22

Consumer Perceptions of High-Volume Users of Seafood

Respondents were asked to select from among 72 adjectives those which they felt might describe a person who ate seafood often. The purpose of this question was to learn if there existed any preconceived idea in the consumer's mind of a person who was known to be a heavy user of seafood. The adjectives selected for inclusion in this question involved both

derogatory (failure, sickly, sloppy) and laudable (intellectual, alert, healthy) terms. Table 23 below lists those adjectives which were recorded by 25% or more of the respondents.

TABLE 23

"Listed below are several words that might be used to describe what someone might look like or how someone might live who eats seafood often. Check those words which you feel fit that person."

<u>Response Rate</u>	<u>Descriptor Term</u>		
25-35%	Thin City People Religious Conservative	Efficient Independent Intellectual Country People	Successful Family-minded Sociable Thrifty
35.01-55%	Alert Intelligent Wide Interest	Energetic Catholic Active	Slender
55.01%-over	Outdoorsman Nutrition- minded	Healthy	

Apparent in the findings in Table 23 is a strong positive association with heavy seafood users, particularly nutrition-related descriptor terms such as "nutrition-minded" or "healthy". This is consistent with the findings in Table 2 which also reported that consumers perceive seafood as a relatively highly nutritious meat item.

Conclusion: Consumers Attitude Toward Seafood

The findings from this study suggest that although consumers do not consume seafood in the volume which they do red meats and poultry they do perceive it as a nutritious and relatively economical meat item. It should not be argued that more seafood, particularly fresh seafood (which is preferred over frozen), would be consumed if it were more readily available. Most consumers reported that they could easily patronize stores

that carried fresh or frozen seafood. What appeared to be the largest obstacle impeding more frequent purchase of seafood was the consumers' negative reaction to preparation and purchase. Part of this might be due to the merchant offering a limited product assortment in terms of species and product form as well as displaying the merchandise so poorly that the consumer reacts negatively to the environment in which the product is sold (odor, lighting, cleanliness, atmosphere). The important observations that the consumer (a) feels seafood "smells up" the house, (b) doesn't care to bother with whole fish, and (c) has a limited use experience with different methods of preparing seafood (even though she "knows" many different seafood recipes), can contribute much to explaining relatively infrequent seafood consumption. This is partially substantiated by the contrast between "in-home" and "restaurant" seafood consumption patterns (Table 6).

The next section utilizes a behavioral model and regression analysis to help explain consumer behavioral patterns of seafood consumption.

USE OF A CONSUMER BEHAVIORAL MODEL TO HELP EXPLAIN CONSUMPTION PATTERNS FOR SEAFOOD

In the earlier comparison between seafood and meat consumption patterns, consumers perceived finfish and shellfish to rate comparatively equal to beef, pork, and poultry on the attribute of nutrition. Finfish, with respect to the price attribute, was perceived as a relatively good buy.

It was also mentioned that if nutrition and price were the only criteria by which meal items were chosen, seafood (especially finfish) would probably perform much better in the marketplace. However, the dimensions of meal

preparation extend beyond nutrition and economy to include preparation ease and the tastes of the entire family. It is evident from Table 3, which appears on page 4 and is repeated below, that finfish and shellfish rate poorly on these dimensions relative to the other items. It does not seem unreasonable, then, to suspect that consumer beliefs with regard to family taste and preparation ease are playing the most significant role in dampening consumer choices of seafood as a main menu item. The next section presents an analysis of the significance of consumer beliefs regarding each attribute in determining consumption patterns.

TABLE 3
Consumer Perceptions of Benefits of Meat Items

<u>Benefit</u>		<u>Score</u>		<u>Benefit</u>		<u>Score</u>
	%	\bar{x}			%	\bar{x}
Nutrition				Family Tastes		
Beef	95	6.38		Beef	94	6.49
Pork	65	5.05		Pork	76	5.45
Poultry	91	6.04		Poultry	86	5.98
Fish	94	6.34		Fish	66	5.21
Shellfish	87	5.90		Shellfish	65	5.16
Ease of Preparation				Price		
Beef	86	6.00		Beef	43	4.03
Pork	78	5.61		Pork	40	4.00
Poultry	76	5.62		Poultry	65	5.05
Fish	66	5.16		Fish	61	4.82
Shellfish	72	4.57		Shellfish	30	3.37

To explain the extent to which nutrition, ease of preparation, family tastes and price individually determine consumer behavior towards finfish and shellfish, the following behavioral models were analyzed using linear regression analysis.

$$C_f = f(B_{1f}, B_{2f}, B_{3f}, B_{4f})$$

$$C_s = f(B_{1s}, B_{2s}, B_{3s}, B_{4s})$$

where

C_f, C_s = household consumption levels of finfish and shellfish, respectively;⁶

B_{1f}, B_{1s} = respondent's rating of the nutritional qualities of finfish and shellfish, respectively;

B_{2f}, B_{2s} = respondent's rating of the ease of preparation qualities of finfish and shellfish, respectively;

B_{3f}, B_{3s} = respondent's rating of the family taste qualities of finfish and shellfish, respectively;

B_{4f}, B_{4s} = respondent's rating of the price qualities of finfish and shellfish, respectively.

