*Consumer education
by industry is needed
to increase demand for
fresh shellfish.*

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Attitudinal and Demographic Characteristics for Regular and Irregular Users of Fresh Shellfish

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INTRODUCTION

In the October 1974 number of *Marine Fisheries Review* (Vol. 36, No. 10, p. 31), the results of a survey concerning consumer attitudes and demographic characteristics for fresh finfish were reported. This same survey also collected comparable data relating to fresh shellfish. These findings are presented in this article.[1]

SURVEY METHODOLOGY

Data were collected from March to June 1972 by means of a mail questionnaire sent to approximately 4,500 randomly selected households in Cuyahoga and Summit Counties, Ohio. The principal cities within Cuyahoga and Summit Counties are Cleveland and Akron, respectively. Through subsequent phone and mail follow-ups, overall response to the survey totaled 40.1 percent (1,730 usable replies).

In addition to gathering data dealing with consumer attitudes and demographic characteristics for certain fish and shellfish products, the questionnaire elicited information regarding consumption frequencies. The findings for fresh shellfish only are discussed in this article.

Fresh shellfish was defined in the study as including all types of shellfish such as shrimp, clams, oysters, or lobsters that are purchased in unfrozen and unprepared form. Regular users

of fresh shellfish were defined as respondents using fresh shellfish at home once a month or more. Irregular users, on the other hand, were defined as respondents using fresh shellfish at home less than once a month. Of the total 1,730 respondents, there were 297 regular users and 1,433 irregular users of fresh shellfish.

Attitudinal Characteristics

Attitudes of respondents towards fresh shellfish were measured by means of the semantic differential technique which combines word association with scalar values to measure concepts.[2] When completing that portion of the questionnaire utilizing the semantic differential technique, respondents were asked to judge concepts against a series of bipolar adjective scales which described the concepts on a seven point scale. For example:

FRESH SHELLFISH

Good __:__:__:__:__:__:__ Bad
Taste 1   2   3   4   5   6   7   Taste

Progressing from left to right on the scale, the positions were described to the respondents as representing "extremely good," "quite good," "slightly good," "neither one," "slightly bad," "quite bad," and "extremely bad." Respondents were urged to mark their answers on the scales as quickly as possible and not try to analyze or select a "correct" answer.

Profiles for the regular versus irregular user groups were obtained by adding the respective weights as-

signed to each position on the scale and converting them into mean (average) values for each group. Comparisons were then made on a univariate basis between the respective group means $(\overline{M})$ (averages) of the regular and irregular user groups for each variable to determine if they were statistically different at a designated level of significance (0.05 in these runs). The results are summarized in Table 1.

To interpret the data in Table 1, it is necessary for the reader to consider both the group mean $(\overline{M})$ values and the corresponding *F*-ratios. A significant *F*-ratio (no asterisk) for a given variable indicates that a statistically significant difference in attitudes exists between the two groups for that particular variable. A variable's mean value $(\overline{M})$, on the other hand, indicates the direction in which the two groups scored the variable as well as the degree of the score. In Table 1, for example, the variable

Table 1.—Univariate comparisons of group attitudinal mean values for regular and irregular users of fresh shellfish.

| | Group mean value | | |
| | Regular users $\overline{M}$ | Irregular users $\overline{M}$ | |
Attitudinal variables			*F* ratio
Taste	1.59	2.64	130.70
Taste cf. meats	2.76	3.79	104.45
Nutrition	1.95	2.52	48.40
Nutrition cf. meats	2.75	3.30	47.12
Cost	5.58	5.38	1.49*
Cost cf. meats	5.37	5.10	4.07
Aroma	3.58	4.39	56.60
Aroma cf. meats	4.16	4.82	35.87
Perishability	5.42	5.40	0.51*
Perishability cf. meats	5.43	5.26	0.89*
Preparation	2.78	3.71	67.88
Preparation cf. meats	3.28	4.01	50.85
Cooking	2.43	3.33	81.42
Cooking cf. meats	3.14	3.71	42.29
Appearance	2.62	3.75	107.12
Appearance cf. meats	3.46	4.31	90.04
Quality	3.03	3.66	44.12
Quality cf. meats	3.84	4.22	26.51
Availability	4.89	4.75	4.28
Dinner treat	2.27	3.23	59.44
Guest meal	2.31	3.43	76.07
Diet meal	1.83	2.25	23.12
Safety	2.38	2.97	41.57
Safety cf. meats	3.47	3.97	41.69

*Indicates variables nonsignificant at the 0.05 level.
Source: Survey data.

