

United States Department of the Interior, Fred A. Seaton, Secretary
Fish and Wildlife Service, Arnie J. Suomela, Commissioner
Bureau of Commercial Fisheries, Donald L. McKernan, Director

WHO BUYS CANNED TUNA, AND WHY?

A Study of Consumer Motivation In Three Cities

Prepared in the Branch of Economics



United States Fish and Wildlife Service

Circular 88

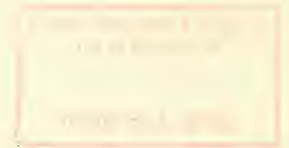
Washington, D. C. : June 1960

United States Department of the Interior, Fred A. Seaton, Secretary
Fish and Wildlife Service, Arnie J. Suomela, Commissioner
Bureau of Commercial Fisheries, Donald L. McKernan, Director

WHO BUYS CANNED TUNA, AND WHY?

A Study of Consumer Motivation In Three Cities

Prepared in the Branch of Economics



United States Fish and Wildlife Service

Circular 88

Washington, D. C. : June 1960

ABSTRACT

This report contains the results of a marketing research study directed toward the improvement of promotional and merchandising techniques for the marketing of canned tuna. Special emphasis is placed upon motivational analysis using psychological techniques in probing for information as to why consumers are attracted to canned fishery products with certain styles of pack, taste, color, or other attributes. Public acceptance of canned tuna packed in brine as compared with consumer response for canned tuna packed in oil is investigated. The report contains specific suggestions for an advertising program directed toward increasing tuna consumption among consumers already using tuna, and among light and sporadic user groups.

PREFACE

While the trend of total canned fish production in the United States has been generally upward since the end of World War II, the fortunes of the various canned fish industries have been diverse. Canned tuna, the leader, has been breaking production records but has been encountering increasing competition from Japanese imports. On the other hand, the scarcity of salmon is a major problem of the canned salmon industry. The canned sardine industry and particularly the California sardine industry, is confronted with both supply problems and the loss of traditional markets.

The prime objective of this market research study is to aid the domestic canned fish industries to expand markets for their products. Results and findings of the study are especially directed toward the improvement of promotional and merchandising techniques. However, the study has also a direct bearing upon other important aspects of canned fish marketing such as the adaptation of the product to meet specific consumer preferences.

This report describes the results of a survey of the motivational factors which influence the buying habits of household consumers of canned tuna. The survey also examines the buying habits of household consumers of canned salmon and sardines. Separate reports will be issued for those products.

The study was made by the A. J. Wood Research Corporation of Philadelphia, Pennsylvania, under contract to the U. S. Bureau of Commercial Fisheries. It was financed with funds made available under the Saltonstall-Kennedy Act, approved July 1, 1954. (68 Stat. 376)

The survey was conducted under the general supervision of Walter H. Stolting, Chief, Branch of Economics. Preliminary statistical and planning work was done by Adolph Scolnick, Analytical Statistician. The report was edited and adapted for publication by Alton T. Murray and Frans L. Widerstrom, Jr., Economists.

TABLE OF CONTENTS

	Page
Introduction	1
Consumer preferences for canned tuna:	2
Use of canned tuna	2
Style preference	3
Color preference	4
Can size	4
Tuna packed in oil	4
Tuna packed in brine	5
Buying habits	6
Serving habits	6
Recipe sources	7
Ordering of tuna in public eating places	7
Reasons for not using or seldom using tuna	7
Canned tuna advertising	8
Personal characteristics	9
Motivational analysis:	11
Determining the product image	11
Measuring the motivational difference	11
Index of possible market gain	12
Observations based on computed indexes of possible market gain	12
Suggestions	13
Tables	13
Statistical tables:	15
Use of canned tuna:	15
Table 1.--What kind of canned fish do you like best? .	15
Table 2.--During the last 12 months have you served canned tuna?	15
Table 3.--During the past 4 weeks, about how often did you serve canned tuna?	16
Table 4.--Who in your family eats tuna?	16
Style preference:	17
Table 5.--Which style of canned tuna do you like best?	17
Table 6.--How often do you buy that style of tuna? (Tuna users by style preferred)	17
Table 7.--How often do you buy that style of tuna? (Tuna users who like . . . style best)	18
Table 8.--Why do you like this particular style of tuna?	19
Color preference:	20
Table 9.--Which color tuna do you like best?	20
Table 10.--How often do you buy that color tuna?	20
Table 11.--Why do you like this particular color tuna?	21

TABLE OF CONTENTS - Continued

	Page
Statistical tables: - Continued	
Tuna packed in oil:	22
Table 12.--Have you ever tried tuna packed in oil? ...	22
Table 13.--Do you use the oil or pour it off?	22
Table 14.--What do you dislike about tuna packed in oil?	22
Tuna packed in brine:	23
Table 15.--Have you ever tried tuna packed in brine, that is, salt water?	23
Table 16.--Which do you like better?	23
Table 17.--What do you dislike about tuna packed in brine?	24
Table 18.--Would you pay more for tuna packed in oil rather than in brine?	24
Table 19.--Why haven't you tried tuna packed in brine?	25
Table 20.--How often do you buy tuna packed in that liquid?	25
Table 21.--What do you like about tuna packed in brine?	26
Table 22.--Do you prefer light or white meat tuna packed in brine?	26
Table 23.--Do you prefer solid, chunk or grated tuna packed in brine?	27
Table 24.--Which has more uses, tuna packed in . . . ?	27
Buying habits:	28
Table 25.--Do you buy tuna for day to day use, or do you buy several cans at one time?	28
Table 26.--The last time you bought tuna--did you plan to buy it before you went to the store or did you decide on it at the store?	28
Table 27.--What made you decide to buy it?	29
Serving habits:	29
Table 28.--How do you serve tuna, hot or cold or both ways?	29
Table 29.--Why don't you serve tuna (hot/cold)?	30
Table 30.--Do your children ever ask for tuna?	30
Table 31.--Are your children served tuna at school as a part of the hot lunch program?	31
Table 32.--Was tuna served in your home when you were a child? (Tuna users)	31
Table 33.--Was tuna served in your home when you were a child? (Tuna non-users)	32
Table 34.--What would induce you to serve more tuna? .	32
Recipe sources:	33
Table 35.--Have you ever gotten a tuna recipe from a . . . ?	33

TABLE OF CONTENTS - Continued

	Page
Statistical tables: - Continued	
Ordering of tuna in public eating places:	34
Table 36.--Have you ordered tuna in a public eating place in the last two months?	34
Table 37.--How many times in the last two months have you ordered tuna in any form?	34
Table 38.--What kind of tuna dishes did you order? .	35
Table 39.--Generally speaking, what day of the week did you order tuna in a public eating place	35
Table 40.--Generally, at what time did you order tuna in a public eating place?	36
Reasons for not using or seldom using tuna:	37
Table 41.--Why don't you use tuna?	37
Table 42.--Did you ever use tuna in the past?	37
Table 43.--Why did you stop using tuna?	38
Table 44.--Why do you use tuna so seldom?	38
Table 45.--Did you use tuna more often in the past?.	39
Table 46.--Why have you reduced the number of times you serve it?	39
Table 47.--Does anyone living in the house like tuna?	39
Canned tuna advertising:	40
Table 48.--Have you seen or heard any advertising for canned tuna?	40
Table 49.--Where have you seen or heard canned tuna advertising?	40
Characteristics:	41
Table 50.--Selected socio-economic characteristics of households, homemakers	41
Appendix:	43
Survey methods:	43
Questionnaire	43
Sample design	43
Field work	46
Data processing procedures	46
Sampling errors	47
Sample questionnaire	51

Table of Contents

1. Introduction

2. Chapter 1

3. Chapter 2

4. Chapter 3

5. Chapter 4

6. Chapter 5

7. Chapter 6

8. Chapter 7

9. Chapter 8

10. Chapter 9

11. Chapter 10

12. Chapter 11

13. Chapter 12

14. Chapter 13

15. Chapter 14

16. Chapter 15

17. Chapter 16

18. Chapter 17

19. Chapter 18

20. Chapter 19

21. Chapter 20

22. Chapter 21

23. Chapter 22

24. Chapter 23

25. Chapter 24

26. Chapter 25

27. Chapter 26

28. Chapter 27

29. Chapter 28

30. Chapter 29

31. Chapter 30

32. Chapter 31

33. Chapter 32

34. Chapter 33

35. Chapter 34

36. Chapter 35

37. Chapter 36

38. Chapter 37

39. Chapter 38

40. Chapter 39

41. Chapter 40

42. Chapter 41

43. Chapter 42

44. Chapter 43

45. Chapter 44

46. Chapter 45

47. Chapter 46

48. Chapter 47

49. Chapter 48

50. Chapter 49

51. Chapter 50

52. Chapter 51

53. Chapter 52

54. Chapter 53

55. Chapter 54

56. Chapter 55

57. Chapter 56

58. Chapter 57

59. Chapter 58

60. Chapter 59

61. Chapter 60

62. Chapter 61

63. Chapter 62

64. Chapter 63

65. Chapter 64

66. Chapter 65

67. Chapter 66

68. Chapter 67

69. Chapter 68

70. Chapter 69

71. Chapter 70

72. Chapter 71

73. Chapter 72

74. Chapter 73

75. Chapter 74

76. Chapter 75

77. Chapter 76

78. Chapter 77

79. Chapter 78

80. Chapter 79

81. Chapter 80

82. Chapter 81

83. Chapter 82

84. Chapter 83

85. Chapter 84

86. Chapter 85

87. Chapter 86

88. Chapter 87

89. Chapter 88

90. Chapter 89

91. Chapter 90

92. Chapter 91

93. Chapter 92

94. Chapter 93

95. Chapter 94

96. Chapter 95

97. Chapter 96

98. Chapter 97

99. Chapter 98

100. Chapter 99

101. Chapter 100

WHO BUYS CANNED TUNA, AND WHY?

INTRODUCTION

In market research it is important to know how many people do what. It is even more important to know why.

The method of obtaining answers to how-many-people-do-what is well established. The first part of this report is concerned with the interpretation of household consumers' responses to questions on what are their buying habits, serving habits, etc. The results tabulated show how many household consumers prefer particular attributes of canned tuna in relation to other consumers with different preferences. The selection of a random sample representative of all the householders in the areas surveyed was determined by statistical methods in common use. Also included in the first section of the report is the analysis of consumer responses to the use of two related motivational research techniques--the open question and the probe. These techniques represent an initial step in the process of learning the why of consumer buying.

While the study of marketing behavior over several decades has developed a number of methods of investigating the why of consumer habits, motivational research is relatively new. Practitioners in the field of motivational research sometimes disagree as to the emphasis to be placed upon the special techniques drawn from any one of the social sciences such as statistics, psychology, economics, and sociology. The principal techniques of motivational research in the field of consumer marketing behavior, however, are derived from psychology.

The second part of this report is concerned with the results of the motivational analysis of the marketing behavior of con-

sumers of canned tuna based on other research techniques. Motivational market surveys require the services of a staff trained to interrogate consumers with special probing techniques, and a highly skilled research staff is needed to interpret the results of the recorded responses. Moreover, motivational research studies are much more expensive than consumer surveys using conventional statistical methods. This situation has a direct bearing upon the size of the motivational research survey which can be made for a fixed sum available for consumer research. As a compromise between the maximum population coverage to find out how many people do what with canned fish and the limitation imposed by the cost of motivational research into why they used it, three urban markets were selected for study instead of a national survey.

The populations under study consisted of households within the urban areas of Boston, Massachusetts; Detroit, Michigan; and Birmingham, Alabama. In addition, Negro households in the rural areas of Orangeburg County, South Carolina, were surveyed. Negro households in rural areas of the southern states represent an important market for canned sardines. The Orangeburg County results will be summarized in the sardine report which will show the cross-classification of various marketing data by race for Birmingham and Detroit. Area probability samples were selected to represent these populations and the homemaker or person mainly responsible for planning the meals was interviewed. A western city was not included in the survey because of a lack of funds to cover the cost of interviews.

The interviewing phase of this study was carried out between March 13, 1959, and May 4, 1959 as follows:

Area	Number of interviews
Birmingham	585
Boston	553
Detroit	609
Orangeburg County	200

Specifically, the survey was designed to elicit detailed answers to such questions as: why consumers decided to buy or not to buy certain canned fishery items; whether or not shoppers for canned fish and shellfish were motivated by advertisements or labels; the influence of income on buying habits and other marketing factors. Then there were the "how many people do what" questions to find out consumers' preferences for size of can; type of package; kind of oil in which fish are canned; color; texture; and other characteristics of canned fishery products.

among consumers in Boston and Detroit, but in Birmingham tuna and salmon were about equal in consumer esteem. In Boston, 56 percent of all respondents in the survey said they liked tuna best; only 17 percent named salmon. In Detroit, 47 percent liked tuna best, followed by salmon with 27 percent. In Birmingham, tuna and salmon tied for the first place with 42 percent each. Canned shrimp and sardines trailed far behind tuna and salmon in order of consumer preference in all three cities.

