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Consumer Preferences for Irradiated Oysters

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Introduction

Vibrios are naturally occurring in estuarine environments throughout the world. A few strains of *Vibrio vulnificus* and *Vibrio parahaemolyticus* have been proven to cause illness in humans. A review of *Vibrio*-related illnesses in Florida from 1981–1994 showed that 69% of these illnesses were from gastroenteritis and 31% from primary septicemia, causing several deaths mainly from primary septicemia (Hlady, 1997). During that period, there were 15–30 fatalities from *Vibrio vulnificus* infections each year. The deaths occurred in immunocompromised individuals, most of whom had liver disease. In 1999, the Centers for Disease Control reported 218 cases — 93% from seafood and 67% from oysters — resulting in 25 deaths (Cook, 2001). Curlale and Vestegaard (2001) estimated there are approximately 8,000 cases of *Vibrio* illness with 31 deaths each year. Most cases presented mild symptoms and did not require a physician's care, thus were not officially reported.

Several postharvest processes for remediation of *Vibrios* in oysters have been investigated, including irradiation processing. Irradiation, which involves exposing food briefly to radiant energy, can reduce or eliminate microorganisms that contaminate food or cause spoilage (Steele, 2001). Irradiation is used to extend the shelf life of raw and processed foods in many countries (Thakur and Singh, 1995). Ionizing radiation of fresh aquaculture fish is an effective and safe method of extending shelf life and improving quality and safety (Pigott, 1988). U.S. food manufacturers are currently allowed to irradiate raw meat and poultry to control microbial pathogens. They began marketing irradiated beef products in mid-2000 (Frenzen et al., 2001).

Irradiation processing of live oysters has been investigated for more than 15 years. Use of irradiation to remediate environmental strains of *Vibrio* has proven successful with low doses of gamma irradiation (<1.0 kGy) from Cobalt-60 (Grodner and Hinton, 1988; Grodner and Watson, 1989; Kilgen et al., 1995). In previous irradiation studies, researchers used naturally occurring environmental strains of *Vibrio vulnificus* and *Vibrio parahaemolyticus.* Andrews et al. (2002) used two highly infectious strains of *Vibrio* isolated from patients stricken with the diseases in oyster irradiation experiments. Cook (2001) showed that highly infectious strains such as *V. parahaemolyticus* 03:K6 are among the most resistant *Vibrios* to processing.

One objective of our oyster irradiation study was to determine the effect of irradiation on pathogenic strains

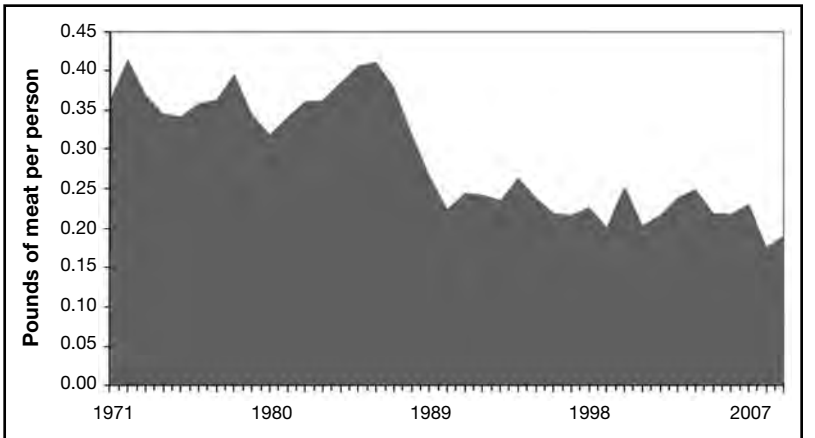

Figure 1. Apparent per capita consumption of oyster products, United States, 1971-2009. Sources of raw data: National Marine Fisheries Service (1977, 1987, 1997, 2007, 2010).

of *Vibrio* isolates obtained from known illnesses attributed to oyster consumption (Andrews et al., 2002). In addition, we examined the ability of consumers to differentiate irradiated oysters from untreated control oysters and conducted a survey of consumer attitudes toward food irradiation and irradiated oysters (Andrews et al., 2002). Results indicated that irradiation of 1–1.5 kGy was effective in reducing both pathogenic and nonpathogenic *Vibrios* to nondetectable levels. Oysters treated with less than 1.5 kGy did not develop significant sensory changes and maintained good-quality shelf life for more than 15 days. By triangle difference testing, panelists were shown to be unable to distinguish irradiated oysters from nonirradiated oysters.