[2]C. E. Osgood, G. J. Suci, and P. H. Tannenbaum, "The Measurement of Meaning." University of Illinois Press, 1957, p. 24.
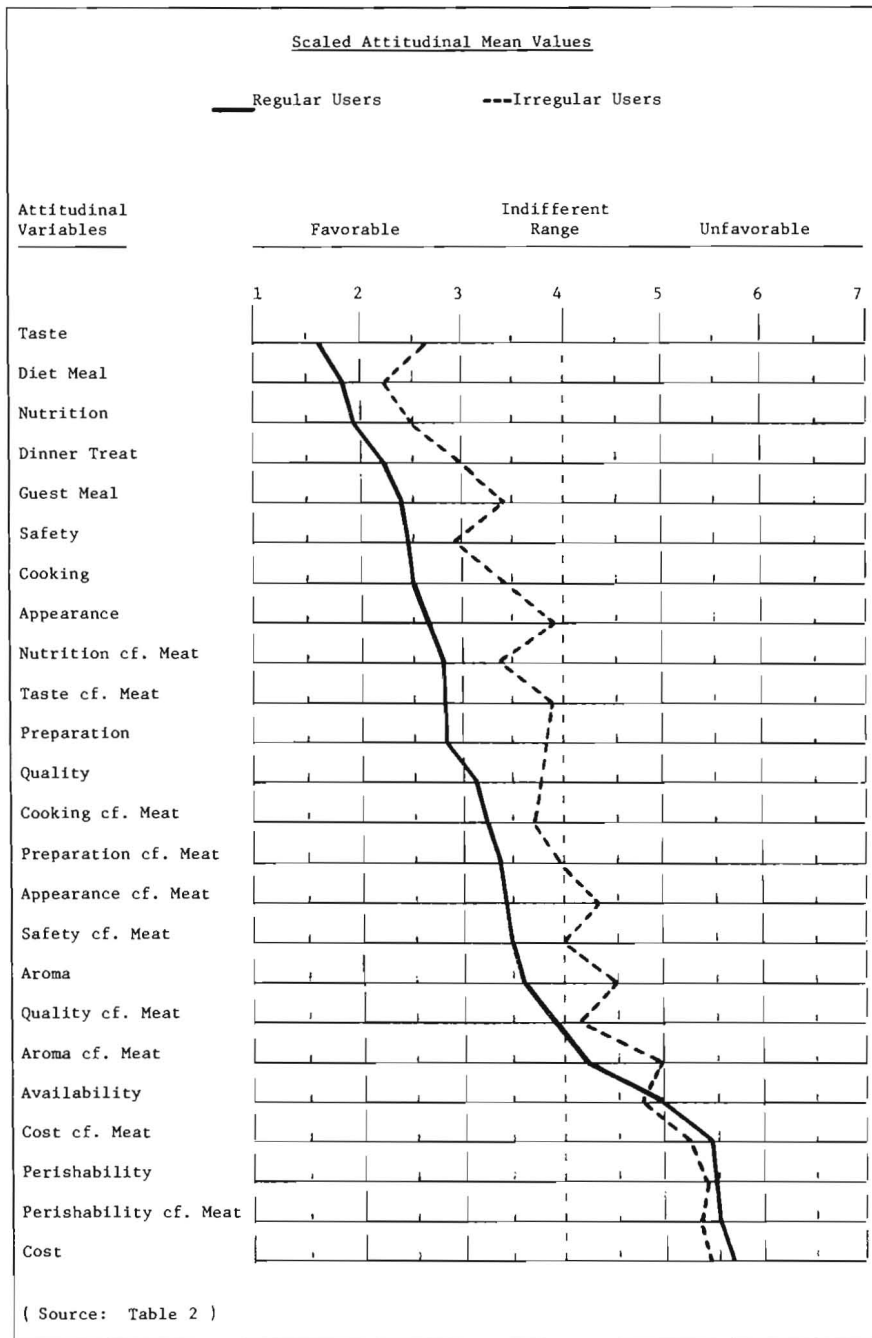
Figure 1.—Attitudinal profiles of regular and irregular user groups for fresh shellfish.