With regard to actual use, the survey revealed that 21 percent of all households in Birmingham and 13 percent in both Boston and Detroit had not used canned tuna in the 12 months prior to the interviews. For purposes of statistical analyses, these households were classified as "never users" of canned tuna. Of those who had used canned tuna in the 12 months

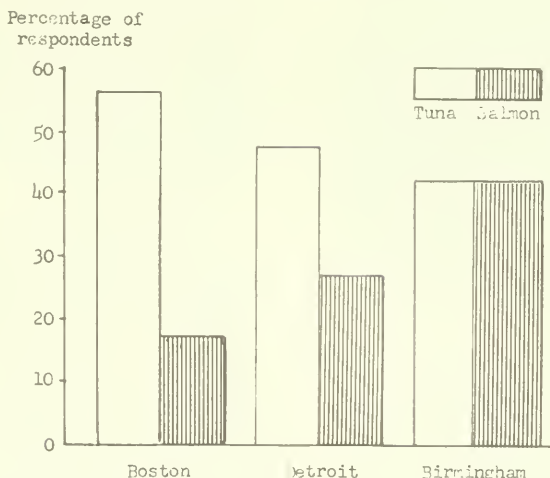


FIGURE I.--CONSUMER PREFERENCES FOR CANNED TUNA AND CANNED SALMON

CONSUMER PREFERENCES FOR CANNED TUNA ^{1/}

Use of Canned Tuna

Tuna is the most popular canned fish

^{1/} Tables containing data referred to in this section are given on pages 15-11 and an explanation of the tables on page 13.

prior to the interview, 65 percent in Birmingham, 82 percent in Boston, and 81 percent in Detroit had used it in the 4 weeks immediately prior to the interview. These latter households were

classified as "tuna users." Those who had used canned tuna in the past 12 months but not within the 4-week period were termed "sporadic users".

The tuna users were further divided into light and heavy user groups. The "light users" are defined as those who used tuna one or two times in the 4 weeks immediately prior to the interview and the "heavy users" as those who had served it three times or more in this period. The distribution of these user groups in the three cities is summarized in the following table. (Note: The reader should keep in mind while reading the following text and tables that "tuna-users" are by definition all respondents representing households who had used canned tuna within the 4-week period. The term, therefore, includes both light users and heavy users.)

DISTRIBUTION OF TUNA USER GROUPS,
BY FREQUENCY OF USE, BIRMINGHAM,
BOSTON, AND DETROIT, 1959

Classification of user groups	All respondents		
	Birming- ham	Boston	Detroit
	Percent	Percent	Percent
Never users	21	13	13
Sporadic users	28	15	17
Light users $\frac{1}{2}$	31	20	30
Heavy users $\frac{1}{2}$	20	52	40
Total	100	100	100

$\frac{1}{2}$ Referred to in text as "tuna users."

The frequency of serving canned tuna in the 4-week period varied somewhat among the three cities. The tuna-user households in Birmingham averaged 2.5 servings per household compared with 4.1 in Boston and 3.4 in Detroit.

The entire family was reported as eating canned tuna by approximately four-fifths of the tuna users in all three cities.

Style Preference

Chunk-style canned tuna is liked best by a vast majority of the tuna users in both Birmingham and Detroit, 71 percent and 70 percent, respectively. In Boston, how-

ever, the majority (52 percent) of tuna users liked the solid style best. Chunk-style tuna is liked best by 43 percent of the tuna users in Boston, with grated a poor third at 4 percent. The solid-style tuna is liked best by 14 percent of the tuna-users in Birmingham and by 16 percent in Detroit, and the grated style by 12 percent and 8 percent, respectively.

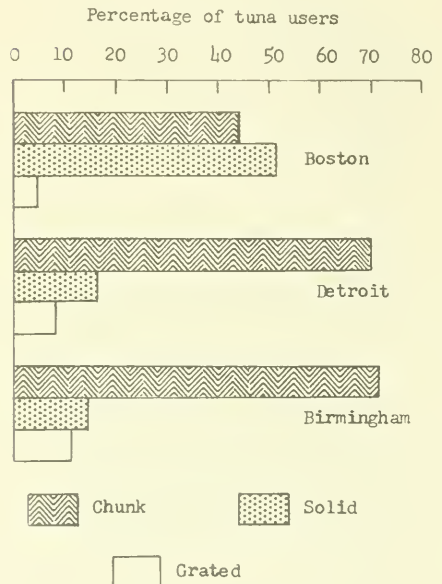


FIGURE II.--CONSUMER PREFERENCES FOR
STYLE OF PACK OF CANNED TUNA

There is considerable loyalty to the style liked best. It is highest in Boston where 89 percent said they always buy their preferred style, followed by Detroit, 75 percent, and Birmingham, 69 percent. When this over-all measure of loyalty is broken down by those tuna users who prefer a specific style, the pattern does not change. Among the three cities, tuna users in Boston showed the greatest loyalty to the style preferred for each of the three styles in which tuna is marketed.

[An important technique used in motivational research is the "open question"--one which seeks the why of consumer behavior. Such questions permit the respondent to reply freely and do not restrict his choice of answers to the limited categories imposed by the direct or closed type. If the respondent's reply is meaningful, a reason is available as to why he thinks or feels the way he does. A response of the type "just because I like it" would not be considered adequate and it would be the responsibility of the interviewer to focus the respondent on more specific areas in which to answer. The focusing process is known as probing; it is not used in instances where the initial reply is deemed satisfactory by the specially trained interviewer. In cases where probing is used, it must be handled skillfully so as not to bias the respondent's answer.]

The first open question asked of tuna users sought the reasons for their style preferences. "Ease of preparation" was the leading reason in all three cities by those who preferred either the chunk style or the grated style of tuna. "Better taste" was the leading reason for preference by those who liked the solid style of tuna best in Detroit and Boston. Those who liked the solid style best in Birmingham gave "not as oily" and "better taste" as leading reasons for their style preference.

Color Preference

The majority of tuna users in Boston, 83 percent, and Detroit, 63 percent, prefer

white-meat tuna. Light-meat tuna was favored in Birmingham by 53 percent of the tuna users. Loyalty to color is very strong with more than three-fourths of the tuna users indicating that they always stay with the same color. Loyalty to color is highest in Boston, 90 percent, followed by Detroit and then Birmingham.

[Another example of an unsatisfactory response to an open question is the often encountered "I don't know." The interviewer must be extremely careful not to put words in the mouths of the respondent when probing for a more meaningful reply.]

The second open question directed to tuna users was designed to discover the reasons for stated color preferences. "Nicer appearance" and "better taste" were the most frequently mentioned reasons for liking the preferred color of tuna in all three cities. "Nicer appearance" was the leading reason in all cases except among those who liked the light meat tuna best in Boston where "better taste" was mentioned most frequently and in Detroit where "better taste" was mentioned just as often as "nicer appearance."

Can Size

Only 11 percent of all respondents in Birmingham, 8 percent in Boston, and 14 percent in Detroit felt that the tuna can-size was not right for the needs of their households.

Tuna Packed in Oil

Almost every tuna user in all three cities had bought tuna packed in oil at some time. The majority of these people poured off the oil: In Boston, 81 percent; in Birmingham, 56 percent; and in Detroit, 59 percent.

[Open questions and the probing techniques also may be used when attempting to ascertain what is liked or disliked about the product. Specific spontaneous responses of the type elicited only after skilled probing are important sources of information for those interested in expanding the market for canned tuna.]

The response of consumers to the third open question in the tuna section of the survey revealed that there is considerable dislike of the oil. Such criticisms as "too oily" and "too fattening" were expressed by 47 percent in Boston, 45 percent in Detroit, and 25 percent in Birmingham. A consumer product test of tuna packed in varying amounts of oil is recommended to determine quantity of oil preferred. A reduction in the amount of oil presently in use is indicated.

Tuna Packed in Brine

One of the specific objectives of this survey was to determine the acceptance in the market of tuna packed in brine, a matter of considerable importance to the canned fish industry. A series of questions bearing directly on this problem was asked of the tuna users and yielded the following data.

The proportion of tuna users who have tried tuna packed in brine varies considerably among the three cities. The proportion of triers is 63 percent in Boston, 25 percent in Detroit, and only 8 percent in Birmingham.

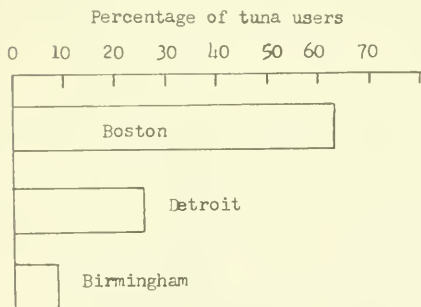


FIGURE III.--PERCENTAGE OF TUNA USERS WHO HAVE TRIED TUNA PACKED IN BRINE

A most significant finding is that among those who tried tuna packed in brine, about as many prefer tuna in brine as tuna packed in oil. This situation prevailed in all three cities.

This finding is confirmed by the negative approach in the analysis of what is disliked about tuna packed in brine. In both Birmingham and Boston, about 60 percent of those who tried it found nothing to dislike about tuna packed in brine; in Detroit, 39 percent found nothing to dislike.

There is very little inclination among the tuna users to pay more for tuna packed in oil than for tuna in brine. In Boston, 61 percent said they would pay no more for oil than for brine; in Detroit, 55 percent and in Birmingham, 40 percent. It is significant that these percentages were almost the same as those having actual experience with tuna packed in brine.

Again using the negative approach, there is no strong disinclination to try tuna packed in brine. Lack of awareness of tuna packed in brine was the major reason given by those who have not as yet tried it: 67 percent in Birmingham; 46 percent in Boston; 68 percent in Detroit.

Finally, loyalty to tuna packed in brine in Boston is even stronger than for tuna packed in oil. In this city, 85 percent of those preferring brine indicated that they always buy tuna packed in brine as compared to 71 percent for those who preferred tuna packed in oil. In Detroit, the comparable percentages were 48 percent and 52 percent.

Additional opinions and preferences of users who have tried tuna packed in brine may be summarized briefly. Tuna packed in brine compares favorably with tuna packed in oil with respect to taste for this group. The major reason given for liking tuna packed in brine for all three cities is "lack of oil, less fattening," followed by "taste." The triers in all three cities prefer white-meat tuna packed in brine to light-meat tuna. Boston triers prefer the solid-style tuna packed in brine. In Boston, the tuna users who have tried tuna packed in brine selected the brine pack over the oil pack as having more uses,

45 percent versus 30 percent. In Detroit the reverse was true, 30 percent versus 43 percent.

Buying Habits

An overwhelming majority of the tuna users buy more than one can of tuna at a time. Impulse buying is low in all three cities. More than 4 out of 5 of the tuna users in all three cities indicated that they planned to buy tuna before they went to the store. In response to an open question, those who had made an impulse purchase the last time they bought tuna gave as their main reasons "low price, on sale" and "just happened to notice it."

Serving Habits

Tuna is served in both hot and cold forms by more than 6 out of 10 of the tuna users in all three cities. It is served only in the cold form by 39 percent in Birmingham, 33 percent in Boston, and 24 percent in Detroit. Only 1 percent of the tuna users in each of the three cities served canned tuna in the hot form only. According to the tabulation of responses to an open question concerning serving habits, users who serve tuna in the cold form only did not serve it hot because they only liked it in a salad or sandwiches.

Children were fond of tuna in more than one-half of the tuna-user families in all three cities. Apparently mothers are convinced that tuna is an excellent food for children. Mothers reported serving canned tuna to their children practically as often as the latter asked for it. In each of the three cities, 22 percent of the tuna users with children could say definitely that their children were served tuna at school as part of the hot lunch program. However, 68 percent in Birmingham, 19 percent in Boston, and 38 percent in Detroit did not know if their children were served tuna at school.

More than half of the tuna-user respondents in all three cities said tuna was served at home when they were children. The proportion in this category was 74 percent in Boston compared to 56 percent in Birmingham and 57 percent in Detroit. It is significant that among tuna non-users (those who had not served canned tuna in

the four weeks prior to the interviews) only 25 percent in Boston, 28 percent in Birmingham, and 37 percent in Detroit said tuna was served in their homes when they were children.