The results of the regression analysis are presented in Table 24 for each type of seafood. Included are the standardized coefficients of the independent variables (consumer perceptions), individual t-values, and the coefficients of correlation (R) and determination (R^2) for each equation.

TABLE 24
Standardized Coefficients For Independent Variables

Product	Nutrition	Ease of Preparation	Family Preferences	Price	R	R^2
Finfish	0.014 ^b (t=2.46)	0.194 ^a (t=4.40)	0.259 ^a (t=5.78)	0.074 ^d (t=1.77)	.45 ^a	.20
Shellfish	1.001 (t=0.01)	0.150 ^b (t=3.15)	1.292 ^a (t=6.05)	.078	.41 ^a	.164

$a_p < .0001$, $b_p < .002$, $c_p < .05$, $d_d < .08$

For those who are not familiar with regression analysis and statistical inferences the data are presented in Table 25 in more simplified form and yield essentially the same information.

Table 25
Importance of Selected Attributes in
Explaining Consumer Behavior Toward
Finfish and Shellfish*

Product	Nutrition	Ease of Preparation	Family Preferences	Price
Finfish	14	194	259	74
Shellfish	1	150	292	78

*The larger the value of the attribute the more important its role in explaining consumer behavior toward finfish or shellfish.

For the finfish equation all variables are significant, with family tastes most influential, followed, in order, by ease of preparation, nutrition, and price. Similar results exist for shellfish except that nutrition beliefs play an insignificant role in consumption. Evident from this analysis is that those attributes on which seafood rates well (nutrition and price) play less of a role in determining consumption than those attributes on which it rates the poorest (ease of preparation and family preferences).

The concept of a "determinant attitude" seems to be operating in the case of seafood.⁷ Nutrition and economy are, of course, important to the homemaker in meal preparation behavior. From the results in the first section it is evident that consumers perceive most of the meal items similarly on these dimensions. Nutrition and economy, in turn, do not become salient

discriminating factors in the choice of menu items. Other product benefits, perhaps lower in the hierarchy of importance but in which variations between products are perceived, become determinants of behavior. In other words, if the consumer perceived all menu items similarly on the most preferred attribute (nutrition), she then moves to less important attributes (family tastes or ease of preparation) to determine appropriate items to include regularly in the family menu.

Analyzing the market in this manner provides insights into consumption patterns and marketing strategy considerations that, heretofore, have been neglected. The seafood industry might, for example, attempt to strengthen through promotional activities the impact of consumer beliefs with regard to nutrition and price. From a cost standpoint such an approach would be appealing. However, it is unlikely that this approach would be effective. Seafood rates high with respect to nutrition but competitive products also rate high. It would be extremely difficult to promote seafood to the point that it is perceived sufficiently more nutritious than products currently recognized as nutritious.

A more effective approach would be to improve ease of preparation beliefs through home economist food demonstrations, and family taste preferences through in-store sampling programs. Past research suggests that such recipe demonstrations and in-store sampling programs, where consumers have the opportunity to become involved with seafood, is a much more effective approach to increasing family consumption.

Unfortunately, this latter approach is also the most costly. The financial burdens are such that most individual firms cannot bear them. Consequently, it is seldom undertaken, or, if so, only on special occasions often with the outside support of state or federal agencies. Hopefully,

from the discussion above, it can be seen that the benefits to be derived from such programs can warrant further use of the programs and governmental support.

SOCIOECONOMIC DIMENSIONS OF SEAFOOD CONSUMPTION

This section of the paper approaches consumer behavior toward seafood in the more traditional manner of reporting those socioeconomic variables for which significant deviations in seafood consumption patterns exist. Six socioeconomic variables were utilized: family size, proximity to coast while growing up, age, education, occupation, and income. Four consumption variables were analyzed: seafood consumption in restaurants and in-home consumption of finfish, shellfish, and canned seafood.

Table 26 indicates for each consumption variable those socioeconomic variables for which significant deviations in consumption were reported ($p < .05$). Comprehensive tables for each socioeconomic consumption variable combination are provided in the appendices.

TABLE 26

Significant Socioeconomic Variables

<u>Variable</u>	<u>Restaurant</u>	<u>Canned Seafood</u>	<u>Shellfish</u>	<u>Finfish</u>
Family Size	✓	✓		
Geographic	✓		✓	✓
Age			✓	
Education	✓	✓	✓	
Occupation				
Income		✓	✓	

Further analyses of response distributions for each socioeconomic variable reveal the following deviations in consumption:

1. The larger the family the less likely seafood would be ordered in a restaurant by at least one member of the family;
2. People living near (within 50 miles) a seacoast while growing up consume seafood in the home more frequently than those who did not;
3. Older people (56 and above) consume shellfish more frequently in the home than other age groups;
4. People with more education and income consume shellfish and canned seafood in the home and seafood at restaurants more often than households with lower educations and incomes;
5. People in blue-collar jobs consume less seafood in restaurants than people in professional or executive positions;
6. There is no discernible market segment for finfish (except coastal proximity).