The apparent per capita U.S. oyster consumption stood at about 0.35 pound per year between 1970 and 1989. It began declining to less than 0.25 pound per year in 1990 (Figure 1). Oyster consumption is determined by several factors varying across regions, ethnic origins, income levels, age groups, gender, and awareness of potential risks. Consumer acceptance of irradiated food is a vital factor in the successful commercialization of the irradiation process, and information dissemination can contribute to this acceptance (FAO, 1990). Blumenthal (1990) reported that the difficulty in consumer acceptance of irradiated foods is based on a lack of public knowledge about irradiation coupled with the impossibility of proving the absence of risk.

Frenzen et al. (2001) fitted a logistic regression model of willingness to buy irradiated meat or poultry using data covering 11% of the U.S. population. Nearly half (49.8%) of the 10,780 adult respondents were willing to buy irradiated meat or poultry. Consumer acceptance of these products was associated with male gender, greater education, higher household income, food irradiation knowledge, household exposure to raw meat and poultry, consumption of animal flesh, and geographic location.

The overall goal of the consumer survey was to evaluate consumer attitudes and preferences toward irradiated oysters. Specific objectives of the survey included the following:

(1) Compare the socioeconomic characteristics of consumers and nonconsumers of raw oysters;
(2) Determine reasons for not eating raw oysters, as well as food safety concerns about eating them;
(3) Evaluate consumption patterns for raw oysters;
(4) Evaluate consumer attitudes toward radiation and irradiated raw oysters; and
(5) Evaluate consumer willingness to buy and to pay for irradiated raw oysters.

Blumenthal (1990) further stated that although the shift toward consumer acceptance has been quite minimal, market tests have shown that once consumers are educated regarding food irradiation, they will buy irradiated foods. It was expected that the results from our consumer survey would identify quality attributes important to consumers and guide processors, distributors, and researchers in developing and promoting irradiated raw oyster products. Additional surveys on irradiated raw oyster consumption would be conducted in selected Metropolitan Statistical Areas (MSA).

METHODS

Sources of Data

Consumer attitudes and preferences toward raw and irradiated oysters were evaluated from results of consumer surveys conducted through personal and telephone interviews. Seventy-five personal interviews were conducted at the MSU Coastal Aquaculture Unit (CAU) Open House in Gulfport, Mississippi, on December 6, 2001. Another survey was conducted at the MSU Coastal Research and Extension Center (CREC) booth and exhibit among 140 participants of the 2002 International Boston Seafood Show (IBSS) in Boston, Massachusetts, on March 12–14, 2002.

The Survey Research Unit of the Mississippi State University Social Science Research Center conducted telephone interviews with simple random samples of adults living in the Baltimore and Houston Metropolitan Statistical Areas (MSA) in June 2002. Households were selected using random-digit dialing procedures (this includes households with unlisted numbers). Callers asked to speak with a person in each household who was 18 or older; they randomly asked for the person who had the next birthday or the last birthday. Of the randomly selected eligible adult respondents in the Baltimore MSA, 610 people completed the inter-

view, and 85 refused to participate. Another 62 households refused to participate before screening. Of the eligible respondents in the Houston MSA, 606 completed the interview, and 67 refused to participate. Another 71 households refused to participate before screening. The sampling error (binomial questions with 50% probability) for both surveys was no larger than ± 4% (95% confidence level).

Statistical Analysis

Results of the consumer survey were categorized into consumers and nonconsumers of raw oysters. Consumers were those respondents who reported eating raw oysters in 2001. Chi-square analysis was used to compare qualitative responses between consumers and nonconsumers of raw oysters and socioeconomic characteristics of respondents. Analysis of variance (ANOVA) was used to compare quantitative responses between consumers and nonconsumers. The socioeconomic characteristics (SEC) of participating respondents included in the analysis were gender, marital status, income, race, age, formal education, safety issues, and prices.

Respondents were asked whether or not they ate raw oysters. If they did not, they were asked to indicate their main reasons for not eating raw oysters (Appendix A). They were also asked about their primary food safety bacteriological concerns about raw oysters, as well as their frequency of eating and sources of the product. A series of questions measured their attitudes toward radiation and irradiated oysters, interest in buying irradiated raw oysters, and willingness to pay for a dozen irradiated raw oysters if purchased in the supermarket. Respondents also identified personal characteristics, including gender, marital status, age, household income, and educational attainment.