[The replies of consumers to an open question and their responses to the use of the probing technique revealed the relative importance of price reductions as a motive for the more frequent use of canned tuna.]

Almost one-fifth of the tuna users in Birmingham said a lower price would induce them to serve tuna more often. Only about one-eighth of the users in Boston and

Percentage of tuna users

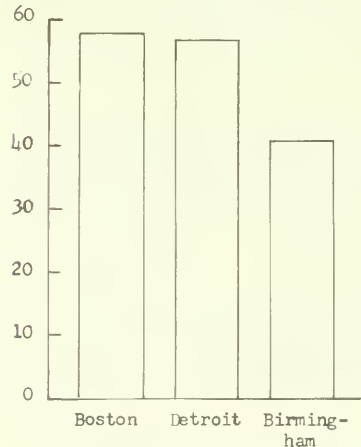


FIGURE IV.--PERCENTAGE OF TUNA USERS WHO SAID THAT NOTHING WOULD INDUCE THEM TO USE MORE TUNA

Detroit said they would be induced to serve tuna more often if the price were lower. On the other hand, 41 percent of the users in Birmingham, 57 percent in Boston, and 56 percent in Detroit said nothing would induce them to serve more tuna.

Recipe Sources

Friends were reported to be the main source of information for tuna recipes in all three cities. Can labels, which ranked below both newspapers and magazine sources in all three cities, were mentioned by 18 percent of the tuna users in Birmingham, 7 percent in Boston, and 19 percent in Detroit. Television and radio ranked lower than can labels in all three cities as a source of tuna recipes.

Ordering of Tuna in Public Eating Places

In the two months prior to the interview, 41 percent of the tuna users in Birmingham, 18 percent in Boston, and 17 percent in Detroit reported ordering tuna in a public eating place. More than 3 out of 4 of these people in each of the cities ordered tuna from 1 to 3 times during this period. More than 4 out of 5 ordered tuna sandwiches in Boston and Detroit, while in Birmingham only 44 percent ordered a tuna sandwich and 62 percent ordered a tuna salad during this same period.

Percentage of tuna users

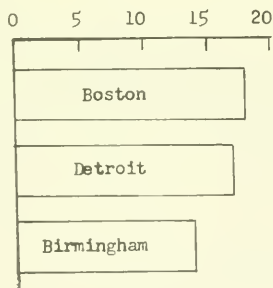


FIGURE V.--PERCENTAGE OF TUNA USERS ORDERING TUNA IN A PUBLIC EATING PLACE

Friday is the leading day of the week on which tuna is ordered in a public eating place in both Boston, 75 percent, and Detroit, 56 percent. Wednesday is the second most important day in each of these two cities. However, in Birmingham, Monday, Friday, and Saturday were mentioned with almost equal frequency as the leading days on which tuna was ordered in a public eating place. This differential behavior is related to religious affiliation of the respondents. In Boston, 58 percent of the respondents were Catholic; 34 percent in Detroit; and only 6 percent in Birmingham.

Percentage of respondents

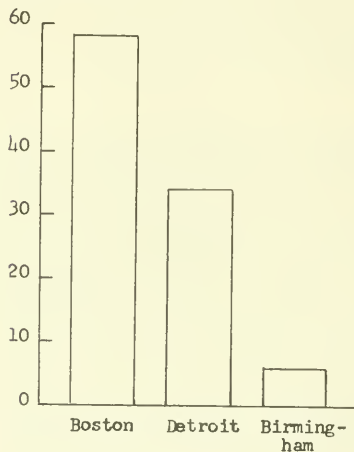


FIGURE VI.--PERCENTAGE OF RESPONDENTS OF THE CATHOLIC RELIGION

For the most part, tuna was ordered for lunch by the respondents eating tuna in a public eating place.

Reasons for Not Using or Seldom Using Tuna

√ Motivational Research techniques--the open question and

the probe--were used to great advantage when the survey sought the reasons for not using, seldom using, or discontinuing the use of canned tuna.⁷

The reasons given for not using tuna by the "never users" (those who had not used tuna in the 12 months prior to the interview) in all three cities referred primarily to a lack of appeal to the senses; 54 percent in Birmingham; 66 percent in Detroit and Boston. Reasons related to health were given by 14 percent, 39 percent, and 31 percent, respectively. Difficulty in preparation or use were the reasons offered by 11 percent, 6 percent, and 9 percent, respectively. "Price too high" was mentioned by only 13 percent of the "never users" in Birmingham, 7 percent in Detroit, and was not mentioned in Boston.

Some of these "never users" had used tuna sometime in the past; 38 percent in Birmingham, 31 percent in Boston, and 52 percent in Detroit. The major reasons given by this group for discontinuing the use of tuna were related to a lack of sense appeal by 34 percent in Birmingham and reasons referring to health by 38 percent in Detroit. Also, in Detroit, 35 percent reported that tuna was not worth the trouble to prepare; 22 percent gave reasons in this category in Birmingham. Only 9 percent in Birmingham and 2 percent in Detroit said that they abstained from using tuna because it was too expensive. The number of respondents in this category in Boston was insignificant.

The reasons for using tuna infrequently as reported by the "sporadic users" (those who had served tuna in the 12 months prior to the interview but not in the 4 weeks prior to the interview) dealt mainly with lack of sense appeal: Birmingham, 63 percent; Boston, 62 percent; and Detroit, 55 percent. Price was mentioned as a reason by 14 percent in Birmingham, 1 percent in Boston, and 11 percent in Detroit. About 1 out of 10 of these respondents in Birmingham and 1 out of 6 in Boston and Detroit said they only used canned tuna during the summer.

More than one-third of the sporadic users reported that they used tuna more often in the past and gave "reduction in family size" as their primary reasons for now serving tuna less often. A smaller group gave "health or diet reasons."

As explanations, approximately two-thirds of the tuna non-users, "never users", and "sporadic users" combined, in Birmingham and Detroit reported that at least one household member liked tuna; only 40 percent of the tuna non-user households in Boston were reported to be in this category.

Canned Tuna Advertising

Among all persons interviewed, 64 percent in Birmingham, 76 percent in Boston, and 70 percent in Detroit said they had seen or heard advertising for canned tuna. The medium mentioned most frequently by those exposed to advertising in Birmingham was magazines, 59 percent, followed by television, 55 percent; newspapers, 44 percent; with radio a poor fourth at 13 percent. In Boston, on the other hand, television was mentioned by 76 percent, followed by magazines and newspapers with 30 percent each; and radio 11 percent. In Detroit, magazines again led with 61 percent; followed by newspapers with 58 percent; television, 46 percent; and radio only 7 percent.

The frequency of canned tuna consumption is related to exposure to advertising for canned tuna in all three cities; The proportion of respondents who said they had seen or heard any advertising for canned tuna increased with frequency of tuna consumption in all of the cities. For example, in Birmingham, the increase in this proportion is from 40 percent among the never users to 82 percent among the heavy users of tuna. Similarly, the increase is from 47 percent among the never users in Boston to 84 percent for the heavy users and in Detroit, from 56 percent to 77 percent.

Clearly, advertising has increased tuna consumption although the survey does not provide specific measurements as to how effective advertising has been.

Percentage
of those
interviewed

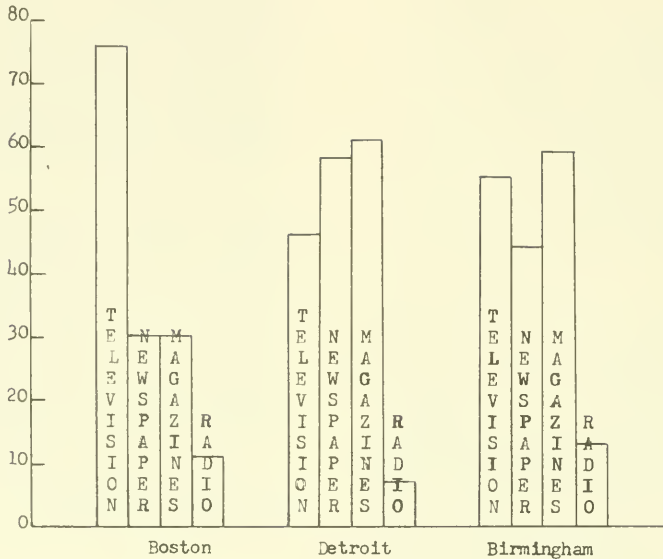


FIGURE VII.--SOURCES OF CANNED TUNA ADVERTISING
AS REPORTED BY CONSUMERS

Tuna users most exposed to advertising mentioned magazines and newspapers as the medium for the ads they had seen. The non-user group mentioned television more frequently as the source for the ads they had seen. This relationship of ad source with frequency of use was similar in all three cities.

Personal Characteristics

The socio-economic characteristics of the households and homemakers in all three cities differed considerably with respect to race, religion, income, nativity of parents, employment status, and education. In Birmingham, 36 percent of the households were Negro compared to 19 percent in Detroit and only 2 percent in Boston.

In Birmingham 6 percent were Catholic as compared with 34 percent in Detroit and 58 percent in Boston. The remainder comprised families of the Protestant religion, for the most part. A significantly higher proportion of the Birmingham families have a lower income than is the case for Boston and Detroit. Only 3 percent of the Birmingham respondents had one or both of their parents born outside of the United States compared with 42 percent in Boston and 28 percent in Detroit. A slightly higher proportion of the Birmingham respondents were employed as compared with the other two cities. Finally, a higher proportion of the Boston respondents received an education beyond the eighth grade than was the case in Birmingham and Detroit.

Percentage of respondents

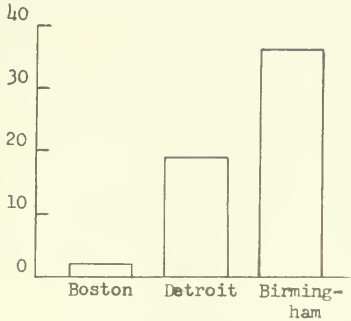


FIGURE VIII.--PERCENTAGE OF NEGRO RESPONDENTS OF TOTAL RESPONDENTS

The personal characteristics of the households and homemakers were tabulated for each of the canned tuna consumption groups defined for this study. These tabulations revealed frequency of canned tuna usage in these cities to be associated with the following characteristics: marital status, size of household, occupation of respondent's husband, age of homemaker, family income, education of homemaker, nativity of parents of homemaker, religion of family and race.

The light user and heavy user groups, when compared with the sporadic user and never user groups, are found to contain a higher proportion of: households with married respondents; larger households; husbands with an executive, professional, or sales occupation; homemakers less than 56 years of age; higher income families; homemakers with education beyond elementary school; homemakers whose parents are foreign born; families affiliated with the Catholic religion; and white families.

A summary of the findings revealed by classification of the data by race, family income, the homemaker's age, education, and employment status, the number of persons eating dinner at home, family religious affiliation, and nativity of the homemaker's parents, together with data on product image mentioned in the next section, will be made available for a limited time upon request to the Fish and Wildlife Service by persons who have a need for such data.

MOTIVATIONAL ANALYSIS

The motivational analysis in this survey was carried out by two different methods. The first method was to ask the respondents open questions as to why they use or do not use tuna so that they could spontaneously mention any reason or motive. The interviewers, all of whom were familiar with probing techniques, were instructed to probe as deeply as possible for any reasons which the respondents did not bring out immediately. There was a series of such open questions. The users were asked what would induce them to serve more tuna; non-users were asked why they do not use tuna; those who had stopped using tuna were asked why they had stopped. The sporadic users were asked why they used tuna so seldom, those who now use tuna less often than in the past were asked why they had reduced the number of times they served it. Similarly, there were open questions as to why people liked their preferred style of tuna; their preferred color; and why they served tuna hot only or why they served tuna cold only. The responses to these open questions (as well as the responses to the more usual direct questions) have been summarized in the first part of this report.

Determining the Product Image

The second method which was used to study motivations is statistical and requires some technical explanation. The first step in this analysis was to determine the "image" of the product--that is, what each respondent thought of tuna, what characteristics she attributes to it, what associations the product evokes. Therefore, each respondent was asked whether she agreed or disagreed with a series of statements, each representing a characteristic of tuna, for example: "Tuna has a good flavor."

[The motivational technique used in this phase of the analysis is known as the "guided association question." Although the respondent is asked only whether or not he agrees or disagrees with the statement, the interviewer actually records the intensity of the answer. Thus, strong agreement or

disagreement (as well as less intensely expressed feelings or opinions) is noted by the interviewer. In addition, the statements on the questionnaire were sometimes phrased positively and sometimes negatively--as for example: "Tuna has an unpleasant smell." This was done in order to minimize what is called a "halo" or clustering effect whereby a favorable attitude toward a product tends to make respondents attribute all favorable characteristics to the product.]

