

MARKET ASSESSMENT OF SUNRAY VENUS CLAMS: Final Report for Florida Sea Grant Project # R/LR-A-44

**Chuck Adams
University of Florida IFAS Food and Resource
Economics Department**

April 2009

Introduction



The primary purpose of this study was to demonstrate the market potential of sunray venus clams *Macrocallista nimbosa*. This was accomplished by formally assessing consumer acceptance of sunray venus clams within a variety of commercial restaurant settings. In addition, the opinions of chefs were informally solicited regarding the use of sunray venus clams. The goal was not to determine the overall size of the market for sunray venus clams, but rather to determine if a latent market for the product exists. If a latent market is identified, then additional study would be required to identify the size of the market, barriers to development, product placement strategies and other critical variables required for successfully establishing a viable market for this new, non-traditional cultured product. The first step, however, is to provide insight into the market potential for sunray venus clams, particularly within the market regions proximate to the trial production locations. This methodology will allow for a more informed approach to eventual market expansion if deemed necessary and feasible by industry representatives.

Methods

The overall methodology chosen was to survey individuals who have just consumed sunray venus clams in a restaurant setting. To access a sample of such individuals, four restaurants were asked to participate as survey hosts. The basic approach was to locate a small number of restaurants willing to participate in the study and agree to provide the manager/chef with a no-cost supply of properly tagged shellstock on an agreed upon schedule. The managers/chefs could serve the clams in any manner they wanted and charge any price they deemed appropriate. In return, the restaurant staff would ensure that patrons who consumed sunray venus clams would be asked to complete a very brief survey prior to leaving the restaurant. Those completed surveys would be archived on site and periodically provided to the research team to allow the assessment of consumer acceptance.

Restaurant Participation

Four restaurants were contacted regarding participation in the survey. The basic approach was to contact each manager/chef and explain the purpose of the research, as well as the conditions associated with participation. All accepted the offer to participate. Three of the four restaurants were located in north central Florida (NCF), while the fourth was located in Apalachicola. The three NCF restaurants included The Island Room (Cedar Key), Campbell's (Bronson), and Ballyhoo Grill (Gainesville). The Island Room is a "white table cloth" restaurant located in the Cedar Cove Marina, while Ballyhoo Grill (located near the University of Florida campus) strives for a casual/sports bar atmosphere. Campbell's is a casual, affordable seafood restaurant located in the rural area between Gainesville and Cedar Key. The other participating restaurant was Avenue Sea, a white table cloth restaurant located within the historic Gibson Inn in downtown Apalachicola.

The managers and/or chefs of all four restaurants were contacted and the goals of the study were discussed in detail. All agreed to participate, as long as the clams were properly tagged as coming from approved waters and handled by a state approved wholesale shellfish dealer. The chefs also requested we adhere to a delivery schedule that ensured product to be available during the weekend rush. The product was provided to the restaurants free of charge, and the managers were to prepare the clams in any manner they wished and charge the price they felt appropriate.

The clams were boxed and tagged, then delivered to each restaurant on the agreed upon date/time, typically a Thursday morning. The clams were bagged in standard nylon mesh clam bags, placed in a standard waxed shipment box with cool packs, and then delivered directly to the restaurant within the following two-hour period. The clams were checked by the restaurant staff for proper tagging, then were transferred immediately to a refrigerated storage room. The clams were then ready for access by the chef for preparation over the next few days.

The managers, chefs, and waitstaff were provided basic biological information on the species being cultured, the culture process, and other related information. This was intended to provide the knowledge necessary for the waitstaff, in particular, to respond to questions by inquisitive customers wishing to order the sunray venus clams. An informational primer was produced (*see Attachment 1*) for discussion with and distribution to waitstaff. Restaurant managers were asked to ensure that their waitstaff read and studied the primer. One restaurant held a brief training session for the waitstaff immediately prior to the arrival of the first shipment. The other restaurants ensured the project team that the primers would be provided to the waitstaff.

As mentioned earlier, the managers and chefs were encouraged to prepare the clams in any manner they wished, even raw. Serving proportions were also at their discretion. They were told to promote them in any manner as well, either on the main menu, as a chalk board special,

menu insert, etc. One restaurant requested promotional table “tents” to help increase consumer awareness of the sunray venus clams. There was no attempt to measure the effectiveness of alternative methods of promotion.