Results and Discussion

Survey Location

The location of the respondents influenced their decisions to consume raw oysters in 2001 (Table 1). More respondents reported eating raw oysters in 2001 at the Boston Seafood Show and at the Gulfport aquaculture open house than those who were interviewed by telephone in Baltimore and Houston. More than 60% of the respondents in Boston (n=141) and Gulfport (n=75) reported eating raw oysters, while 28% of the respondents in Baltimore (n=610) and Houston (n=606) reported eating raw oysters in 2001. Overall, one-third of all the respondents reported eating raw oysters in 2001.

Respondents' Socioeconomic Characteristics

Consumption of raw oysters was strongly influenced by respondents' gender, race, and household income. Marital status, age, and educational attainment, on the other hand, did not have any significant effects. About 48% of the males ate raw oysters in 2001, while 22% of females ate them (Table 2).

Differences in raw oyster consumption were also observed among respondents of different ethnic origins (Table 3). The percent of respondents who consumed raw oysters in 2001 was highest for whites (39%), followed by Asians or Pacific Islanders (34%), Hispanics (29%), mixed races (29%), and American Indians (25%). A lesser percentage of African-American respondents reported eating raw oysters (13%).

Table 1. Number and percent of respondents by location and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
Boston	89	63	52	37	141	100
Gulfport	46	61	29	39	75	100
Houston	170	28	436	72	606	100
Baltimore	168	28	442	72	610	100
Total	473	33	959	67	1,432	100
Chi-square value = 118.963 ***						

*** statistically significant at 0.001.

Table 2. Number and percent of respondents by gender and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
Male	293	48	322	52	615	100
Female	175	22	628	78	803	100
Total	468	33	950	67	1,418	100
Chi-square value = 107.047 ***						

*** statistically significant at 0.001.

Table 3. Number and percent of respondents by race and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
White	377	39	601	61	978	100
African American	31	13	214	87	245	100
Hispanic	25	29	61	71	86	100
Asian or Pacific Islander	12	34	23	66	35	100
American Indian	3	25	9	75	12	100
Other (e.g., mixed races)	2	29	5	71	7	100
Total	450	33	913	67	1,363	100
Chi-square value = 61.152 ***						

*** statistically significant at 0.001.

Table 4. Number and percent of respondents by annual household income group and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
Less than 20,000	20	19	86	81	106	100
20,000–39,999	60	29	148	71	208	100
40,000–59,000	62	31	140	69	202	100
60,000–79,999	80	45	99	55	179	100
80,000 and above	135	46	159	54	294	100
Total	357	36	632	64	989	100
Chi-square value = 61.835 ***						

*** statistically significant at 0.001.

Annual household income had a very strong relationship with raw oyster consumption. The percent of respondents eating raw oysters rose as household income increased. About 19% of respondents with annual household income below $20,000 reported eating raw oysters in 2001 (Table 4). In the highest income group ($80,000 and above), 46% reported consuming raw oysters during the same year.

Respondent age was also related to raw oyster consumption. The percent of raw oyster consumers was 24% in the 18–29 age group, reached a peak of 42% in the 40–49 group, and declined to 18% in the 70 and above age group (Table 5).

Reasons for Not Eating Raw Oysters

Respondents who did not eat raw oysters cited several factors that influenced their consumption decisions (Table 6). The leading reason cited by 34% of the nonconsumers was that they think oysters would taste bad. About 29% of the nonconsumers considered the appearance of oysters as a limiting factor. Sliminess was selected by 22% of the nonconsumers as a negative characteristic of raw oysters. The other reasons cited by nonconsumers included smell, color, "think grit/internal waste is bad," "personal safety concerns-illness," and "don't like new things/no specific reason."

Awareness of Danger of Eating Raw Oysters

More than two-thirds of all respondents were aware of the potential danger of eating raw oysters (Table 7). Among raw oyster consumers, 81% stated that they were aware of the danger of eating raw oysters. On the other hand, 60% of nonconsumers reported that they were aware of the danger of eating raw oysters.

Table 5. Number and percent of respondents by age group and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
18–29	64	24	203	76	267	100
30–39	94	33	195	67	289	100
40–49	147	42	205	58	352	100
50–59	82	35	150	65	232	100
60–69	38	34	74	66	112	100
70–96	18	25	53	75	71	100
Unknown	30	28	78	72	108	100
Total	473	33	958	67	1,431	100
Chi-square value = 26.063 ***						

*** statistically significant at 0.001.

Table 6. Number and percent of nonconsumers who cited reasons for not eating raw oysters.