The product image phase of the study revealed that canned tuna is considered to be a convenient food, one that is not too troublesome to prepare by more than 9 out of 10 homemakers. To a slightly lesser extent, tuna is considered to have a good flavor, a nice appearance, and to be a food of high quality which is not hard to make look good and which has many uses.

The image of canned tuna is quite similar in all three cities except for the items, "Does not leave a bad odor in the refrigerator," "Is not expensive," "Is only good if a well-known brand," and "Is used a great deal by Negroes." In Boston as many as 72 percent of the respondents felt that tuna did not leave a bad odor in the refrigerator, but only 42 percent in Birmingham agreed with this. Also in Boston 78 percent felt that canned tuna is not expensive, but only 47 percent agreed in Birmingham. Again, 75 percent of the Boston respondents agreed that tuna was only good if it were a well-known brand compared to only 56 percent in Birmingham. Finally, 18 percent in Boston thought that tuna was used a great deal by Negroes, compared to 41 percent in Birmingham. The proportions for Detroit for these items are approximately midway between those of Birmingham and Boston.

Measuring the Motivational Difference

The aim of motivational analysis is to determine the characteristics which have the greatest influence on the behavior of the respondent. The approach

used in this study to measure the strength of a motive was first to determine the ratio of heavy users among those who agree with the statement and compare it with the ratio of heavy users among those who do not agree with it. The difference between these ratios, which will be called the motivational difference, indicates whether agreeing with the statement has influence and measures the extent of the motivational strength of the statement. The greater the difference between the ratios, the stronger the influence of the specific statement. The selection of heavy user groups is justified because there is an interest in converting not only the never users into regular users but also to transform the light users into heavy users of canned tuna.

The most important characteristics of canned tuna are practically the same in all three cities. Good flavor is first in all three cities and is clearly the most important motive. The motivational differences for the statements "Tuna is not too troublesome to prepare," "Tuna is not hard to make look good," and "Tuna is a convenient food," are all high on the list for each of the cities indicating that ease of use is also an important motive among heavy users of canned tuna. Quality is also among the leading motives common to all three cities.

Index of Possible Market Gain

As a third step, the extent to which a motivating characteristic is already attributed to the product by homemakers must be measured. 2/ Conversely, the proportion of homemakers who are to be convinced that canned tuna has a specific desirable quality must be established. It is in this group that the potential market gain is greatest. The result of multiplying the motivational difference by the potential to be convinced yields an index of the possible market gain.

2/ There is no need to convince that sector of the public that a product has a certain characteristic when everyone within the sector recognizes that this is the case.

Observations Based on Computed Indexes of Possible Market Gain

Only the item "Does not leave a bad odor in the refrigerator" is listed for all three cities. The remaining factors are listed for only one or two of the three cities.

One or more of the items referring to the idea that tuna is a food for everyone occurs in each of the cities. This theme is manifested in the statement "Not eaten mainly by manual laborers," which appears among the leading Birmingham and Detroit indexes; in the statement "Not food for poor people," which has the highest index in Boston; and in the leading index for Detroit, "Not used a great deal by Negroes."

Taste qualities are important also: "Has a pleasant after taste" appears in both Birmingham and Boston; "Has a good flavor" appears in both Boston and Detroit.

"Tuna is often eaten by sick people"--implying that tuna is easily digested, is nourishing, etc.--is among the leaders in both Birmingham and Boston.

"Tuna is not expensive compared to other canned fish" appears in both Birmingham and Detroit. The competition provided by pink salmon in these areas undoubtedly is a major reason why this factor occurs in the two cities.

In Birmingham it is advantageous to convince consumers that canned tuna may be used by inexperienced cooks; in Detroit the reverse situation prevails with the appeal best directed toward homemakers who consider themselves experienced cooks.

The index referring to canned tuna as a food eaten by people trying to lose weight is important in Boston only.

It is of considerable significance to note that the three characteristics "Tuna is a convenient food", "Tuna is not too troublesome to prepare", and "Tuna is not hard to make look good" are not among the leaders for any of the three cities. These items, all dealing with ease of preparation, had relatively high

motivational differences. On the other hand, relatively few homemakers in the three cities remain to be convinced that canned tuna does have these desirable characteristics.

SUGGESTIONS

The following suggestions have been derived from the analysis and summary of the data:

The domestic tuna canning industry should pack and distribute tuna packed in brine in all three markets. There is no need for another can size for tuna.

The selection of Birmingham, Boston, and Detroit was made, in part, with the intention of giving representation to three regions of the country--the South, Northeast, and North Central--rather than to three particular cities. When viewed from this perspective it should be noted that the factors with the greatest potential for motivating consumers to become heavy users of tuna are quite different for the three areas. Only one motivating characteristic appears among the leaders for all three cities; thus the problem of increasing tuna consumption cannot be solved by the use of a single national advertising program.

Advertising campaigns in all three cities should stress that canned tuna is a desirable food for all population groups and that it has a pleasant taste. Regional promotional themes should be developed for Birmingham underscoring the facts that canned tuna is an inexpensive, nourishing, and easily digested food. In Boston the emphasis should be shifted so as to accentuate the ideas that the product is popular with those interested in losing weight and, in order to combat the brine market, that tuna packed in oil is not undesirably oily. Detroit advertising should be based on the concepts that tuna is an inexpensive food and that it is used by experienced cooks.

It is no longer necessary to emphasize convenience and ease of preparation themes in canned tuna advertising since awareness of these characteristics is widespread among homemakers.

It is apparent from the results of the survey that the promotional efforts made by tuna canners should be directed toward increasing consumption among consumers

already using tuna and particularly among those using the product only occasionally--the light and sporadic user groups.

TABLES

The tables showing the percentage distribution of the responses to each of the questions pertinent to this report are included in the next section. A weighted base was employed for the computation of each percentage distribution. This base is shown at the bottom of each table column. Weighting the actual number of interviews completed in each city was necessary since a small number of the sampling units were sub-sampled to avoid an excessive number of interviews in any one interviewing assignment. This procedure was necessary in those sample area segments which had grown considerably in number of households since the 1950 Census. In addition, the total Detroit area was divided into zones which were either predominately white or non-white with the former sampled at one-half the rate of the latter zone; weighting was employed to restore the proportionality of the race distribution in this city.

No weighting was attempted for households selected for the sample but not interviewed (refusals, unable to contact, etc.). The actual number of completed interviews and the weighted base for the total respondent population in each city are shown below.

<u>City</u>	<u>Actual number of interviews</u>	<u>Weighted base</u>
Birmingham	585	669
Boston	553	572
Detroit	609	916

Percentage distributions were computed whenever the weighted base was 25 or more. Only the number of responses in each category is shown whenever this criterion is not met. In percentage distributions, each percentage was computed separately and no effort was made to force the column to add to exactly 100 percent. The occasional discrepancies which occur because of rounding should not affect use of the data. In instances where the percentages add to more than 100 percent because of multiple answers by respondents, a footnote to this effect is included in the table.

STATISTICAL TABLES

Use of Canned Tuna

TABLE 1.--WHAT KIND OF CANNED FISH DO YOU LIKE BEST?

Kind of canned fish	All respondents		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Tuna	42	56	47
Salmon	42	17	27
Sardines	5	4	6
Shrimp	3	14	11
Don't know	8	9	9
Number of respondents	(669)	(572)	(916)

TABLE 2.--DURING THE LAST 12 MONTHS HAVE YOU SERVED CANNED TUNA?

Response	All respondents		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	79	87	87
No	21	13	13
Number of respondents	(669)	(572)	(916)

Use of Canned Tuna

TABLE 3.--DURING THE PAST 4 WEEKS, ABOUT
HOW OFTEN DID YOU SERVE CANNED TUNA?

Number of times	Those who have served canned tuna within last 12 months		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	100	100	100
1 time	15	9	15
2 times	24	14	20
3 times	7	9	11
4 times	13	31	22
5 or more times	6	19	13
Did not serve	35	17	19
Don't know	0	1	0
Number of respondents	(531)	(497)	(796)
Average (last 12 months)	1.8	3.4	2.7
Average (last 4 weeks)	2.5	4.1	3.4

TABLE 4.--WHO IN YOUR FAMILY EATS TUNA?

Family member	Tuna users		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	(1)	(1)	(1)
Entire family	79	77	78
Husband	10	9	8
Respondent	19	17	18
Children	12	20	11
Number of respondents	(345)	(411)	(636)

1/ Totals more than 100 percent as some respondents mentioned more than one answer.

Style Preference

TABLE 5.--WHICH STYLE OF CANNED TUNA DO YOU LIKE BEST?

Style	Tuna users		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	100	100	100
Chunk	71	43	70
Solid	14	52	16
Grated or flaked	12	4	8
Don't know	3	1	6
Number of respondents	(345)	(411)	(636)

TABLE 6.--HOW OFTEN DO YOU BUY THAT STYLE OF TUNA?

Frequency of purchase	Tuna users by style preferred		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	100	100	100
Always buy	69	89	75
Usually buy	23	8	18
Sometimes buy	6	1	6
Rarely	(1)	0	(1)
Don't know	2	2	1
Number of respondents	(337)	(408)	(604)

1/ Less than one percent.

Style Preference

TABLE 7.--HOW OFTEN DO YOU BUY THAT STYLE OF TUNA?

Frequency of purchase	Tuna users who like . . . style best											
	Birmingham			Boston			Detroit					
	Per- cent	Solid	Grated	Per- cent	Solid	Grated	Per- cent	Solid	Grated	Per- cent	Solid	Grated
	100	100	100	100	100	(1)	100	100	100	100	100	100
Always buy	76	64	34	87	91	-	76	75	64	76	75	64
Usually buy	18	18	54	10	6	-	16	19	32	16	19	32
Sometimes buy	3	16	10	1	2	-	7	6	4	7	6	4
Rarely	0	2	0	0	0	-	1	0	0	1	0	0
Don't know	3	0	2	2	1	-	0	0	0	0	0	0
Number of respondents	(246)	(50)	(41)	(177)	(213)	(18)	(448)	(103)	(53)	(448)	(103)	(53)

1/ Percentages are omitted because the data are not statistically significant.

Style Preference

TABLE 8.--WHY DO YOU LIKE THIS PARTICULAR STYLE OF TUNA?

Reasons	Tuna users who like . . . style best												
	Birmingham					Boston					Detroit		
	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(1)	(1)	(1)
Easier to prepare, can be used more ways, nicer size	46	30	80	41	26	-	41	19	92				
Better taste, tastes more like fish, better grade and quality	15	30	15	28	36	-	29	50	13				
Looks nicer, better looking, more solid	24	28	2	15	29	-	35	34	0				
Habit, custom, never bought other kind	18	12	12	15	9	-	6	0	6				
Not as oily	6	34	0	3	6	-	17	20	0				
More economical, less expensive	10	2	5	9	4	-	16	4	9				
Other reasons	16	18	2	15	21	-	19	39	13				
Don't know	2	2	5	3	2	-	2	5	0				
Number of respondents	(245)	(50)	(41)	(177)	(213)	(18)	(448)	(103)	(53)				

1/ Totals more than 100 percent as some respondents gave more than one answer.
 2/ Percentages are omitted because the data are not statistically significant.

Color Preference

TABLE 9.--WHICH COLOR TUNA DO YOU LIKE BEST?

Color	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
White	44	83	63
Light	53	14	30
Don't know	3	3	7
Number of respondents	(345)	(411)	(636)

TABLE 10.--HOW OFTEN DO YOU BUY THAT COLOR TUNA?

Frequency of purchase	Tuna users with a color liked best		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Always	76	90	81
Usually buy	19	6	16
Sometimes buy	2	(1)	3
Rarely	1	0	(1)
Don't know	2	4	(1)
Number of respondents	(333)	(402)	(592)

1/ Less than one percent.

Color Preference

TABLE 11.--WHY DO YOU LIKE THIS PARTICULAR COLOR TUNA?

Reasons	Tuna users who prefer . . . tuna					
	Birmingham		Boston		Detroit	
	White	Light	White	Light	White	Light
	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent
	(1)	(1)	(1)	(1)	(1)	(1)
Nicer looking, better looking, more appetizing, cleaner looking	61	48	54	7	46	42
Better taste, milder taste, nice flavor	23	25	35	58	36	42
Better quality, better for company, looks more like chicken, more prestige	3	3	31	5	33	9
Custom, habit	23	18	6	14	12	11
Cheaper	1	9	1	19	3	13
Other	3	5	2	7	0	1
Don't know	4	8	3	7	7	8
Number of respondents	(151)	(181)	(343)	(59)	(398)	(194)

1/ Totals more than 100 percent as some respondents gave more than one answer.