Three major observations can be made from the information presented above. First, man is a product of his environment, particularly in his formative years. If during this time an individual, because of proximity to a coastal area, develops favorable attitudes toward seafood, his consumption patterns in later life remain favorable to seafood.

Second, as an individual improves his status in life more education, a better job, and increased income, more favorable behavior toward seafood occurs. Greater restaurant consumption of seafood occurs as well as increased consumption of shellfish in the home. It seems that the more generalized variable of social class is operating here. Individuals occupying positions in higher social classes are the primary consumers of shellfish in the home and all seafood in restaurants.

Finally, only one segmentation variable exhibits significance in identifying primary consumers of finfish. Only coastal proximity while growing

up plays a role in current finfish consumption. With no other variable does finfish seem to be uniquely associated. One might generalize that seafood demonstrates heterogeneous segmentation characteristics.

These observations offer the marketer some important benchmarks on how to approach his marketing strategy in terms of the status of his product in various socioeconomic market segments. Particularly significant are the findings linking shellfish consumption to social class and the lack of a market segment identification for finfish.

FOOTNOTES

¹Morton M. Miller and Darrel A. Nash, "Highlights of Fishery Products Consumption Patterns--Some Preliminary Findings from the 1969 Consumer Panel Survey," Bureau of Commercial Fisheries, Division of Economic Research, 1970.

²Food Consumption, Prices, and Expenditures, Economic Research Services, U.S.D.A., Washington, D. C., 1973.

³The selection of the four product attributes was based on the findings of an exploratory study conducted by one of the authors.

⁴Current Fisheries Statistics No. 6131, Basic Economic Indicators, Shrimp, 1947-72. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Washington, D. C., June, 1973, p. 27.

⁵Current Fisheries Statistics No. 6374, Texas Landings, December, 1973. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

⁶Consumption patterns for each product were measured on a scale ranging from "at least once a week" to "seldom or never."

⁷James H. Myers and Mark I. Alpert, "Determinant Buying Attitudes: Meaning and Measurement," Journal of Marketing, October, 1968, p. 13.

APPENDICES

APPENDIX A
DETAILED TABLES REGARDING SOCIO-ECONOMIC
DIMENSIONS OF SEAFOOD CONSUMPTION

TABLE 1 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY AGE GROUPS - RESTAURANT

Age	Frequency With Which At Least One Family Member Orders Seafood When The Family Goes To A Restaurant				Totals
	Seldom Or Never	Every Now And Then	Often	Almost Always	
25 or Under	5 (8%)	20 (31%)	24 (37%)	16 (25%)	65 (100%)
26-35	21 (13%)	55 (35%)	42 (27%)	39 (25%)	157 (100%)
36-45	13 (9%)	60 (42%)	38 (26%)	33 (23%)	144 (100%)
46-55	14 (10%)	41 (30%)	43 (31%)	39 (28%)	137 (100%)
56 and over	13 (9%)	45 (32%)	48 (35%)	33 (24%)	139 (100%)
Totals	66	221	195	160	642

Total Chi-Square = 9.85 with 12 D.F. Prob > Chi Sq = 0.6299

TABLE 2 - FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO WHETHER
OR NOT THEY EVER LIVED NEAR THE ATLANTIC OCEAN, PACIFIC OCEAN,
GULF OF MEXICO OR ANY OF THE GREAT LAKES - CANNED SEAFOOD
(near = within 50 miles)

Response	Frequency Of Preparation Of Canned Seafood In The Home As The Evening Meal					Totals
	Seldom Or Never	Few Times a Year	About Once A Month	2 or 3 Times a Mo.	At Least Once a Wk.	
Yes	55 (17%)	49 (15%)	68 (21%)	75 (23%)	79 (24%)	326 (100%)
No	51 (20%)	40 (16%)	57 (23%)	63 (25%)	40 (16%)	251 (100%)
Totals	106	89	125	138	119	577

Total Chi-Square = 6.21 with 4 D.F. Prob > Chi Sq = 0.1825

TABLE 3 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY AGE GROUPS - CANNED SEAFOOD

Age	Frequency Of Preparation Of Canned Seafood In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times A Mo.	At Least Once a Wk.	Totals	
25 Or Under	16 (26%)	9 (15%)	12 (20%)	11 (18%)	13 (21%)	61 (100%)	
26-35	29 (20%)	19 (13%)	33 (23%)	31 (21%)	33 (23%)	145 (100%)	
36-45	25 (19%)	20 (15%)	23 (17%)	38 (28%)	29 (21%)	135 (100%)	
46-55	21 (17%)	19 (15%)	31 (25%)	33 (26%)	21 (17%)	125 (100%)	
56 And Over	17 (14%)	23 (19%)	28 (24%)	27 (23%)	23 (19%)	118 (100%)	
Totals	108	90	127	140	119	584	