Reason	Number	Percent
Think would taste bad	326	34
Appearance	276	29
Slimy	215	22
Don't like new things/ no specific reasons	134	14
Personal safety concerns — illness	104	11
Smell	101	11
Think grit/internal waste is bad	54	6
Color	62	6
Allergies	26	3
Doctor's advice — illness	11	1

Table 7. Number and percent of respondents by awareness of the danger of eating raw oysters and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
Aware of danger	377	81	566	60	943	67
Not aware of danger	91	19	378	40	469	33
Total	468	100	944	100	1,412	100
Chi-square value = 61.286***						

*** statistically significant at 0.001.

Table 8. Nonconsumers who had primary bacteriological and food safety concerns about raw oysters.

Concern	Number	Percent
Salmonella	269	19
E. coli 0157:H7	253	18
Hepatitis virus	240	17
Vibrio vulnificus	90	6
Other bacterial concern	83	6
Vibrio cholera	74	5
Listeria monocytogenes	63	4
Norwalk virus	52	4

Bacteriological and Food Safety Concerns About Raw Oysters

Respondents revealed their primary food safety and bacteriological concerns about raw oysters (Table 8). About 17% of the respondents cited *E. coli 0157:H7*, 6% were concerned with *Vibrio vulnificus*, 4% mentioned *Listeria monocytogenes*, 5% voiced their concern about *Vibrio cholera*, and 19% were anxious about *Salmonella*. Other food safety concerns about raw oysters included Hepatitis virus (17%) and Norwalk virus (4%). Overall, more than three-fourths of the respondents did not have or did not know about any food safety and bacteriological concerns about raw oysters.

Frequency of Raw Oyster Consumption

When asked how often they ate raw oysters in 2001, 35% indicated never, 5% said more than 12 times, 16% stated less than six times, and 44% said between six and 12 times. On average, respondents reported eating raw oysters 5.9 times in 2001 (standard deviation, SD=34.5) combined over age, gender, race, educational attainment, household income, and marital status. ANOVA results showed that there were no statistical differences among the different socioeconomic groups in the number of times the respondents ate raw oysters in 2001 (Table 9).

Willingness to Buy and Pay for IRO

All respondents exhibited very limited interest in buying irradiated raw oysters (IRO). Only 21% were interested in buying IRO, while 71% were not interested and 8% did not know or were not sure (Table 10). Interest in buying irradiated raw oysters varied significantly between consumers and nonconsumers. Among consumers, 48% were interested and 41% were not interested in buying IRO; the rest did not know or were not sure (Table 11). An overwhelming majority of nonconsumers (85%) indicated that they were not interested in buying IRO; only 8% were interested, and 7% did not know or were not sure.

The relatively low level of interest in IRO was also reflected in the number of respondents who specified the prices they were willing to pay for IRO products. Only 17% specified their willingness to pay (WTP), which averaged $6.15 (SD = $2.69) for a dozen IRO at the supermarket. Raw oyster consumers offered a relatively higher (at level of significance = 0.08) WTP for

Table 9. Average and standard deviation of the frequency of eating raw oysters.

Age group	Number	Mean	Standard deviation
18–29	256	6.5	39.7
30–39	277	6.7	38.3
40–49	339	7.6	39.8
50–59	219	3.8	25.0
60–69	105	2.1	7.4
70 and above	70	2.0	6.7
Unknown	104	7.3	37.2
Total	1,370	5.9	34.5
F-value = 0.7.			

*** statistically significant at 0.001.

Table 10. Respondents' willingness to buy irradiated raw oysters by raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
Yes	225	48	76	8	301	21
No	196	41	818	85	1,014	71
Don't Know/Not Sure	52	11	64	7	116	8
Total	473	100	958	100	1,431	100
Chi-square value = 333.935 ***						

Table 11. Number and percent of respondents according to attitudes toward irradiation and raw oyster consumption.