favorably, with little difference in their scores on these variables.

The attitudinal mean values of the regular and irregular user groups for fresh shellfish in Table 1 are reproduced in scaled semantic differential form in Figure 1. In coding respondents' answers to the semantic differential section of the questionnaire, the most favorable point on each scale was assigned a value of one while the least favorable point was assigned a value of seven. The group mean scores, therefore, are interpreted as follows:

GROUP MEAN VALUE	INTERPRETATION
1.00-1.99	Extremely favorable
2.00-2.99	Quite favorable
3.00-3.99	Slightly favorable
3.50) Indifferent	
4.00)	Absolute indifference
4.50) range	
4.01-4.99	Slightly unfavorable
5.00-5.99	Quite unfavorable
6.00-7.00	Extremely unfavorable

Examination of Figure 1 shows several generalizations associated with the profiles of regular and irregular users of fresh shellfish:

1) When both regular and irregular users rate fresh shellfish favorably on an attribute, regular users rate it more favorably than irregular users. Conversely, when both groups rate fresh shellfish unfavorably on an attribute, the regular users rate it more unfavorably than the irregular users.

2) Regular users rate fresh shellfish favorably on more variables than irregular users.

3) The attitudinal mean scores of the regular user group are in the indifferent range (3.50 to 4.50) for three (12 percent) of the variables. Irregular users, however, place ten (40 percent) of the variables in the neutral range.

A closer analysis of Figure 1 shows that the attitudinal variables with mean values in the very favorable to definitely favorable (1.5 to 3.5) range for both groups are:

Taste	Dinner treat
Diet meal	Guest meal
Nutrition	Cooking
Safety	Nutrition compared to meat

Attitudinal variables scored as definitely favorable (2.5 to 3.5) by regular users, but somewhat indifferently by irregular users (i.e., the upper end of the indifferent range at 3.5 to 4.0 except for appearance compared to meat) include:

"taste" has a mean value of 1.59 for regular users of fresh shellfish and 2.64 for irregular users. The corresponding F-ratio of 130.70 denotes that the difference in these group mean values is statistically significant and therefore a significant difference in attitudes toward the "taste" of fresh shellfish exists between regular and irregular users of fresh shellfish. According to the mean scores of 1.59 and 2.64, however, both groups rate the taste of fresh shellfish favorably (direction of the scores on the semantic differential scale). The significant difference indicated by the F-ratio occurs because of the difference (degree of the scores) in mean values of the two groups.

The F-ratios in Table 1 disclose that in 21 of the 24 attitudinal variables, there is a significant difference between the regular and irregular user groups for fresh shellfish. Both groups rate cost, perishability, and perishability compared to meat quite unfavorably, with little difference in

Appearance	Cooking compared to meat
Preparation	Preparation compared to meat
Quality	Appearance compared to meat
Taste compared to meat	Safety compared to meat

Attitudinal variables rated in the upper end of the indifferent range (3.5 to 4.0) by regular users, but in the lower end of the indifferent range (4.0 to 4.5) according to irregular users, are:

Aroma
Quality compared to meat

The attitudinal variable placed in the lower end of the indifferent range (4.0 to 4.5) by regular users, but considered definitely unfavorable (4.5 to 5.0) by irregular users is:

Aroma compared to meat

Lastly, attitudinal variables rated quite unfavorably according to both groups include:

Availability	Perishability
Cost	Perishability compared to meat
Cost compared to meat	

These data dealing with consumer attitudes toward fresh shellfish allow several inferences to be drawn. First, the overall profiles of the two groups show irregular users are not as enthusiastic about the favorable attributes of fresh shellfish, nor are they as critical of the unfavorable characteristics, as the regular users.