Total Chi-Square = 11.55 with 16D.F. Prob > Chi Sq = 0.7752

TABLE 4 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY OCCUPATIONAL CATEGORY OF MAJOR WAGE EARNER - CANNED SEAFOOD

Occupation	Frequency Of Preparation Of Canned Seafood In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times A Mo.	At Least Once a Wk.		
Teacher	7 (14%)	6 (12%)	14 (29%)	11 (22%)	11 (22%)	49 (100%)	
Laborer	26 (31%)	16 (19%)	15 (18%)	17 (20%)	11 (13%)	85 (100%)	
Business	14 (14%)	11 (11%)	17 (17%)	32 (31%)	29 (28%)	103 (100%)	
Craftsman	6 (19%)	4 (13%)	8 (25%)	8 (25%)	6 (19%)	32 (100%)	
Gov. Official	2 (13%)	3 (19%)	4 (25%)	3 (19%)	4 (25%)	16 (100%)	
Bus. Prop.	6 (21%)	4 (14%)	6 (21%)	7 (25%)	5 (18%)	28 (100%)	
Bus. Exec.	12 (19%)	13 (21%)	14 (23%)	13 (21%)	10 (16%)	62 (100%)	
Other	20 (17%)	20 (17%)	32 (27%)	24 (21%)	21 (18%)	117 (100%)	
Professional	11 (14%)	8 (10%)	16 (20%)	25 (31%)	21 (26%)	81 (100%)	
Totals	104	85	126	140	118	573	

Total Chi-Square = 34.33 with 32 D.F. Prob > Chi Sq = 0.3565

TABLE 5 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY FAMILY SIZE - SHELLFISH

Family Size	Frequency Of Preparation Of Shellfish In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times A Mo.	At Least Once a Wk.		
One	13 (29%)	18 (40%)	5 (11%)	7 (16%)	2 (4%)	45 (100%)	
Two	68 (39%)	42 (24%)	37 (21%)	19 (11%)	10 (6%)	176 (100%)	
Three	47 (38%)	37 (30%)	17 (14%)	15 (12%)	7 (6%)	123 (100%)	
Four	36 (27%)	53 (40%)	28 (21%)	9 (7%)	5 (4%)	131 (100%)	
Five	30 (38%)	25 (32%)	11 (14%)	9 (12%)	3 (4%)	78 (100%)	
Six Or More	24 (49%)	11 (22%)	6 (12%)	7 (14%)	1 (2%)	49 (100%)	
Totals	218	186	104	66	28	602	

Total Chi-Square = 26.24 with 20 D.F. Prob > Chi Sq = 0.1576

TABLE 6 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY OCCUPATIONAL CATEGORY OF MAJOR WAGE EARNER - SHELLFISH

Occupation	Frequency Of Preparation Of Shellfish In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times a Mo.	At Least Once a Wk.		
Teacher	15 (29%)	23 (44%)	6 (12%)	7 (13%)	1 (2%)	52 (100%)	
Laborer	41 (47%)	20 (23%)	14 (16%)	6 (7%)	6 (7%)	87 (100%)	
Business	40 (38%)	25 (24%)	22 (21%)	16 (15%)	3 (3%)	106 (100%)	
Craftsman	13 (37%)	12 (34%)	7 (20%)	2 (6%)	1 (3%)	35 (100%)	
Gov. Official	6 (35%)	5 (29%)	4 (24%)	1 (6%)	1 (6%)	17 (100%)	
Bus. Prop.	8 (30%)	5 (19%)	5 (19%)	7 (26%)	2 (7%)	27 (100%)	
Bus. Exec.	21 (31%)	22 (32%)	13 (19%)	9 (13%)	3 (4%)	68 (100%)	
Other	48 (42%)	37 (33%)	14 (12%)	9 (8%)	5 (4%)	113 (100%)	
Professional	18 (22%)	35 (42%)	18 (22%)	8 (10%)	4 (5%)	83 (100%)	
Totals	210	184	103	65	26	588	

Total Chi-Square = 41.86 with 32 D.F. Prob > Chi Sq = 0.1137

TABLE 7 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY FAMILY SIZE - FINFISH

Family Size	Frequency Of Preparation Of Finfish In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times a Mo.	At Least Once a Wk.	Totals	
One	15 (31%)	15 (31%)	5 (10%)	11 (22%)	3 (6%)	49 (100%)	
Two	45 (26%)	33 (19%)	36 (20%)	35 (20%)	27 (15%)	176 (100%)	
Three	27 (21%)	29 (23%)	35 (28%)	20 (16%)	16 (13%)	127 (100%)	
Four	25 (19%)	39 (30%)	26 (20%)	28 (21%)	14 (11%)	132 (100%)	
Five	22 (27%)	22 (27%)	17 (20%)	18 (22%)	4 (5%)	83 (100%)	
Six Or More	11 (21%)	17 (32%)	12 (23%)	9 (17%)	4 (8%)	53 (100%)	
Totals	145	155	131	121	68	620	

Total Chi-Square = 24.23 with 20 D.F. Prob > Chi Sq = 0.2320

TABLE 8 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY AGE GROUPS - FINFISH