Item	Consumer		Nonconsumer		Total	
	no.	%	no.	%	no.	%
After irradiation, oysters have the taste, texture, and appearance of fresh oysters.						
Yes	204	43	214	22	418	29
No	103	22	330	34	433	30
Don't Know/ Not Sure	166	35	414	43	580	41
Total	473	100	958	100	1,431	100
Chi-square value = 71.582 ***						
Health of humans consuming irradiated oysters would be affected because of radiation.						
Yes	135	29	382	40	517	36
No	263	56	343	36	606	42
Don't Know/ Not Sure	75	16	233	24	308	22
Total	473	100	958	100	1,431	100
Chi-square value = 54.906 ***						
Irradiated oysters become radioactive.						
Yes	57	12	168	18	225	16
No	337	71	530	55	867	61
Don't Know/ Not Sure	79	17	260	27	339	24
Total	473	100	958	100	1,431	100
Chi-square value = 39.750 ***						
Irradiation decreases nutritive value of oysters.						
Yes	138	29	337	35	475	33
No	248	52	331	35	579	40
Don't Know/ Not Sure	87	18	290	30	377	26
Total	473	100	958	100	1,431	100
Chi-square value = 53.589 ***						
Irradiation increases the health risks of workers.						
Yes	139	29	412	43	551	39
No	251	53	326	34	577	40
Don't Know/ Not Sure	83	18	220	23	303	21
Total	473	100	958	100	1,431	100
Chi-square value = 71.582 ***						
Irradiation technology can cause environmental pollution.						
Yes	146	31	374	39	520	36
No	248	52	314	33	562	39
Don't Know/ Not Sure	79	17	270	28	349	24
Total	473	100	958	100	1,431	100
Irradiation will increase food prices.						
Yes	269	57	597	62	866	61
No	153	32	190	20	343	24
Don't Know/ Not Sure	51	11	171	18	222	16
Total	473	100	958	100	1,431	100
Chi-square value = 40.558 ***						

IRO, which averaged $6.32 per dozen (SD = $2.77), as compared with nonconsumers, who offered $5.62 (SD = $2.36) per dozen.

Attitudes Toward Irradiation and Irradiated Oysters

Perceptions regarding the taste, texture, and appearance of irradiated raw oysters (IRO) varied significantly between consumers and nonconsumers of raw oysters. Less than half (43%) of consumers in 2001 said they believed that IRO have the same quality as fresh oysters (Table 11). However, 22% of nonconsumers stated that IRO have the same quality as fresh oysters. About 41% of all respondents did not have any knowledge or were not sure about the differences in the taste, texture, and appearance between IRO and fresh oysters.

Raw oyster consumers and nonconsumers had different views on the effects of radiation on the health of those who eat IRO. More than half (56%) of consumers believed that IRO consumption does not negatively affect human health. About 40% of nonconsumers were concerned about negative radiation effects of IRO consumption. Twenty-two percent of all respondents were unaware or unsure of the human health effects of radiation used to treat IRO.

Most respondents (61%) believed that irradiated oysters were not radioactive, while 16% thought these oysters were radioactive and 24% did not know or were not sure. More raw oyster consumers (71%) than nonconsumers (55%) considered IRO to be nonradioactive.

Respondents did not have very clear opinions on the effects of irradiation on the nutritive value of oysters. Fifty-two percent of raw oyster consumers said they believed that irradiation had no negative effects on the nutritive value of oysters. Nonconsumers were split evenly between positive and negative effects (35% each) of irradiation on the oyster's nutritive value.

Raw oyster consumers and nonconsumers held different views on the effects of irradiation on the health of workers. Consumers (53%) considered irradiation as safe to workers, while nonconsumers (43%) believed that irradiation would increase worker health risks.

Consumers and nonconsumers also displayed different perceptions of whether irradiation technology could cause environmental pollution. More consumers (52%) said they did not think irradiation technology could cause environmental pollution. More nonconsumers (39%), however, considered irradiation as a cause of environmental pollution.

Sixty-one percent of all respondents said they believed that irradiation would increase food prices, while 24% did not think it would and 16% did not know or were not sure. Almost one-third of consumers and one-fifth of nonconsumers of raw oysters, however, strongly believed that irradiation would not raise food prices.

Summary and Implications

Survey results showed that raw oyster consumption was strongly related to respondents' gender, race, and household income. Marital status, age, and educational attainment were not significantly related to raw oyster consumption. The three major reasons cited for not eating raw oysters were perceptions of taste, appearance, and sliminess. Most respondents either did not eat raw oysters or ate them between six and 12 times (average of 5.9) in 2001. A majority of the respondents were aware of the dangers of eating raw oysters. However, more than 75% did not have or did not know about any food safety and bacteriological concerns with raw oysters.