Second, both groups rate fresh shellfish very favorably to quite favorably (1.5 to 3.5) on eight variables. They agree that fresh shellfish tastes good, is a dinner treat, and is an excellent meal to serve to guests. Furthermore, they agree that fresh shellfish is easy to cook and quite nutritious on its own as well as in comparison to meat. Both groups consider fresh shellfish a safe food to eat and an excellent meal for dieting.

Third, regular users rate fresh shellfish quite favorably (2.5 to 3.5) on eight additional attributes, while irregular users are somewhat indifferent although slightly favorably inclined (3.5 to 4.0) on these variables. Appearance, ease of preparation, and quality of fresh shellfish are rated this

way. The five other variables rated similarly are taste, appearance, safety, ease of preparation, and cooking characteristics of fresh shellfish as compared to meat. Fresh shellfish, accordingly, is viewed quite favorably in comparison to meat on these attributes by regular users, and on par with meat by irregular users.

Fourth, the aroma of fresh shellfish, aroma compared to meat, and quality compared to meat are regarded indifferently by regular users and indifferently to unfavorably by irregular users. While these characteristics cannot be considered strong reasons for not buying the product, they do indicate that people consider the aroma of fresh shellfish unpleasant and seem to think the quality of fresh shellfish does not measure up to meat.

Fifth, regular and irregular users alike strongly agree that fresh shellfish is not readily available, is costly in itself as well as in comparison to meat, and it perishes easily, even more so than meat. The unfavorable attitudes toward these aspects of fresh shellfish may deter regular users from purchasing more fresh shellfish than they do. It may also explain why irregular users are not regular users given the fact that they generally evaluate the other characteristics of fresh shellfish favorably.

Demographic Characteristics

Group mean values of the demographic variables for regular and irregular users of fresh shellfish are presented in Table 2. The F-ratios resulting from the univariate comparisons of the group means are also given in Table 2. Codes utilized by the respondents when completing the questionnaires are shown by the superscripts (a to f) at the bottom of Table 2. It should be noted from the codes that larger mean figures are indicative of higher values for the respective demographic variables. For example, the higher the mean value for income, the larger the group's average income. This is opposite to the mean values of attitudes discussed in the previous section where lower scores are indicative of greater favorability and high scores denote disfavor. Demographic variables for race and religion present a special problem because they are qualitative rather than quantitative in nature. Accordingly, they are treated in dichotomous fashion. That is, respondents are placed in one category or another as, for example, either Protestant (1) or not Protestant (0).

The data in Table 2 show that four of the twelve demographic variables have significant F-ratios in the

Table 2.—Univariate comparisons of group demographic mean values for regular and irregular users of fresh shellfish.

Demographic variables	Group mean value		F ratio
	Regular users $\bar{M}$	Irregular users $\bar{M}$	
Age of housewife[a]	3.62	3.31	12.82
Age of head of household[a]	3.79	3.63	3.51*
Number of children at home[b]	2.27	2.26	0.10*
Age category of children[c]	2.54	2.33	7.95
Size of household[d]	2.44	2.43	0.01*
Education of head of household[e]	3.56	3.38	5.59
Income[f]	5.20	4.70	15.38
Protestant or not[g]	0.52	0.56	1.42*
Catholic or not[g]	0.40	0.37	0.86*
Jewish or not[g]	0.03	0.04	0.11*
White or not[g]	0.86	0.89	1.86*
Black or not[g]	0.13	0.10	1.66*