Tuna Packed in Oil

TABLE 12.--HAVE YOU EVER TRIED TUNA PACKED IN OIL?

Response	Tuna users		
	Birmingham	Boston	Detroit
	Percent 100	Percent 100	Percent 100
Yes	93	99	97
No	6	(1)	3
Don't know	1	1	(1)
Number of respondents	(345)	(411)	(636)

1/ Less than one percent.

TABLE 13.--DO YOU USE THE OIL OR POUR IT OFF?

Response	Those who have tried tuna packed in oil		
	Birmingham	Boston	Detroit
	Percent (1)	Percent (1)	Percent (1)
Use the oil	48	19	42
Pour off the oil	56	81	59
No answer	1	(2)	2
Number of respondents	(322)	(408)	(616)

1/ Totals more than 100 percent as some respondents gave more than one answer.

2/ Less than one percent.

TABLE 14.--WHAT DO YOU DISLIKE ABOUT TUNA PACKED IN OIL?

Reasons	Those who have tried tuna packed in oil		
	Birmingham	Boston	Detroit
	Percent (1)	Percent (1)	Percent (1)
Nothing, no dislike	64	50	51
Too rich, too fattening	3	7	8
Too much oil, too oily, too greasy	22	40	37
Other	3	2	1
Don't know	9	3	4
Number of respondents	(322)	(408)	(616)

1/ Totals more than 100 percent as some respondents gave more than one answer.

Tuna Packed in Brine

TABLE 15.--HAVE YOU EVER TRIED TUNA
PACKED IN BRINE, THAT IS, SALT WATER?

Response	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	8	63	25
No	92	36	75
Don't know	(1)	1	0
Number of respondents	(345)	(411)	(636)

1/ Less than one percent.

TABLE 16.--WHICH DO YOU LIKE BETTER?

Pack	Tuna users who have tried tuna packed in brine		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Brine	50	52	46
Oil	42	45	51
Don't know	8	3	3
Number of respondents	(26)	(260)	(158)

Tuna Packed in Brine

TABLE 17.--WHAT DO YOU DISLIKE ABOUT TUNA PACKED IN BRINE?

Criticisms	Those who have tried tuna packed in brine		
	Birmingham	Boston	Detroit
	Percent (1)	Percent (1)	Percent (1)
Too much salt	8	9	4
Too dry	23	18	31
Poor taste, poor quality, poor flavor	15	27	40
No dislike	58	60	39
Other	0	0	1
Don't know	0	(2)	8
Number of respondents	(26)	(260)	(158)

- 1/ Totals more than 100 percent as some respondents gave more than one answer.
 2/ Less than one percent.

TABLE 18.--WOULD YOU PAY MORE FOR TUNA
PACKED IN OIL RATHER THAN IN BRINE?

Response	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	37	34	31
No	40	61	55
Don't know	23	5	14
Number of respondents	(345)	(411)	(636)
Average amount (those who would pay more)	3.9¢	3.4¢	3.1¢

Tuna Packed in Brine

TABLE 19.--WHY HAVEN'T YOU TRIED TUNA PACKED IN BRINE?

Reasons	Tuna users who have not tried tuna packed in brine		
	Birmingham	Boston	Detroit
	Percent (1)	Percent (1)	Percent (1)
Not aware of it	67	46	68
Prefer oil	8	19	8
Sounds too salty, too salty	12	3	10
All other reasons	16	24	19
No answers	3	8	2
Number of respondents	(318)	(150)	(478)

1/ Totals more than 100 percent as some respondents gave more than one answer.

TABLE 20.--HOW OFTEN DO YOU BUY TUNA PACKED IN THAT LIQUID?

Frequency of purchase	Tuna users who prefer tuna packed in . . .					
	Birmingham		Boston		Detroit	
	Brine	Oil	Brine	Oil	Brine	Oil
	Per- cent (1)	Per- cent (1)	Per- cent 100	Per- cent 100	Per- cent 100	Per- cent 100
Always	-	-	85	71	48	52
Usually	-	-	11	17	23	28
Sometimes	-	-	2	5	18	2
Rarely	-	-	1	3	8	18
Don't know	-	-	1	4	3	0
Number of respondents	(13)	(11)	(134)	(116)	(73)	(80)

1/ Percentages are omitted because the data are not statistically significant.

Tuna Packed in Brine

TABLE 21.--WHAT DO YOU LIKE ABOUT TUNA PACKED IN BRINE?

Reasons	Those who have tried tuna packed in brine		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	(1)	(1)	(1)
The taste (of the tuna)	27	25	16
The lack of oil; less fattening	62	43	50
The salty taste	8	(2)	1
Better for you, easier to digest, for diet	19	14	16
Other	4	7	3
Don't know	0	31	28
Number of respondents	(26)	(260)	(158)

1/ Totals more than 100 percent as some respondents mentioned more than one answer.

2/ Less than one percent.

TABLE 22.--DO YOU PREFER LIGHT OR WHITE MEAT TUNA PACKED IN BRINE?

Color	Those who have tried tuna packed in brine		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	(1)	100	100
Light	27	16	30
White	65	74	51
Don't know	12	10	19
Number of respondents	(26)	(260)	(158)

1/ Totals more than 100 percent as some respondents gave more than one answer.

Tuna Packed in Brine

TABLE 23.--DO YOU PREFER SOLID, CHUNK OR GRATED TUNA PACKED IN BRINE?

Style	Those who have tried tuna packed in brine		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	100	100	100
Solid	31	63	38
Chunk	38	24	40
Grated	23	3	6
Don't know	8	10	16
Number of respondents	(26)	(260)	(158)

TABLE 24.--WHICH HAS MORE USES, TUNA PACKED IN . . . ?

Pack	Those who have tried tuna packed in brine		
	Birmingham	Boston	Detroit
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	100	100	100
Brine	35	45	30
Oil	38	30	43
Don't know	27	25	27
Number of respondents	(26)	(260)	(158)

Buying Habits

TABLE 25.--DO YOU BUY TUNA FOR DAY TO DAY USE,
OR DO YOU BUY SEVERAL CANS AT ONE TIME?

Purchase in relation to use	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Day to day	30	14	12
Several cans	70	86	88
Don't know	(1)	(1)	(1)
Number of respondents	(345)	(411)	(636)

1/ Less than one percent.

TABLE 26.--THE LAST TIME YOU BOUGHT TUNA--DID YOU PLAN TO BUY IT
BEFORE YOU WENT TO THE STORE OR DID YOU DECIDE ON IT AT THE STORE?

Response	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Planned	84	95	81
Not planned	15	4	19
Don't know	1	1	(1)
Number of respondents	(345)	(411)	(636)

1/ Less than one percent.

Buying Habits

TABLE 27.--WHAT MADE YOU DECIDE TO BUY IT?

Reasons	Impulse buyers of tuna		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(2)	(1)
Low price, on sale, special	35	-	76
Just happened to notice it	48	-	16
Other reasons	25	-	14
Don't know	2	-	2
Number of respondents	(52)	(17)	(121)

- 1/ Totals more than 100 percent as some respondents gave more than one answer.
- 2/ Percentages are omitted because the data are not statistically significant.

Serving Habits

TABLE 28.--HOW DO YOU SERVE TUNA, HOT OR COLD OR BOTH WAYS?

Responses	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Hot	1	1	1
Cold	39	33	24
Both	61	65	76
No response	(2)	(2)	0
Number of respondents	(345)	(411)	(636)

- 1/ Totals more than 100 percent as some respondents gave more than one answer.
- 2/ Less than one percent.

Serving Habits

TABLE 29.--WHY DON'T YOU SERVE TUNA (HOT/COLD)?

Reasons	Tuna users who serve tuna only hot or only cold		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Only like sandwiches	20	48	30
Only like in salads	44	25	28
Not good except (hot/cold), family does not like it	19	37	33
Did not know it could be served that way, never tried it	24	12	17
Other reasons	20	12	11
Don't know	2	1	3
Number of respondents	(135)	(141)	(155)

1/ Totals more than 100 percent as some respondents gave more than one answer.

TABLE 30.--DO YOUR CHILDREN EVER ASK FOR TUNA?

Responses	Tuna users with children		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	52	72	62
No	44	28	36
Don't know	4	(1)	2
Number of respondents	(209)	(279)	(390)

1/ Less than one percent.

Serving Habits

TABLE 31.--ARE YOUR CHILDREN SERVED TUNA AT SCHOOL AS A PART OF THE HOT LUNCH PROGRAM?

Responses	Tuna users with children		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	23	22	22
No	9	59	41
Don't know	68	19	37
Number of respondents	(209)	(279)	(390)

TABLE 32.--WAS TUNA SERVED IN YOUR HOME WHEN YOU WERE A CHILD?

Responses	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	56	74	57
No	39	24	40
Don't know	5	2	3
Number of respondents	(345)	(411)	(636)

Serving Habits

TABLE 33.--WAS TUNA SERVED IN YOUR HOME WHEN YOU WERE A CHILD?

Responses	Tuna non-users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	28	25	37
No	60	24	62
Don't know	12	51	1
Number of respondents	(324)	(161)	(280)

TABLE 34.--WHAT WOULD INDUCE YOU TO SERVE MORE TUNA?

Responses	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Nothing	41	57	56
Lower price, sale	19	12	12
More, better, new recipes	8	4	7
Other	16	14	15
Don't know	32	15	10
Number of respondents	(345)	(411)	(636)

1/ Totals more than 100 percent as some respondents gave more than one answer.

Recipe Sources

TABLE 35.--HAVE YOU EVER GOTTEN A TUNA RECIPE FROM A . . . ?

Responses	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Friend(s)	39	28	47
Newspaper food column	27	21	25
Magazine advertisement	26	23	38
Newspaper advertisement	24	19	38
Magazine food column	23	13	30
Can label	18	7	19
Recipe book, calendar	9	3	10
Television advertisement	8	6	12
Television service program	4	3	8
Radio advertisement	3	1	5
Radio service program	1	1	4
Other	1	1	2
Don't know	31	37	19
Number of respondents	(345)	(411)	(636)

1/ Totals more than 100 percent as some respondents mentioned more than one answer.

Ordering of Tuna in Public Eating Places

TABLE 36.--HAVE YOU ORDERED TUNA IN A PUBLIC EATING PLACE IN THE LAST TWO MONTHS?

Responses	Tuna users		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	14	18	17
No	86	82	82
Don't know	(1)	(1)	1
Number of respondents	(345)	(411)	(636)

1/ Less than one percent.

TABLE 37.--HOW MANY TIMES IN THE LAST TWO MONTHS HAVE YOU ORDERED TUNA IN ANY FORM?

Number of times	Tuna users who have ordered tuna in a public eating place in last two months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
1 to 3 times	85	75	83
4 to 6 times	12	17	16
Over 6 times	3	8	1
Number of respondents	(48)	(75)	(108)

Ordering of Tuna in Public Eating Places

TABLE 38.--WHAT KIND OF TUNA DISHES DID YOU ORDER?

Kinds of dishes	Tuna users who have ordered tuna in a public eating place in last two months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Tuna salad	62	21	31
Tuna sandwich	44	85	81
Tuna casserole	2	5	10
Other	2	0	1
Don't know	0	7	2
Number of respondents	(48)	(75)	(108)

1/ Totals more than 100 percent as some respondents gave more than one answer.

TABLE 39.--GENERALLY SPEAKING, WHAT DAY OF THE WEEK DID YOU ORDER TUNA IN A PUBLIC EATING PLACE?

Day of the week	Tuna users who have ordered tuna in a public eating place in last two months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Monday	27	5	8
Tuesday	15	9	6
Wednesday	17	23	27
Thursday	10	7	6
Friday	25	75	56
Saturday	23	5	8
Sunday	4	0	1
Don't know	17	12	18
Number of respondents	(48)	(75)	(108)

1/ Totals more than 100 percent as some respondents gave more than one answer.

Ordering of Tuna in Public Eating Places

TABLE 40.--GENERALLY, AT WHAT TIME DID YOU ORDER
TUNA IN A PUBLIC EATING PLACE?

Time of day	Tuna users who have ordered tuna in a public eating place in last two months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	(1)	(1)
Morning	4	0	0
Lunch	71	95	90
Afternoon	4	3	5
Dinner	8	1	6
Evening	8	5	7
Don't know	5	3	0
Number of respondents	(48)	(75)	(108)

1/ Totals more than 100 percent as some respondents gave more than one answer.