Questionnaire Development and Implementation

The primary method of assessing consumer acceptance was via a brief “table-side” questionnaire. The questionnaire was given to patrons who had consumed sunray venus clams while dining at the restaurant. The brief survey instrument was to be handed to the patrons by the waitstaff as they received their bill and encouraged to read and complete the questionnaire prior to getting up from the table. The waitstaff were asked to become familiar with the questionnaire and address any questions or concerns the patrons might have. The completed questionnaires were then gathered by the waitstaff and archived in a folder within the manager’s office. A supply of questionnaires was provided to each of the participating restaurants. An additional printing was required to keep pace with the demand. The completed questionnaires were then retrieved by a project team member during the next scheduled sunray venus clam delivery.

The questionnaire developed for the study was very similar to that utilized in an earlier study by Moss, Degner, and Adams (2000). The questionnaire solicited information on the manner in which the clams were prepared/served, the price paid, ranking of key product attributes, detection of grittiness, hesitancy to consume sunray venus clams, willingness to order the product again or recommend the product, and various demographic variables (*see Attachment 2*). The questionnaire was designed to require less than 5 minutes to complete. A survey protocol was developed and submitted to the University of Florida Institutional Review Board (IRB) for approval, as required. The IRB protocol approval (#2008-U-908) was obtained on 7 October 2008.

Product Delivery

Sunray venus clams were delivered to the restaurants at the time and day of the week determined by the manager/chef. Typically, this was on a Thursday morning. The product was delivered as live, shellstock as previously described. Each restaurant received the number of clams they could reasonably expect to sell during the next 3-4 days. The numbers delivered to each restaurant changed over time as the local demand was more clearly determined (**Table 1**). The clams were delivered over an approximate two-month period, with 10 deliveries being made. The first delivery was made on 23 October 2008 and the last delivery was made 18 December 2008. The average size of the clams delivered to all restaurants was consistent, with the exception of the clams delivered on 12 December 2008, which were somewhat smaller than those delivered on other dates. A total of 5,922 clams were delivered to the participating restaurants over the duration of the project.

Table 1. Numbers and average size of clams delivered.

<u>Date</u>	<u>Number Delivered</u>	<u>Number per Restaurant</u>	<u>Ave. SL</u>	<u>Ave. SW</u>	<u>Ave. SH</u>	<u>Ave. T wt</u>
10.23.08	750	250	64.5	22.9	37.2	33.9
10.24.08	200	200	-	-	-	-
10.30.08	750	250	62.9	22.3	36.4	32.4
10.31.08	236	236	64.7	24.2	36.9	36.7
11.06.08	1125	250-500	61.0	24.2	35.0	32.9
11.07.08	236	236	64.7	24.2	36.9	36.7
11.12.08	1250	250-500	65.8	25.6	37.3	39.6
11.17.08	250	250	-	-	-	-
12.12.08	500	500	53.5	21.2	30.4	23.5
12.18.08	625	625	62.9	22.7	34.8	32.6

Note: SL - shell length; SW - shell width; SH - shell height; T wt - total weight. SL, SW, and SH are in millimeters, while T wt is in grams. Size data are not available for the deliveries made on 24 October 2008 and 17 November 2008.

Findings

A total of 239 completed questionnaires were obtained from the four participating restaurants. Of that total, 41% were completed by patrons from Ballyhoo Grill restaurant. Of the remaining completed surveys, 21% came from Campbell's, while 20% and 18% came from The Island Room and Avenue Sea, respectively. All of the completed questionnaires were completed by the patrons while at the respective restaurants, with the exception of one that was mailed in. There is no way of determining if the questionnaires were completed by unique respondents. The possibility does exist that some of the questionnaires were completed by the same individual. However, the waitstaff at Ballyhoo Grill and Campbell's indicated some patrons were repeat sunray venus clam "customers", but only completed a questionnaire on the first restaurant visit. In addition, there was no attempt to measure the bias associated with non-respondents, i.e., those individuals who refused to complete a questionnaire. A "completed" questionnaire may have some missing information, as the respondent chose not to answer a particular question. Thus, there may not be 239 responses for each question. However, the information provided for each question is utilized in the discussions and summaries provided below.