[a]Adults' age categories
(1) Under 26
(2) 26 to 35
(3) 36 to 45
(4) 46 to 55
(5) Over 65

[b]Actual number

[c]Children's age categories
(1) Pre-school (age 1-5)
(2) Elementary (age 6-12)
(3) Teen (age 13-19)

[d]Household size categories
(1) One person
(2) 2 to 3 persons
(3) 4 to 5 persons
(4) 6 to 7 persons
(5) 8 to 9 persons
(6) 10 persons or more

[e]Education categories
(1) Elementary
(2) Some high school
(3) High school
(4) Some college
(5) College

[f]Income categories
(1) Under $4,000
(2) $4,000-5,999
(3) $6,000-7,999
(4) $8,000-9,999
(5) $10,000-11,999
(6) $12,000-13,999
(7) Over $14,000

[g]Dummy variable code: 1 or 0

*Indicates variables nonsignificant at the 0.05 level.
Source: Survey data.

univariate comparisons of group demographic means for regular and irregular users of fresh shellfish. These variables are:

Age of housewife
Age category of children
Education of head of household
Income

These variables indicate first, that housewives in the regular user group are older than those in the irregular user group. Second, children of families in the regular user group are older than those in the irregular user group. Third, heads of households in the regular user group have more education than those in the irregular user group. Finally, total household income in the regular user group is higher than in the irregular user group.

The demographic variables dealing with religion and race show no statistically significant differences in the univariate comparisons of group mean values for fresh shellfish. However, the group mean values for these variables suggest that the regular user group includes more Catholics, fewer Protestants, fewer Jews, fewer whites, and more blacks than the irregular user group.

CONCLUSIONS AND RECOMMENDATIONS

Similar to the findings reported for consumer attitudes toward fresh finfish in the October 1974 number of *Marine Fisheries Review*, the results of this analysis indicate that consumer attitudes toward fresh shellfish also are generally not unfavorable. Both regular and irregular users of fresh shellfish like its taste very much. Additionally, regular users feel the taste of fresh shellfish compares very favorably with most meats while irregular users feel it is slightly tastier than most meats. Both groups think fresh shellfish is easy to cook and they also feel it has an appetizing appearance. Regular users feel fresh shellfish is safer to eat than most meats while irregular users tend to be neutral on this aspect.

Regular and irregular users rate the nutritional value of fresh shellfish very highly. However, both groups feel fresh shellfish is unreasonably priced and is a less thrifty buy than most meats. Like the case for fresh finfish, both regular and irregular users of fresh shellfish express concern over the perishability of fresh shellfish. In addition to feeling it is easy to cook, both groups feel fresh shellfish is easy to prepare. Regular and irregular users, moreover, feel the quality of fresh shellfish is generally reliable. Additionally, they feel it is a special treat for dinner, a nice meal to serve guests, and safe to eat. Finally, as in the case for fresh finfish both user groups for fresh shellfish feel that it is not consistently available in food stores.

Conclusions regarding demographic variables for fresh shellfish are somewhat similar to those made for fresh finfish. That is to say, regular users of fresh shellfish generally come from older segments of the population than irregular users. The regular user group for fresh shellfish also includes more blacks than the irregular user group and regular users have older children than irregular users. Unlike the case for fresh finfish, however, regular users of fresh shellfish have higher income and education levels than irregular users.

Marketing strategies to stimulate demand for fresh shellfish should be similar in several respects to those strategies suggested for fresh finfish. That is, first of all, making supplies of fresh shellfish more consistently available should help to stimulate demand. Secondly, educating consumers along the lines of more efficient methods to store fresh shellfish should help overcome negative attitudes in this area. Strategies to change adverse feelings concerning the cost of fresh shellfish should emphasize points such as the high nutritional value of fresh shellfish, savings in time as a result of ease of cooking and ease of preparation, and the relatively low cost per serving of shellfish compared to more expensive cuts of meat. Other strategies should emphasize that fresh shellfish makes an elegant, relatively inexpensive, and generally liked meal to serve to both family and guests.