Reasons for Not Using
or Seldom Using Tuna

TABLE 41.--WHY DON'T YOU USE TUNA?

Reasons	Tuna non-users who have not served tuna in past twelve months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(1)	(1)
Appears unattractive	54	66	66
Health	14	39	31
Difficult to prepare or use	11	6	19
Other	32	3	12
Don't know	2	0	0
Number of respondents	(138)	(75)	(120)

1/ Totals more than 100 percent as some respondents gave more than one answer.

TABLE 42.--DID YOU EVER USE TUNA IN THE PAST?

Responses	Tuna non-users who have not served tuna in past twelve months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	38	31	52
No	56	69	47
Don't know	6	0	1
Number of respondents	(138)	(75)	(120)

Reasons for Not Using
or Seldom Using Tuna

TABLE 43.--WHY DID YOU STOP USING TUNA?

Reasons	Tuna non-users who have not served tuna in past twelve months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(1)	(2)	(1)
Appears unattractive	34	-	13
Health	8	-	38
Difficult to prepare or use	22	-	35
Other	34	-	13
Don't know	4	-	0
Number of respondents	(53)	(23)	(62)

1/ Totals more than 100 percent as some respondents gave more than one answer.

2/ Percentages are omitted because the data are not statistically significant.

TABLE 44.--WHY DO YOU USE TUNA SO SELDOM?

Reasons	Not regular tuna users 1/		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	(2)	(2)	(2)
Appears unattractive	63	62	55
Health	6	9	5
Difficult to prepare or use	6	0	2
Only use in summer	10	16	15
Price	14	1	11
Other	13	18	24
Don't know	4	0	2
Number of respondents	(186)	(86)	(160)

1/ Includes those who had served tuna in the twelve months prior to the interview, but not in the four weeks prior to the interview.

2/ Totals more than 100 percent as some respondents mentioned more than one answer.

Reasons for Not Using
or Seldom Using Tuna

TABLE 45.--DID YOU USE TUNA MORE OFTEN IN THE PAST?

Responses	Tuna non-users who had served tuna in past twelve months		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
	100	100	100
Yes	41	33	42
No	59	67	58
Don't know	0	0	0
Number of respondents	(186)	(86)	(160)

TABLE 46.--WHY HAVE YOU REDUCED THE NUMBER OF TIMES YOU SERVE IT?

Reasons	Tuna non-users who had served tuna in past twelve months and used more tuna previously		
	Birmingham	Boston	Detroit
	Percent (1)	Percent (1)	Percent (1)
Family reduced in size	24	43	21
Health, diet	13	14	22
Appears unattractive	9	4	13
Difficult to prepare or use	11	7	0
Other	47	43	21
Don't know	3	7	0
Number of respondents	(75)	(28)	(67)

1/ Totals more than 100 percent as some respondents gave more than one answer.

TABLE 47.--DOES ANYONE LIVING IN THE HOUSE LIKE TUNA?

Responses	Tuna sporadic and non-users		
	Birmingham	Boston	Detroit
	Percent 100	Percent 100	Percent 100
Yes	69	40	67
No	23	10	31
Don't know	8	50	2
Number of respondents	(324)	(161)	(280)

Canned Tuna Advertising

TABLE 48.--HAVE YOU SEEN OR HEARD ANY ADVERTISING FOR CANNED TUNA?

Responses	All respondents		Respondents, by tuna consumption				Percent	
	Birmingham		Birmingham		Boston		Detroit	
	Percent	Percent	Never users	Heavy users	Never users	Heavy users	Never users	Heavy users
	100	100	100	100	100	100	100	100
Yes	64	76	40	82	47	84	56	77
No	36	24	59	18	53	15	44	23
Don't know	0	0	1	0	0	1	0	0
Number of respondents	(669)	(572)	(138)	(136)	(75)	(294)	(120)	(363)

TABLE 49.--WHERE HAVE YOU SEEN OR HEARD CANNED TUNA ADVERTISING?

Sources	Those exposed to advertising for canned tuna		Those exposed to advertising for canned tuna, by tuna consumption				Percent	
	Birmingham		Birmingham		Boston		Detroit	
	Percent	Percent	Never users	Heavy users	Never users	Heavy users	Never users	Heavy users
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Magazines	59	30	42	73	11	29	28	67
Radio	13	11	15	10	6	10	4	8
Television	55	76	69	61	86	76	48	42
Newspapers	44	30	42	59	9	35	57	64
Don't know	2	0	0	2	0	0	3	1
Number of respondents	(429)	(432)	(55)	(111)	(35)	(248)	(67)	(278)

1/ Totals more than 100 percent as some respondents gave more than one answer.

CharacteristicsTABLE 50.--SELECTED SOCIO-ECONOMIC
CHARACTERISTICS OF HOUSEHOLDS, HOMEMAKERS

Race	All respondents		
	Birmingham	Boston	Detroit
	Percent	Percent	Percent
White	64	98	81
Negro	36	2	19
Other	0	0	0
<u>Religion</u>			
Protestant	94	33	63
Catholic	6	58	34
Jewish	0	8	2
Other	0	1	1
<u>Income</u>			
Under \$2,999	31	12	19
\$3,000 to \$3,999	16	15	13
\$4,000 to \$4,999	16	35	20
\$5,000 to \$6,999	18	20	26
\$7,000 or more	15	15	17
Unclassified	4	3	5
Number of respondents	(669)	(572)	(916)
<u>Both parents native born</u>			
Yes	96	58	71
No	3	42	28
Unclassified	1	0	1
Number of respondents	(668)	(483)	(764)
<u>Outside employment of homemaker</u>			
Yes	33	26	29
No	64	72	70
Unclassified	3	2	1
Number of respondents	(669)	(572)	(916)
<u>Completed education of homemaker</u>			
Less than 8th grade	24	10	24
8th through 12th grade	62	73	62
College	13	16	14
Unclassified	1	1	0
Number of respondents	(669)	(572)	(916)

APPENDIX

SURVEY METHODS

Questionnaire

The development phase of the study consisted of 57 depth interviews conducted by specialists in this type of interviewing. Respondents were chosen for these interviews in a non-systematic, but also non-random method. These interviews consisted of informal and casual discussions covering aspects of household consumers' preferences for canned fish. The respondent was allowed to take whatever direction she wanted to in these discussions, following her own natural inclinations. No attempt was made to limit or restrict the discussion to predetermined areas of interest. Only when the respondent had exhausted some topic did the interviewer attempt to give some further direction to the interviews by asking a very general and open "why" or "how" question.

In addition, a number of specific techniques were used in these initial interviews as further aids in eliciting consumer attitudes and motivations. Such techniques as word association, sentence completion, response projection, role taking, and cartoon tests were used.

After the first few of these 57 interviews were completed, discussions were held by the staff and the interviewers. Suggestions were made regarding procedural changes in order to increase the prospects for more complete and detailed information.

Using these 57 preliminary interviews as a basis, a list of associations was developed showing all of the relevant areas to be explored in the full scale study. This "item list" formed the basis for development of the "guided association" portion of the questionnaire.

Several drafts of the pre-test questionnaire were then developed, in consultation with staff members of the U. S. Fish and Wildlife Service, with each draft receiving limited field tests by a specialist in interviewing techniques. An improved draft of the questionnaire was also forwarded to members of the fish canning industry for their comments and suggestions.

A full scale pre-test of the questionnaire was carried out in the three

urbanized areas selected for the full scale survey, Boston, Massachusetts; Birmingham, Alabama and Detroit, Michigan. A total of 61 pre-test interviews were completed. These were distributed approximately equally among the three urbanized areas. A complete review of all questions included in the pre-test was carried out with differences in local interpretation noted especially. Based on this review final revisions in the questionnaire were made and specific instructions to the interviewers prepared. A copy of the questionnaire is included in this Appendix.

Sample Design

The sample design for this study was constructed with two basic requirements in mind. First, the sampling techniques employed must be consistent with the demands of sound research methodology; they must be techniques by which valid inferences may be drawn from the sample for the population group under investigation. The only known way to meet this requirement is through probability sampling. With probability samples, the chance of observing a given individual or element of the population of interest is known. It permits the researcher to not only control the sampling areas, but also to measure them. It is this property, the measurability of area, which lends validity to the conclusions drawn from probability samples.

Second, the sample design must be economically and statistically efficient; that is, it should, for the budget allotted and resources available, provide the most accurate estimates of the characteristics studied. The estimates derived from the sample must be of sufficient accuracy to be used with confidence. Selection of the most efficient design implies knowledge of the sources of variation affecting a set of sample observations or measurements. The problem of sample design is to make that judicious selection among the many techniques available for controlling these sources of variation, and hence the eventual sampling area, which will achieve an appropriate balance between administrative efficiency and statistical efficiency. The specific techniques employed in the sample designs constructed for this study include:

1. Grouping the eligible population into small clusters or sampling units comprising an efficient interviewer daily work load.
2. Grouping the sampling units into city and suburban zones, in each of the three urbanized areas surveyed, to provide approximately proportionate representation.
3. A further grouping of the sampling units within each zone into geographic or area strata, with an equal number of sampling units in each stratum, to ensure adequate distribution of the sample to all segments of the population of interest.
4. Using equal probabilities for the selecting of sampling units within strata and thereby considerably simplifying the formulas necessary for valid computation of the estimates and of their standard errors.

A strict probability sample implies the application of completely objective methods for the selection of respondents. In the absence of a list of households or persons eligible for interview, the required objectivity is met through the use of area probability sampling techniques. To be satisfied with simple area sampling techniques is not enough, however. Ingenuity in the use of available resources and facilities can considerably increase the efficiency of one area probability sample over another.

United States Census Population and Housing data, both published and unpublished, are our major resource in the design of efficient probability samples. Unpublished data for small areas, such as enumeration districts used in collecting census data, may be purchased on special order from the Bureau of the Census. In open country areas maps indicating the location of dwelling units are available from State Highway Commissions. This supplementary information may be used for a variety of purposes in the design of a sample including stratification, assigning selection probabilities, or for the con-

struction of approximately equal-sized sampling units. The sample design outlined below makes use of 1950 census data to establish the area strata and for the assignment of the sampling units within these strata. Although these data were not used for the direct assignment of selection probabilities, the sampling plan adopted is such that the chance for any segment of the areas surveyed to be represented in the sample, was approximately proportionate to the number of occupied dwelling units contained within the segment whether it was an enumeration district, census tract, township, urban place, city block, or portion of an enumeration district, etc.

A sample representative of all households in the urbanized areas of Birmingham, Alabama; Boston, Massachusetts; Detroit, Michigan was selected for this study. In addition, a representative sample of all non-white households located in the rural portion of Orangeburg County, South Carolina was chosen. Bureau of the Census definitions of households, dwelling units, urbanized area, rural territory, etc. were employed. The sample designs for the three urbanized areas will be described first. These designs were stratified one-stage sample designs, constructed in accordance with the principles outlined above. Careful control in all steps of the sample selection made it possible to know exactly the chance every household cluster or sampling unit had of falling into the sample.

The first step in the sample design consisted of listing and ordering geographically the census tracts in the central city portions of each of the three urbanized areas. In Detroit, those census tracts with 10 percent or more of the dwelling units occupied by non-white households in 1950 were listed and ordered separately. Similarly, ordered lists of the 1950 Census Enumeration Districts were prepared for those portions of the three urbanized areas which fall outside the central cities. Geographic or area strata were then constructed within the central city zones and the suburban zones for each of the urbanized areas using the ordered lists and 1950 census data on the number of occupied dwelling units or households found in each census tract, block or enumeration district. These strata, seventy in number for each urbanized area, were constructed

to contain approximately the same number of households in each.

Each of the seventy strata was then divided into a number of small area segments having boundaries which could easily be identified in the field by the interviewers. Each such area segment contained one or more clusters of households or sampling units. The number of sampling units or interviewer work loads assigned to each area segment was based on data available on the number of occupied dwelling units located within these segment boundaries. These data were obtained from a variety of sources including 1950 block statistics, 1950 enumeration district statistics, state highway maps, etc.

The geographic strata in each city were all constructed to contain the same number of sampling units with the exception of Detroit. In the central city portion of Detroit, the area strata for the tracts in the white zone (that is, the tracts with at least 90 percent of their 1950 dwelling units occupied by white families) were constructed to contain twice as many sampling units as the remaining area strata established for the Detroit urbanized area sample. Initially, two sampling units were selected with equal probability and without replacement from each of the geographic strata, yielding a sample total of 140 sampling units for each urbanized area.