Of the 239 restaurant patrons who completed at least some portion of the questionnaire, 51.9% and 48.1% were male and female, respectively (**Table 2**). Regarding age distribution of respondents, 21.3% were under the age of 30, while 39.1% were between the ages of 50 and 64. The majority of the respondents (80.7%) had resided in the southeast US for the longest

portion of their lives. In addition, 92.8% of the respondents currently resided in Florida (based on the zip code of their current residence). Finally, 87.4% of the respondents were Caucasian.

Table 2. Demographic characteristics of the respondent sample.

<u>Characteristic</u>	<u>Survey Respondents</u>	
	<u>Number</u>	<u>Percent</u>
Gender		
Male	120	51.9
Female	111	48.1
Years of Age		
< 30	50	21.3
30-35	20	8.5
36-49	52	22.1
50-64	92	39.1
65 and above	21	8.9
US Region of Longest Residence		
West	10	4.6
Midwest	17	7.8
NE	15	6.9
SE	176	80.7
Current Florida Resident		
Yes	218	92.8
No	17	7.2
Race / Cultural Heritage		
Caucasian	208	87.4
Afro-American	2	0.8
Asian	7	2.9
Hispanic	9	3.8
Other	12	5.0

Note: The percentages for each major characteristic may not add to 100 due to rounding.

The following discussion addresses the average responses for each question across all the restaurants combined. The responses for each restaurant are not provided due to confidentiality reasons. However, these responses may be available from the project team upon approval of the restaurant management.

“How were the Sunray Venus Clams prepared”

Respondents were asked how the clams that they ordered were prepared. Recall that the chefs were encouraged to prepare the clams in a manner they felt appropriate. Of those that

responded to this question, 47.3% indicated that the clams were steamed, while 26.3% indicated the clams were broiled/baked and 5.4% indicated the clams were prepared in a soup/stew, respectively. Also, 1.8% of the respondents indicated the clams were either fried or served raw. In addition, 17.4% of the respondents indicated the clams were prepared in some other manner.

“Were the Sunray Venus clams served as an Entrée or Appetizer”

The majority of the clams were served as an appetizer. Of those responding to this question, 78% indicated that the clams were served as an appetizer, while the remaining respondents (22%) indicated that the clams were served as an Entrée.

“Please indicate the price you paid for the Entrée or Appetizer”

The price requested of the respondent by the questionnaire was the price paid for the clam entrée or appetizer. Thus, the restaurant setting price indicated is not analogous to a per unit price paid in a retail seafood shop setting. The price the restaurant buyer would be willing to pay for the individual clam was not requested via the questionnaire. However, debriefings with the chefs and managers suggested that all would be willing to pay a higher price than they are currently paying for commercially available hard clams. The price solicited by the questionnaire was the price paid by the patron, which includes the cost of the clams, cost of other ingredients, restaurant overhead costs, restaurant mark-up, etc. The individual retail price per clam cannot be derived from the questionnaire price. The number of clams per serving would vary whether the clams were served as an entrée or appetizer type, as well as by preparation method. Unfortunately, this information was not solicited. However, the prices can provide restaurant managers with a proxy of what a patron would pay for a “typical” serving across a variety of preparation methods. In addition, the prices charged by the participating restaurants were conceived within a short-term, promotional context. The eventual price charged for a sustained menu item may vary from that indicated in this survey.

Of the respondents who answered this question, 41% indicated the price paid for an entrée was greater than \$5.00, but less than \$10.00, while 33% paid over \$10.00 (**Table 3**). The average price paid for an entrée across all preparation methods was \$9.65. Over two-thirds of the respondents paid between more than \$5, but less than \$10, for an appetizer. The average price paid for an appetizer was \$7.80.

Table 3. Percentage Distribution of Prices Paid by Respondents.

	<u>Price Range Paid by Respondent</u>			Average
	≤ \$5	\$5.01 - \$10	> \$10	
Entree	26%	41%	33%	\$9.65
Appetizer	24%	67%	9%	\$7.80

Note: The “Average” price is that reported across all preparation methods.

“How would you rate the Sunray Venus clams?”