Age	Frequency Of Preparation Of Finfish In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times a Mo.	At Least Once a Wk.	Totals	
25 or Under	16 (25%)	9 (14%)	18 (29%)	16 (25%)	4 (6%)	63 (100%)	
26-35	32 (21%)	41 (26%)	34 (22%)	32 (21%)	16 (10%)	155 (100%)	
36-45	28 (20%)	41 (29%)	33 (23%)	26 (18%)	13 (9%)	141 (100%)	
46-55	33 (25%)	34 (26%)	31 (24%)	18 (14%)	14 (11%)	130 (100%)	
56 and Over	34 (27%)	29 (23%)	16 (13%)	28 (22%)	19 (15%)	126 (100%)	
Totals	143	154	132	120	66	615	

Total Chi-Square = 20.70 with 16 D.F. Prob > Chi Sq = 0.1900

TABLE 9 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY EDUCATION LEVEL - FINFISH

Education Level	Frequency Of Preparation Of Finfish In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times a Mo.	At Least Once a Wk.		
Less Than 8th Grade	9 (41%)	4 (18%)	1 (5%)	4 (18%)	4 (18%)	4 (18%)	22 (100%)
Grade School	7 (28%)	7 (28%)	5 (20%)	2 (8%)	4 (16%)	4 (16%)	25 (100%)
High School	76 (26%)	66 (22%)	64 (22%)	57 (19%)	34 (11%)	34 (11%)	297 (100%)
College	37 (21%)	55 (31%)	37 (21%)	33 (18%)	18 (10%)	18 (10%)	180 (100%)
Graduate College	13 (15%)	19 (21%)	25 (28%)	24 (27%)	8 (9%)	8 (9%)	89 (100%)
Totals	142	151	132	120	68	68	613

Total Chi-Square = 22.81 with 16 D.F. Prob > Chi Sq = 0.1184

TABLE 10- FREQUENCY DISTRIBUTION OF RESPONDENTS BY OCCUPATIONAL CATEGORY OF MAJOR WAGE EARNER - FINFISH

Occupation	Frequency Of Preparation Of Finfish In The Home As The Evening Meal						Totals
	Seidom Or Never	Few Times A Year	About Once A Month	2 or 3 Times a Mo.	At Least Once a Wk.		
Teacher	11 (21%)	14 (27%)	14 (27%)	5 (10%)	8 (15%)		52 (100%)
Laborer	32 (36%)	18 (20%)	15 (17%)	13 (15%)	11 (12%)		89 (100%)
Business	26 (24%)	31 (28%)	20 (18%)	21 (19%)	11 (10%)		109 (100%)
Craftsman	9 (26%)	7 (20%)	9 (26%)	6 (17%)	4 (11%)		35 (100%)
Gov. Official	4 (21%)	4 (21%)	4 (21%)	6 (32%)	1 (5%)		19 (100%)
Bus. Prop.	9 (32%)	4 (14%)	10 (36%)	2 (7%)	3 (11%)		28 (100%)
Bus. Exec.	13 (19%)	17 (25%)	12 (18%)	16 (24%)	9 (13%)		67 (100%)
Other	25 (21%)	31 (26%)	29 (24%)	27 (22%)	9 (7%)		121 (100%)
Professional	10 (12%)	26 (31%)	16 (19%)	21 (25%)	12 (14%)		85 (100%)
Totals	139	152	129	117	68		605

Total Chi-Square = 37.35 with 32 D.F. Prob > Chi Sq = 0.2363

TABLE 11 - FREQUENCY DISTRIBUTION OF RESPONDENTS BY FAMILY INCOME LEVEL - FINFISH

Income Level	Frequency Of Preparation Of Finfish In The Home As The Evening Meal						Totals
	Seldom Or Never	Few Times A Year	About Once A Month	2 or 3 Times a Mo.	At Least - Once a Wk.	Totals	
Under \$5000	17 (32%)	15 (28%)	7 (13%)	8 (15%)	6 (11%)	53 (100%)	
\$5000 - 9999	36 (30%)	26 (22%)	21 (18%)	24 (20%)	12 (10%)	119 (100%)	
\$10000 - 14999	38 (23%)	40 (24%)	37 (22%)	32 (19%)	20 (12%)	167 (100%)	
\$15000 - 19999	23 (20%)	30 (26%)	31 (26%)	21 (18%)	12 (10%)	117 (100%)	
\$20000 or more	21 (16%)	37 (29%)	31 (24%)	27 (21%)	13 (10%)	129 (100%)	
Totals	135	148	127	112	63	585	

Total Chi-Square = 14.60 with 16 D.F. Prob > Chi Sq = 0.5549

APPENDIX B
STATEMENT ON SAMPLE DESIGN

STATEMENT ON SAMPLE DESIGN

The procedure used for selecting the subjects to participate in this survey was the same for each of the three cities (Austin, Corpus Christi, and Waco). The cities were first segmented into sections of approximately equal population. Ten sections were then chosen randomly. Within each of these ten sections, the blocks were assigned a number and six blocks were then chosen randomly from the total number of blocks found in that section. The procedure used for selecting individual subjects from each block was as follows:

1. Drive around the block and count the number of individual housing units.
 - a. A duplex counts as two housing units.
 - b. For apartment houses estimate the number of units contained. For example, a block with 10 individual houses, 1 duplex, and an apartment house with 8 units contains 20 housing units.
2. Systematically select 5 housing units on the block.
 - a. Determine sampling interval (N/n).
 - b. Starting at NE corner (or closest proximity if it doesn't exist) randomly determine your starting point.
 - c. Choose 5 housing units on the block moving clockwise.
3. Special Situations
 - a. Refusals - replace with next house to the left or directly across the street if house to the left is inappropriate.
 - b. Not-at-home - make one call back and if still no answer, follow replacement procedures.
 - c. Insufficient housing units - complete the five units by moving to adjacent block to the east (if no block exists to the east, move clockwise until you find one).
 - d. Sampling within apartment houses - use same procedures on mailboxes.
 - e. Odd number of houses on block - disregard fraction in determining sampling interval.

A tabulation sheet was used to record each questionnaire number, the subject's name, and the subject's mailing address or telephone number. After a period of ten days, an effort was made to contact those subjects, by phone or mail, from whom a questionnaire had not been received.

APPENDIX C
QUESTIONNAIRE USED IN STUDY

January 1974

Texas A&M University
Marketing Department

CONSUMER SURVEY

First, some questions about you and your family...

1. What is your sex? Female Male
2. What is your marital status? Single, Divorced, or Widowed
Married
3. How many individuals are there in your household?
- | | |
|--------------------------------|--------------------------------------|
| one <input type="checkbox"/> | four <input type="checkbox"/> |
| two <input type="checkbox"/> | five <input type="checkbox"/> |
| three <input type="checkbox"/> | six or more <input type="checkbox"/> |
4. How many children under age 18 are there in your household?
- | | |
|-------------------------------|---------------------------------------|
| none <input type="checkbox"/> | three <input type="checkbox"/> |
| one <input type="checkbox"/> | four <input type="checkbox"/> |
| two <input type="checkbox"/> | five or more <input type="checkbox"/> |

Much of the remainder of the questionnaire is concerned with your thoughts on food and meal preparation...

5. There are a number of different kinds of food that people can serve as the main dish for the evening meal in their homes. Listed below are four things that might be important in deciding what kinds of food to fix for most of a family's evening meals.
- Nutrition of Food
 - How easy it is to prepare
 - Family likes and dislikes
 - Price of the Food

We'd like to know how important each of these items would be to you if someone asked you to prepare what you considered to be the average evening meal in your house. To indicate how important each characteristic would be, please circle one number for each characteristic. The higher the number you circle, the more important you think it is; the lower the number you circle the less important you think the characteristic is.

	Unimportant				Important		
Nutrition	1	2	3	4	5	6	7
Ease of Preparing.....	1	2	3	4	5	6	7
Family Taste	1	2	3	4	5	6	7
Price	1	2	3	4	5	6	7

6. Now we would like for you to think about these same characteristics for certain kinds of foods. Please rate each of the following foods on each characteristic by circling the number that you feel best indicates how well that food rates on the characteristic even if you've never eaten or prepared it.

		<u>Beef Products</u>								
not at all									very	
nutritious		1	2	3	4	5	6	7	nutritious	
difficult									easy to	
to prepare		1	2	3	4	5	6	7	prepare	
family									family	
dislikes		1	2	3	4	5	6	7	likes	
over									good	
priced		1	2	3	4	5	6	7	dollar value	

Finfish (trout, snapper, catfish, etc.)

not at all									very	
nutritious		1	2	3	4	5	6	7	nutritious	
difficult									easy to	
to prepare		1	2	3	4	5	6	7	prepare	
family									family	
dislikes		1	2	3	4	5	6	7	likes	
over									good	
priced		1	2	3	4	5	6	7	dollar value	

Poultry
(chicken, turkey, etc.)

not at all nutritious	1 2 3 4 5 6 7	very nutritious
difficult to prepare	1 2 3 4 5 6 7	easy to prepare
family dislikes	1 2 3 4 5 6 7	family likes
over priced	1 2 3 4 5 6 7	good dollar value

Shellfish
(shrimp, lobster, oysters, etc.)

not at all nutritious	1 2 3 4 5 6 7	very nutritious
difficult to prepare	1 2 3 4 5 6 7	easy to prepare
family dislikes	1 2 3 4 5 6 7	family likes
over priced	1 2 3 4 5 6 7	good dollar value

Pork Products

not at all nutritious	1 2 3 4 5 6 7	very nutritious
difficult to prepare	1 2 3 4 5 6 7	easy to prepare
family dislikes	1 2 3 4 5 6 7	family dislikes
over priced	1 2 3 4 5 6 7	good dollar value

7. Which of the following places do you use most for recipe ideas?
(check only one)

- newspaper-foods section
- cookbooks
- magazines
- food packages
- recipe racks at food store

8. About how often do you prepare each of the following kinds of food for the evening meal in your home?

	at least once a week	2 or 3 times a month	about once a month	a few times a year	seldom or never
Beef.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poultry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Canned Seafood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shellfish (not canned) fresh or frozen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finfish (not canned) fresh or frozen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For those people who seldom or never prepare finfish or shellfish, please skip to question 15. If you prepare finfish or shellfish at least a few times a year, please continue with the next question.