The sample selection was accomplished by choosing two random numbers for each stratum between one and the total number of sampling units in the stratum. Thus, the sampling rate was the same for all geographic strata within a city with the exception of those comprising the white zone in Detroit referred to above. Since these strata contained twice as many sampling units as the remaining geographic strata in Detroit they were sampled at one-half the rate of the remaining strata in that urbanized area. The disproportionate sampling in Detroit was deemed necessary to yield sufficient interviews with non-white families for separate tabulation.

The number of strata and sampling units for the central cities and the remaining portions of the three urbanized areas are shown in the following table:

Appendix Table 1

NUMBER OF STRATA AND SAMPLING UNITS OF
URBANIZED AREAS INCLUDED IN THE
MOTIVATION SURVEY

Area	Number of strata	Sampling units per stratum
Boston Urbanized Area		
Boston city	25.0	1,454
Outside city	45.0	1,454
Birmingham Urbanized Area		
Birmingham city	52.0	298
Outside city	18.0	298
Detroit Urbanized Area		
Detroit city, white zone	25.5	2,560
Detroit city, non-white	15.5	1,280
Outside city	29.0	1,280

The decision to include a sample of non-white households in Orangeburg, South Carolina was made after the sample for the three principal urbanized areas was designed and selected. The expected sample size in each of the three urbanized areas was then reduced from 840 households to 725 households in order to shift a portion of the field budget to the survey to be conducted in Orangeburg County. Rather than design and select a new sample in each of the three urbanized areas, twenty sampling units in Birmingham, thirteen in Boston, and twenty-eight in Detroit were discarded at random with a condition that no more than one sampling unit would be discarded from any one stratum.

Strict field procedures were employed to determine the eligible households associated with the selected sampling units in an unbiased manner. The interviewers were required to list the occupied dwelling units in each area segment containing a selected sampling unit in advance of the interviewing. The listings showed addresses and other necessary identification for all dwelling units located within the boundaries of each area segment. The enumerators were provided with maps showing these boundaries, as well as the starting point and direction to take through the segment for listing

purposes. These lists were then returned to the Philadelphia office of the A. J. Wood Research Corporation where they were checked. Next, the dwelling units on each list which were associated with the selected sampling units were marked for interviewing. For example, if a given area segment was assigned three sampling units and the random selection had designated the second sampling unit, the list was first divided into three equal parts and then the dwelling units listed in the second of the three parts were marked for interview. The few sampling units in each urbanized area which contained more than 12 households selected for interview were subsampled. The lists were then returned to the interviewers for interviewing.

The interviewers were instructed to interview the sample (marked) households on the list and any other household (not shown on the list) found between a sample household and the next one listed. Thus households which might have been omitted in the pre-listing were included; and changes occurring after the pre-listing were accounted for. Interviews in the sample households were conducted with the person mainly responsible for planning the meals. Where the person designated for interview was not at home on the first call, succeeding calls up to a total of three were made on different days or evenings. (In some instances more than three calls were made)

The sample design for the Orangeburg County, South Carolina sample was similar in many respects. After preparing an ordered list of the enumeration districts falling in the rural portion of the county, sampling units were assigned to the enumeration districts according to the number of dwelling units occupied in 1950 by non-white households contained in each. These sampling units were then grouped into geographic strata, 21 in total, with each stratum containing 55 sampling units. Two sampling units were selected at random without replacement from each stratum, yielding a total of 42 sampling units for the sample. Next, maps of each of the area segments containing a selected sampling unit were prepared and the interviewers listed all dwelling units falling within the area segment, classifying these dwelling units according to whether they were occupied by white households or

non-white households or were vacant. The location of each dwelling unit was marked on the segment map and numbered; this same number was used on the listing sheet.

Field Work

Training sessions with the supervisors and interviewers were conducted in each of the survey areas by members of the Philadelphia office staff of the A. J. Wood Research Corporation. Initial field work was checked for quality and understanding of the instructions.

In addition to the check of the initial interviews, the area supervisors were required to conduct a preliminary edit of all work turned in and to check 10 percent of each interviewer's work by telephone. A further verification check on the field staff was carried out by the home office by means of a check-card-mailing to 33 percent of the respondents in each city.

A total of 2,385 households were designated for interview in this survey; 706 in Birmingham, 743 in Boston, 716 in Detroit and 220 in Orangeburg. Interviews were completed in 1,947 of the sample households. The reasons for the non-interviews are tabulated in Appendix Table 2.

Data Processing Procedures

All questionnaires were edited upon receipt in the Philadelphia office and those which were incomplete or contained questionable responses were returned to the field supervisors for re-interview. The coding department then prepared tabulations of the open-end questions from a sample of the completed interviews from each survey area. Codes for these questions were established and coding instructions prepared and reproduced.

The questionnaire and coding procedures were explained and reviewed with the coders. The open-end questions were reserved for coding by the most experienced coders only. Answers to open-end questions which were not readily classified into specific code categories were held aside for review by the coding supervisor and project director. Specific

categories for the latter cases were established when necessary.

The work of all coders was checked by the coding supervisor until an acceptable level of coding consistency was achieved both between and within coders. Thereafter a 10 percent check for the purpose of maintaining this consistency level was carried out.

The punch cards were then prepared and weighted as follows: In Detroit, the interviews completed in sampling units selected from the white zone were duplicated once since these interviewer assignments had one-half the probability of being included in the sample as did the remaining sampling units chosen for this survey in that city. In addition the punch cards for interviews completed in assignments which had been subsampled were weighted according to the subsampling rates. No attempt was made to substitute or weight for households designated for the sample but not interviewed.

The punch cards then received a thorough error and consistency check on the IBM Electronic Statistical machine. Where necessary the punch cards were corrected by reference to the specific questionnaires corresponding to the cards in question.

Sampling Errors

The sampling error for a particular estimate serves as a guide to the confidence with which this estimate can be used. It is a measure of the closeness of the sample estimate to the result which would

be obtained from a complete census of the population sampled, using the same questionnaire, interviews and interviewing procedures.

Practically all of the estimates developed from the data collected in this study are simple percentages of the respondents having a particular opinion or characteristic. In technical terminology, these percentages are actually combined strata ratio estimates, since the sample design employed extensive geographic stratification and cluster sampling, in which the number of respondents in each cluster was subject to random sampling variation. Thus, sampling errors were computed using the formula for the variance of a ratio estimate.

This formula contains variance measures for the cluster average of both the numerator and denominator of the computed proportion or percentage estimate, as well as a covariance measure for these two averages. These measures were computed from the average variance between clusters within strata.

The chances are approximately 2 to 1 that the error, due to sampling, in a particular estimate, will not exceed one standard error; the chances are 19 to 1 against a deviation as large as two standard errors from the result which would be obtained with a complete census using the same procedures.

Estimates of the standard errors for several items included among the guided association questions are shown in Appendix Table 3.

Appendix Table 2

REASONS FOR NON-INTERVIEWS

Designation	Birmingham		Boston		Detroit		Orangeburg County, South Carolina	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Total households designated for interview	706	100	743	100	716	100	220	100
Total households interviewed	585	83	553	74	609	85	200	91
Total households designated but not interviewed	121	17	190	26	107	15	20	9
<u>Reasons for non-interviews</u>								
Not-at-home (3 or more calls)	60	9	65	9	38	5	15	7
Refused	29	4	62	8	46	6	4	2
Other <u>1/</u>	24	3	60	8	17	2	1	(2)
Not eligible <u>3/</u>	8	1	3	(2)	6	1	-	-

1/ This category includes sickness of eligible respondent, language difficulty, and vacancy of dwelling unit on succeeding call.

2/ Less than 1 percent.

3/ These were households where main meals were not eaten at home.

Appendix Table 3

SAMPLING ERRORS

Question	Item	Percent who agree	Estimated standard error in percentage points
1	Tuna has a good flavor:		
	Birmingham	85.4	1.9
	Boston	86.0	2.1
	Detroit	87.0	1.4
2	Tuna has an unpleasant smell:		
	Birmingham	35.0	2.6
	Boston	20.3	1.7
	Detroit	32.8	2.1
8	Tuna is expensive compared to other canned fish:		
	Birmingham	41.7	2.6
	Boston	9.8	1.4
	Detroit	34.1	2.6
23	Tuna is too troublesome to prepare:		
	Birmingham	9.6	1.2
	Boston	4.2	0.9
	Detroit	4.6	0.8

QUESTIONNAIRE

Stratum No. 3,4 Segment No. 5 Unit No. 6

Bureau of the Budget
No. 42-5901
Auth. Expires June 30, 1959

City 7

INTERVIEW THAT PERSON MAINLY RESPONSIBLE FOR PLANNING THE MEALS SERVED IN THE HOUSEHOLD

RECORD OF CALL:

	Date	Interview	Not at Home	Refusal	Other (SPECIFY)
1st Call					
2nd Call					
3rd Call					

A. J. WOOD RESEARCH CORPORATION
PART A - GUIDED ASSOCIATION QUESTIONS
CANNED FISH STUDY

Time Interview Started:
_____ A.M. _____ P.M.

Introduce yourself as being from the A. J. Wood national research corporation doing a study for the U. S. Government. Then say, "I am going to make several statements about three types of canned fish. After I make the statement will you tell me how you feel about it, if you agree or disagree" (Interviewer will grade intensity of feeling by respondent's statement, attitude, tone, etc.)

PART A

(READ EACH STATEMENT INSERTING EACH VARIETY OF CANNED FISH)		Strongly agree	Agree	Disagree	Strongly disagree	Don't know or Indifferent
1. _____ has a good flavor.	Sardine	9-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
2. _____ has an unpleasant smell.	Tuna	10-1	-2	-3	-4	
	Sardine	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
3. _____ leaves a bad odor in the refrigerator.	Salmon	11-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
4. _____ has a pleasant aftertaste, that is after it has been eaten.	Tuna	12-1	-2	-3	-4	
	Sardine	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
5. _____ can size is about right for my household.	Sardine	13-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
6. _____ is undesirably oily.	Tuna	14-1	-2	-3	-4	
	Salmon	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
7. _____ is a food of high quality.	Salmon	15-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	

(READ EACH STATEMENT
INSERTING EACH VARIETY
OF CANNED FISH)

		Strongly agree	Agree	Disagree	Strongly disagree	Don't know or Indifferent
8. _____ is expensive, com- pared to other canned fish.	Tuna	16-1	-2	-3	-4	
	Salmon	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
9. _____ has a nice ap- pearance when you open the can.	Salmon	17-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	

Tell me what you think immediately when I ask the following questions.

	Coffee	Tea	Milk	Beer	Soft Drink	Fruit Juice or Punch	Other
10. What beverages go best with <u>sardines</u> ?	---	---	---	---	---	----	_____
11. What beverages go best with <u>salmon</u> ?	---	---	---	---	---	----	_____
12. What beverages go best with <u>tuna</u> ?	---	---	---	---	---	----	_____

(READ EACH STATEMENT
INSERTING EACH VARIETY
OF CANNED FISH)

		Strongly agree	Agree	Disagree	Strongly disagree	Don't know or Indifferent
13. _____ does not have many uses.	Sardine	21-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
14. _____ is mainly eaten by manual laborers.	Tuna	22-1	-2	-3	-4	
	Sardine	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
15. _____ is used by people who are in- experienced cooks.	Salmon	23-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
16. _____ is hard to make look good to eat.	Tuna	24-1	-2	-3	-4	
	Sardine	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
17. _____ is used a great deal by Negroes.	Salmon	25-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
18. _____ is often eaten by sick people.	Tuna	26-1	-2	-3	-4	
	Sardine	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	

(READ EACH STATEMENT
INSERTING EACH VARIETY
OF CANNED FISH)

		Strongly agree	Agree	Disagree	Strongly disagree	Don't know or Indifferent
19. _____ is usually eaten only by children.	Salmon	27-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
20. _____ is not eaten by people trying to lose weight.	Sardine	28-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
21. _____ is a convenient food for a busy housewife.	Salmon	29-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Sardine	-9	-0	-X	-Y	
22. _____ is only good if it is a well-known brand.	Tuna	30-1	-2	-3	-4	
	Sardine	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
23. _____ is too troublesome to prepare.	Sardine	31-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
24. _____ is food for poorer people.	Sardine	32-1	-2	-3	-4	
	Tuna	-5	-6	-7	-8	
	Salmon	-9	-0	-X	-Y	
25. Canned <u>shrimp</u> are equal in quality to fresh shrimp.	X	33-1	-2	-3	-4	
26. Canned <u>shrimp</u> are less costly than fresh shrimp.	X	-5	-6	-7	-8	

PART B

TUNA

A-1. During the last 12 months have you served canned tuna? Yes-----34-1
No----- -2

IF "NO," SKIP TO NON-USER SECTION

B-1. During the past 4 weeks, about how often did you serve canned tuna?