Perceptions of the taste, texture, and appearance of irradiated raw oysters as compared with fresh raw oysters varied significantly between consumers and nonconsumers. Consumers and nonconsumers also expressed different beliefs on the effects of irradiation on the health of those who eat irradiated oysters. Most respondents said they believed that irradiated oysters were not radioactive. Respondents were not very clear with respect to their opinions on the effects of irradiation on the nutritive value of oysters. Consumers and nonconsumers also held different views on the effects of irradiation on worker health and whether irradiation technology can cause environmental pollution. A majority of the respondents said they believed that irradiation would increase food prices.

Market segments of raw oyster consumers said they would be interested in buying irradiated raw oyster products. These limited market segments reported that they were willing to pay about $6 per dozen for irradiated raw oysters at the supermarket. Processors of irradiated raw oyster products have the potential to increase sales quantity and revenue by responding to the market segments identified by the results of this survey. Additional consumer surveys in other Metropolitan Statistical Areas are needed to validate the results of this survey and identify other market segments of irradiated raw oyster products.

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Appendix A. Irradiated Oyster Questionnaire

1. Do you eat raw oysters?
   Yes ___1 No ____0

(IF NOT) What are the main reasons you do not eat raw oysters.
(Check all that apply)

1 _____ Appearance	*2 _____ Smell*
3 _____ Slimy	*4 _____ Color*
5 _____ Other physical (Specify)	*6 _____ Think would taste bad*
7 _____ Think grit/internal waste is bad	
8 _____ Aversion to new things – no specific reasons	
9 _____ Allergies – Dr.'s advice or personal experience	
10 _____ Dr.'s advice – illness, not allergies	
11 _____ Personal safety concerns/illness, not allergies	

2. Are you aware of the dangers of eating raw oysters?
   Yes ___1 No ____0

3. What are your primary food safety bacteriological concerns about raw oysters? Check all that are a concern.

1 _____ E coli 0157:H7	*2 _____ Vibrio vulnificus*	*3 _____ Listeria monocytogenes*
4 _____ Vibrio cholera	*5 _____ Salmonella*	*6 _____ Don't know*

4. Do you have other food safety concerns about raw oysters?
   Check all that are a concern.

1 ____ Hepatitis virus	*2 ____ Other (Specify)*	*3 ____ Norwalk virus*	*4 ____ Don't know*

5. How frequently, if at all, did you eat raw oysters during the past year? (e.g., daily, weekly, monthly, six times, never) _____

6. Would you eat raw oysters more often if health and safety concerns were reduced or eliminated?
   Yes ___1 No ____0

7. Where do you usually purchase raw oysters for consumption?

Restaurant _____1	*Oyster bar _____2*	*Seafood Market _____3*
Retail Grocery Store _____4	*Recreational Catch _____5*	*Direct from Dock _____6*
Do not purchase _____7		

8. There is a new method of irradiating raw oysters which leaves them with no detectable harmful bacteria. This method is soon to be approved by the USFDA.
   Statement: **After irradiation, oysters have the taste, texture and appearance of a fresh raw oyster**. Do you believe that statement?
   Yes ___1 No ____0

9. Consumer attitude towards radiation and irradiated oysters.
(Check all that you believe apply)

1 _____ Oysters become radioactive
2 _____ Health of humans consuming irradiated oysters would be affected because of radiation.
3 _____ Irradiation decreases nutritive value of oysters
4 _____ Irradiation increases the health the risk of workers
5 _____ Irradiation technology can cause environmental pollution
6 _____ Irradiation will increase food prices

10. Would you be interested in buying irradiated raw oysters?
Yes ___1 No ____0

11. How much would you be willing to pay for a dozen irradiated raw oysters if purchased in the supermarket? _____ (Select from Table 1)

Table 1. Willingness to pay for irradiated raw oysters

1. Less than $5/dozen	*4. $7/dozen*	*7. Other(enter amount)*
2. $5/dozen	*5. $8/dozen*	
3. $6/dozen	*6. More than $8/dozen*	

12. Respondent's characteristics

Sex: Male ___1 Female____2

What is you marital status? Single ___1 Married ____2 Divorced ____3

What is you race? Caucasian ___1 Black ____2 Hispanic ____3 Asian ____4

Please indicate your age: ____ years old
18-29 _____1 30-39 _____ 2 40-49 _____ 3
50-59 _____ 4 60 & older _____ 5

Please indicate your household's annual income:
<=20,000 _____ 1 20,000-40,000 ____ 2 40,000-60,000 _____ 3
60,000-80,000____ 4 >80,000_____ 5

What is your educational attainment? (check one)
Did not complete high school ____1 Completed high school _____ 2
Some College _____ 3 Completed College _____ 4
Completed Advanced or Professional Degree _____ 5

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