9. Whenever you prepare fish or seafood at home, is it usually caught from the store or is it caught by a family member or friend or about half the time for each?

- usually bought from the store
- usually caught by family or friends
- about half the time from the store
and half the time it is caught

If the fish or seafood you prepare at home is usually caught by family or friends, please skip to question 14. Otherwise, please continue with the next question.

10. When you buy fish or seafood at the store, do you generally prefer to buy it frozen or fresh?

- frozen
- fresh

11. When you buy fish or seafood at the store, do you generally prefer to buy it breaded or unbreaded?

- breaded
- unbreaded

12. When you buy fresh finfish at the store, do you generally prefer to buy it whole, dressed, or filleted?

- Whole - head, fin, and tail on, but insides removed
- Dressed - head, fin, tail, and insides removed
- Filleted - boneless slices

13. Does the store at which you buy your seafood sell only frozen or
 only frozen both fresh and frozen

14. In your preparation of fish or seafood at home, about how often do you prepare it in each of the following ways?

Manner of Preparation	almost always	often	every now and then	seldom or never
fried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
broiled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
baked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
casserole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fish sticks, patties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
chowder, stew, soup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Now we would like to find out your experiences with certain kinds of fish. Listed below are statements that could be used to describe your experiences with certain foods. For each of the fish listed, circle the number of the statement that best describes your experiences with that kind of fish.

1. I have never heard of this fish.
2. I have heard of this fish but I have not eaten it.
3. I have eaten this fish.

redfish	1 2 3	mullet	1 2 3
flounder	1 2 3	croaker	1 2 3
red snapper	1 2 3	river catfish	1 2 3
black drum	1 2 3	gulf trout	1 2 3
sheepshead	1 2 3	gafftop	1 2 3
spanish mackerel	1 2 3	farm-raised catfish	1 2 3
grouper	1 2 3		

16. Whenever your family goes to a restaurant for your evening meal, about how often does at least one family member order some kind of fish or seafood?

almost always	<input type="checkbox"/>	every now and then	<input type="checkbox"/>
often	<input type="checkbox"/>	seldom or never	<input type="checkbox"/>

17. When you were growing up, how often would you say your family ate fish or seafood -- quite a lot, every now and then, or hardly ever?

quite a lot	<input type="checkbox"/>
every now and then	<input type="checkbox"/>
hardly ever	<input type="checkbox"/>

18. To the best of your knowledge is fresh (not frozen) seafood or fish sold in any food store or market within a convenient shopping distance from your home?

Yes No

19. On your next visit to the store how likely is it that you will buy each of the following kinds of food?

	definitely will buy	likely to buy	unlikely to buy	definitely will not buy
Beef	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poultry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Canned seafood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finfish-fresh or frozen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shellfish-fresh or frozen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Listed below are several statements about fish or seafood. We would like to know your feelings about each of these statements. Please indicate whether you agree or disagree with a statement by using the following procedure.

Circle SA if you Strongly Agree
 Circle A if you just Agree
 Circle N if you Neither agree nor disagree or
 are Uncertain
 Circle D if you just Disagree
 Circle SD if you Strongly Disagree

Note: When we say fresh fish, we mean unfrozen fish.

a. Seafood is not the kind of main dish to serve to guests.	SA	A	N	D	SD
b. Whole fresh fish is a better buy than filleted fresh fish	SA	A	N	D	SD

- c. Seafood, like other meat products, is federally inspected SA A N D SD
- d. The taste of fish is too strong SA A N D SD
- e. Frozen fish is more difficult to prepare than fresh fish SA A N D SD
- f. Fresh fish has a better taste than frozen fish . . . SA A N D SD
- g. Fish do not look very good to eat SA A N D SD
- h. Cooking fish does not smell up the house any more than other meats SA A N D SD
- i. I do not mind cleaning whole fresh fish SA A N D SD
- j. Fresh fish keeps as long as most other meats SA A N D SD
- k. It is difficult to tell if fresh fish is really not spoiled SA A N D SD
- l. There are health dangers in eating fish or seafood SA A N D SD
- m. The price of fresh fish is usually higher than other meats I buy SA A N D SD
- n. Frozen fish is a good buy for your money SA A N D SD
- o. I do not like to buy fish that have bones SA A N D SD
- p. I would have no trouble finding a store that sells fresh fish SA A N D SD
- q. Stores selling fresh fish do not have a big variety to choose from SA A N D SD
- r. I know many different recipes to prepare a meal with fish SA A N D SD
- s. Shellfish is better for you than finfish SA A N D SD
- t. Fresh fish markets are not an enjoyable place to shop SA A N D SD

21. Listed below are several words that might be used to describe people. Before you answer the question, take a few seconds to picture in your mind what someone might look like or how someone might live who eats seafood often. Now look through the words below and place a check (✓) next to those words which you feel fits that person.