1 time----- -3
2 times----- -4
3 times----- -5
4 times----- -6
5 times or more
(SPECIFY) _____

Did not serve----- -X
Don't know----- -Y

IF NO TUNA SERVED IN LAST 4 WEEKS,
SKIP TO NON-USER SECTION

1. TUNA USERS ONLY

Who in your family eats tuna?

Entire family?-----35-1
or only
Husband,----- -2
Respondent,----- -3
Children 5 or under,----- -4
Children 5 - 10,----- -5
Children 11 - 15,----- -6
Male children over 15,----- -7
Female children over 15,----- -8
Other adults?----- -9

2. Which style of canned tuna do you like best...

Chunk,-----36-1
Solid,----- -2
Grated or flake?----- -3

2a. How often do you buy that style of tuna...

Always buy,----- -4
Usually buy,----- -5
Sometimes buy,----- -6
Rarely?----- -7

2b. How many times, approximately, in the last six months have you served your favorite style of tuna?

1-10----- -8
11-20----- -9
21-30----- -0
31-40----- -X
Over 40----- -Y

2c. Why do you like this particular style of tuna? _____ 37-

PROBE

3. Which color tuna do you like better...

White-----38-1
or Light (pink)?----- -2

3a. How often do you buy that color tuna...

Always,----- -3
Usually buy,----- -4
Sometimes buy,----- -5
Rarely?----- -6

3b. Why do you like that color tuna? _____

PROBE

4. Have you ever tried tuna packed in oil? Yes-----39-1
No----- -2

IF "YES"

4a. What do you like about tuna packed in oil? _____

PROBE

4b. What do you dislike about tuna packed in oil? _____

PROBE

- 4c. Do you use the oil or pour it off? Use----- -X
Pour off----- -Y

ASK Q. 4ca IF "POUR OFF"

4ca. Why do you pour it off? _____

5. Have you ever tried tuna packed in brine,
that is salt water? Yes-----40-1
No----- -2

IF "YES" IF "NO," SKIP TO QUESTION 5h

5a. What do you like about tuna packed in brine? _____

PROBE

5b. What do you dislike about tuna packed in brine? _____

PROBE

- 5c. Do you prefer light or white meat tuna
packed in brine? Light-----41-1
White----- -2

- 5d. Do you prefer solid, chunk or flake (grated)
tuna packed in brine? Solid----- -3
Chunk----- -4
Flake----- -5

- 5e. Which has more uses, tuna packed in...
Brine,----- -6
or Oil?----- -7

- 5f. Which has the better taste, tuna packed in...
Brine,----- -8
or Oil?----- -9

- 5g. Which do you like better...
Brine,----- -0
or Oil?----- -X

- 5ga. How often do you buy tuna packed in
that liquid... Always,-----42-1
Usually,----- -2
Sometimes,----- -3
Rarely?----- -4

IF RESPONDENT DOES NOT "ALWAYS BUY," ASK QUESTIONS 5gaa AND 5gab

- 5gaa. How many times, approximately, in the last
six months have you served tuna packed in
your favored liquid? 1-10----- -5
11-20----- -6
21-30----- -7
31-40----- -8
Over 40----- -9

5gab. Why do you buy something other than your preference?

PROBE

IF "NO" ON QUESTION 5

- 5h. Why haven't you tried tuna packed in brine? _____ 43-
-
6. Do you think the oil tuna is packed in has a pleasant taste or an unpleasant taste? Pleasant-----44-1
Unpleasant----- -2
7. How much more would you pay for a half pound size can of tuna packed in oil rather than in brine? 1¢----- -3
2¢----- -4
3¢----- -5
4¢----- -6
5¢----- -7
6¢ or more----- -8
No more----- -9
8. Which do you think is more fattening, tuna packed in... Brine,----- -X
or Oil?----- -Y
9. How do you serve tuna, hot or cold or both ways? Hot-----45-1
Cold----- -2
Both----- -3

IF ONLY "HOT" OR ONLY "COLD"

- 9a. Why don't you serve tuna (hot/cold)? _____
-

PROBE

10. Have you ever gotten a tuna recipe from a...
Newspaper advertisement?-----46-1 Newspaper food column?----- -2
Magazine advertisement?----- -3 Magazine food column?----- -4
Television advertisement?----- -5 TV service program?----- -6
Radio advertisement?----- -7 Radio service program?----- -8
Friend(s)?----- -9 Can label?----- -9
Other source (SPECIFY) _____
-
11. Do you buy tuna for day to day use, or do you buy several cans at one time? Day to day-----47-1
Several cans----- -2
12. The last time you bought tuna - did you plan to buy it before you went to the store or did you decide on it at the store? Planned----- -3
Not planned----- -4

IF NOT PLANNED

- 12a. What made you decide to buy it? _____
-

PROBE - ESPECIALLY PRICE

ASK QUESTION 13 ONLY OF PEOPLE WITH CHILDREN

13. Do your children ever ask for tuna? Yes-----48-1
No----- -2

IF "YES"

- 13a. Do you serve it as often as they ask for it? Yes----- -3
No----- -4

IF "NO"

- 13aa. Why don't you serve them tuna more? _____
-

PROBE

ASK QUESTION 14 ONLY OF PEOPLE WITH CHILDREN

14. Are your children served tuna at school as a part of the hot lunch program? Yes-----49-1
No----- -2
Don't know----- -3
15. What would induce you to serve more tuna? _____

PROBE

16. Was tuna served in your home when you were a child? Yes----- -X
No----- -Y
17. Have you ordered tuna in a public eating place in the last two months? Yes-----50-1
No----- -2

IF "YES"

- 17a. How many times in the last two months have you ordered tuna in any form? 1 to 3 times----- -3
4 to 6 times----- -4
7 to 9 times----- -5
10 to 12 times----- -6
Over 13 times----- -7

- 17b. What kinds of dishes did you order? (SPECIFY)
- _____
- _____

- 17c. Generally speaking, what day of the week did you order tuna in a public eating place? Monday-----51-1
Tuesday----- -2
Wednesday----- -3
Thursday----- -4
Friday----- -5
Saturday----- -6
Sunday----- -7

IF MORE THAN ONE DAY MENTIONED,
CIRCLE ALL DAYS MENTIONED

- 17d. Generally at what time did you order tuna in a public eating place? Morning----- -8
Lunch----- -9
Afternoon----- -0
Dinner----- -X
Evening----- -Y

IF MORE THAN ONE TIME MENTIONED,
CIRCLE ALL TIMES MENTIONED

18. Besides yourself, has anyone eating with you ordered tuna in a public eating place in the past two months? Yes-----52-1
No----- -2

IF "YES"

- 18a. Who was it? Spouse----- -3
Child----- -4
Friend or other relative----- -5

TUNA - NON-USER SECTION

ASK OF PEOPLE WHO HAVE NOT
SERVED TUNA IN LAST 12 MONTHS

1. Why don't you use tuna?

35-

PROBE

2. Did you ever use tuna in the past?

Yes-----36-1
No----- -2

IF "YES" ←

2a. How long ago did you use it? _____ years

2b. Why did you stop using tuna?

37-

PROBE

ASKED OF PEOPLE WHO SERVED TUNA IN PAST
12 MONTHS, BUT NOT IN PAST 4 WEEKS

3. Why do you use tuna so seldom?

38-

PROBE

4. Did you use tuna more often in the past?

Yes-----39-1
No----- -2

IF "YES" ←

4a. Why have you reduced the number of times you serve it?

40-

PROBE

5. Was tuna served in your home when you were a child?

Yes-----41-1
No----- -2

6. Does anyone living in the house like tuna?

Yes----- -3
No----- -4

PART E

ASK ALL RESPONDENTS

1. Have you seen or heard any advertising for canned tuna? Yes-----77-1
No----- 2

IF "YES"

- 1a. Have you seen or heard it... In magazines,----- -3
On radio,----- -4
On television,----- -5
In newspapers?----- -6

2. Have you seen or heard any advertising for canned salmon? Yes----- -7
No----- -8

IF "YES"

- 2a. Have you seen or heard it... In magazines,----- -9
On radio,----- -0
On television,----- -X
In newspapers?----- -Y

3. Have you seen or heard any advertising for canned sardines? Yes-----78-1
No----- 2

IF "YES"

- 3a. Have you seen or heard it... In magazines,----- -3
On radio,----- -4
On television,----- -5
In newspapers?----- -6

4. Have you seen or heard advertising for canned shrimp? Yes----- -7
No----- -8

IF "YES"

- 4a. Have you seen or heard it... In magazines,----- -9
On radio,----- -0
On television,----- -X
In newspapers?----- -Y

5. Do you use canned shrimp? Yes-----79-1
No----- 2

IF "YES" ←

- 5a. Do you use the veined or de-veined variety, or both? Veined----- -3
De-veined----- -4
Both----- -5

IF "BOTH" ←

- 5aa. Which do you like better... Veined,----- -6
or de-veined?----- -7

6. Which kind of canned fish do you like best... Tuna,----- -8
Salmon,----- -9
Sardines,----- -0
Shrimp?----- -X

CLASSIFICATION DATA

1. MARITAL STATUS:
 Married-----70-1
 Single----- -2
 Widowed, divorced, etc.----- -3

5. What was the last grade you completed in school?
 Less than 8th-----76-1
 8th through 12th----- -2
 College----- -3

- 1a. How many people eat dinner at home with you? (CIRCLE ONE)
 1 2 3 4 5 6 7 8 9 10 or more
 71-1 -2 -3 -4 -5 -6 -7 -8 -9 -0

6. How long have you lived in this city?
 1 year or less----- -4
 More than 1 to 5 years----- -5
 More than 5 to 10 years----- -6
 More than 10 to 15 years----- -7
 More than 15 years----- -8

IF NOT SINGLE, ASK QUESTIONS 1b AND 1c

ASKED ONLY OF COLORED HOUSEHOLDS

- 1b. How many children eat dinner at home? (CIRCLE ONE)
 0 1 2 3 4 5 6 7 8 9 10 or more

IF LESS THAN 15 YEARS, ASK QUESTION 6a

- 1c. What are their approximate ages?

- 6a. Where did you come from?
 Northern state----- -9
 Southern state----- -0
 Foreign country----- -X

IF MARRIED, ASK QUESTION 1d

ASK ALL RESPONDENTS

- 1d. What is your husband's job?
 Executive, professional, merchant or own business-----72-1
 Clerical or sales personnel----- -2
 Manual skilled, semi-skilled or unskilled worker----- -3
 Retired, unemployed, or student----- -4
 Other (SPECIFY) _____

7. Where were you born?
 Northern state-----77-1
 Southern state----- -2
 Foreign country (SPECIFY) _____

2. Do you work? Yes-----73-1
 No----- -2

IF NATIVE BORN

IF "YES," ASK QUESTION 2a

8. Were both of your parents born in this country? Yes-----78-1
 No----- -2

- 2a. What is your job?
 Executive, professional, merchant or own business----- -3
 Clerical or sales personnel----- -4
 Manual skilled, semi-skilled or unskilled worker----- -5
 Retired, unemployed, or student----- -6
 Other (SPECIFY) _____

IF "NO"

- 8a. In what country(s) were they born? (SPECIFY)
 Father _____
 Mother _____

HAND RESPONDENT CARD #4

9. Ten years ago did you live in...
 open country,-----79-1
 suburbs,----- -2
 city?----- -3

3. Would you tell me which letter indicates the age you are? (CIRCLE ONE)
 A B C D E
 74-1 -2 -3 -4 -5

10. The religious background of a family at times influences eating habits. With what religion is your family most closely associated?
 Protestant----- -4
 Catholic----- -5
 Jewish----- -6
 Other (SPECIFY) _____

HAND RESPONDENT CARD #5

4. Would you tell me into which group your total family income falls? (CIRCLE ONE)
 A B C D E
 75-1 -2 -3 -4 -5

AUTOMATIC CLASSIFICATION

11. RACE: White-----80-1
 Negro----- -2
 Other non-white----- -3
12. LOCATION OF DWELLING:
 City----- -4
 Suburb----- -5

Name _____ Tele. No. _____
 Address _____ City _____ State _____
 Interviewer's Signature _____ Date _____

Time Interview Completed:
 _____ A.M. _____ P.M.

MBL WHOI Library - Serials



5 WHSE 00200