<input type="checkbox"/> fat	<input type="checkbox"/> Catholic	<input type="checkbox"/> sociable
<input type="checkbox"/> wide interests	<input type="checkbox"/> active	<input type="checkbox"/> party person
<input type="checkbox"/> generous	<input type="checkbox"/> outspoken	<input type="checkbox"/> black American
<input type="checkbox"/> jolly	<input type="checkbox"/> picky	<input type="checkbox"/> successful
<input type="checkbox"/> thin	<input type="checkbox"/> attractive	<input type="checkbox"/> Latin American
<input type="checkbox"/> office worker	<input type="checkbox"/> untidy	<input type="checkbox"/> thrifty
<input type="checkbox"/> talkative	<input type="checkbox"/> laborer	<input type="checkbox"/> sloppy
<input type="checkbox"/> liberal	<input type="checkbox"/> lazy	<input type="checkbox"/> wealthy
<input type="checkbox"/> robust	<input type="checkbox"/> loner	<input type="checkbox"/> feminine
<input type="checkbox"/> slender	<input type="checkbox"/> family-minded	<input type="checkbox"/> carefree
<input type="checkbox"/> meek	<input type="checkbox"/> young people	<input type="checkbox"/> fashion-minded
<input type="checkbox"/> city people	<input type="checkbox"/> independent	<input type="checkbox"/> efficient
<input type="checkbox"/> self-denying	<input type="checkbox"/> healthy	<input type="checkbox"/> cheap
<input type="checkbox"/> alert	<input type="checkbox"/> large family	<input type="checkbox"/> businesslike
<input type="checkbox"/> small family	<input type="checkbox"/> Jew	<input type="checkbox"/> old people
<input type="checkbox"/> frail	<input type="checkbox"/> tough	<input type="checkbox"/> extravagant
<input type="checkbox"/> religious	<input type="checkbox"/> outdoorsman	<input type="checkbox"/> intelligent
<input type="checkbox"/> dull	<input type="checkbox"/> masculine	<input type="checkbox"/> quiet
<input type="checkbox"/> organized	<input type="checkbox"/> sickly	<input type="checkbox"/> traveler
<input type="checkbox"/> conservative	<input type="checkbox"/> intellectual	<input type="checkbox"/> nutrition-minded
<input type="checkbox"/> energetic	<input type="checkbox"/> Protestant	<input type="checkbox"/> lawyer
<input type="checkbox"/> poor	<input type="checkbox"/> country people	<input type="checkbox"/> nice
<input type="checkbox"/> arty	<input type="checkbox"/> failure	<input type="checkbox"/> "healthnut"
<input type="checkbox"/> orderly	<input type="checkbox"/> athletic	<input type="checkbox"/> nonreligious

Finally, a few more questions about you and your family.

22. In what state did you spend most of your childhood? _____
23. Have you ever lived in a town that was near (within about 50 miles) the Atlantic Ocean, Pacific Ocean, Gulf of Mexico, or any of the Great Lakes?

Yes No

24. In what age group do you fit?

- | | | | |
|-------------|--------------------------|-------------|--------------------------|
| 25 or under | <input type="checkbox"/> | 46-55 | <input type="checkbox"/> |
| 26-36 | <input type="checkbox"/> | 56 and over | <input type="checkbox"/> |
| 36-45 | <input type="checkbox"/> | | |

25. Please indicate the last level of education you have completed:

- | | | | |
|---------------------|--------------------------|------------------|--------------------------|
| less than 8th grade | <input type="checkbox"/> | college | <input type="checkbox"/> |
| grade school | <input type="checkbox"/> | graduate college | <input type="checkbox"/> |
| high school | <input type="checkbox"/> | | |

26. In what category would you say the occupation of the major wage-earner

- | | |
|--|--------------------------|
| Teacher (any level) | <input type="checkbox"/> |
| Laborer (factory worker, trucker,
construction, etc.) | <input type="checkbox"/> |
| Professional (Lawyer, physician, etc.) | <input type="checkbox"/> |
| Business: Salesman | <input type="checkbox"/> |
| Office Worker | <input type="checkbox"/> |
| Craftsman | <input type="checkbox"/> |
| Government Official | <input type="checkbox"/> |
| Business Proprietor | <input type="checkbox"/> |
| Business Executive | <input type="checkbox"/> |
| Other _____ | <input type="checkbox"/> |

27. Approximately, what was the total income for your family in 1973?

- | | |
|------------------|--------------------------|
| under \$ 5000 | <input type="checkbox"/> |
| \$5000-99999 | <input type="checkbox"/> |
| \$10,000-14,999 | <input type="checkbox"/> |
| \$15,000-19,999 | <input type="checkbox"/> |
| \$20,000 or more | <input type="checkbox"/> |

Your participation in this survey is greatly appreciated. Please place the questionnaire in the stamped, addressed envelope that was provided and mail it at your earliest convenience.