Respondents were asked to rate the clams they consumed over a range of product attributes (Table 4). These attributes included appearance, taste, texture, tenderness and value. Finally, the respondent was asked to provide an “overall” rating of the clams consumed. The rankings are provided across all preparation methods for clams served both as an entrée or an appetizer. Note that the majority of respondents indicated that the product was with “Excellent” or “Very Good”. For example, 84% of the respondents indicated that the appearance was “Excellent”, whereas 13% indicated that the product was “Very Good” and a total of 3% indicated that the product appearance was “Good” to “Poor”. A similar ordinal pattern is seen for the other attributes, with the majority of respondents indicating that “Taste”, “Texture”, and “Tenderness” were either excellent or very good. In addition, 61% of the respondents indicated the clams were a good “Value”, which was intended to provide some insight into the patrons’ perception of whether or not they were “getting their money’s worth”. Initial measurements suggested that the meat yield for sunray venus clams was very high, which may explain the favorable rankings in terms of “value”. Finally, 90% of the respondents rated the product as either “Excellent” or “Very Good”. In summary, the majority of the respondents who provided the rankings suggested that sunray venus clams, prepared in the manner and served in the volume in which the participating chefs felt appropriate, were highly rated. Only 3% and 14% of the respondents rated appearance and value as good to poor, respectively.

Table 4. Product Attribute Ratings.

	Excellent	Very Good	Good	Fair	Poor
 % of all respondents selecting each attribute				
Appearance	84	13	2	1	0
Taste	72	18	8	2	0
Texture	63	25	9	2	1
Tenderness	58	25	9	4	2
Value	61	24	10	4	1
Overall	70	20	8	2	0

Note: The rankings are across all preparation methods.

The product attribute ratings across demographic characteristics provide some insight into how the ratings were associated with gender and age. These findings are presented in **Appendix Tables 1 – 6**. The number of individuals (Nq) responding to a specific question is given in the Appendix Table as the value corresponding to a given product attribute. Note that for some attributes, less than 239 respondents (totaled across all demographic characteristics and product attributes) are indicated. This is due to some of the respondents not providing either an attribute rating or the demographic information requested (i.e., gender or age). The N for each attribute: demographic characteristic combination is the number of respondents that provided both. The percentage value provided for a specific combination is the number of respondents replying to that specific question divided by the total number of respondents for

the overall demographic category (i.e., gender or age), rather than the percentage of a specific gender or age. For example, in Appendix 1, a total of 105 male respondents indicated that the “Appearance” of the sunray venus clams was “Excellent”, while 96 female respondents provided the same rating. There were 239 respondents (male and female *combined*) that rated the Appearance of the sunray venus clams. Thus, 43.9 % of the male respondents (105/239) rate the Appearance as Excellent, while 40.2% of the female respondents did the same. The percentages were computed across the total number of respondents regardless of gender to provide greater insight into importance of that rating category across the total set of potential consumers, regardless of gender or age. There do not appear to be any strong pattern of attribute ratings by gender or age. The sunray venus clams were rated highly by all age groups and genders.

“Did you detect any grittiness in the Sunray Venus clams?”

The sunray venus clam possesses a grit pocket, which is located on the siphon end of the animal. The grit pocket is a normal feature of the sunray venus clam, and is quite noticeable in the wild animals initially taken for preliminary attribute assessment by the project team. Thus, the presence of a noticeable grit pocket was anticipated in the cultured animals. Prior to the cultured animals being utilized in the restaurant consumer acceptance trials, the project team noticed the absence of a noticeable grit pocket in the cultured sunray venus clams. At present, this unexpected finding cannot be explained. And the project team was unsure of the prevalence of the absence of a noticeable grit pocket in the cultured clams. Thus, a question was included in the questionnaire that would allow the respondent to indicate the grittiness if the condition occurred. Only 11% of the respondents indicated the presence of “grittiness” in the clams. It is unknown to what degree this grittiness existed, the source of the grittiness, or if the grittiness varied by restaurant, preparation method or cohort of cultured clams. The latter issues may be addressed through further analysis of the survey data, however initial scrutiny finds that the few respondents indicating the presence of grittiness were not characterized by a clear pattern for restaurant they patronized, the week in which the clams were delivered, or preparation method.

“Please indicate your initial reaction to the thought of eating Sunray Venus clams.”

Patrons were asked about their initial thoughts concerning the consumption of sunray venus clams. This question was of interest given there are no current commercial sources. Thus, the greater likelihood existed that most respondents would have never consumed sunray venus clams. Respondents were asked to indicate their hesitancy toward eating sunray venus clams on a 9-point Likert scale (Babbie, 2005), ranging from 1 (“Not Hesitant At All”) to 9 (“Extremely Hesitant”). The average Hesitancy Index (HI) value selected by the patrons who responded to this question was 2.21, which suggests the average respondent was not very hesitant to the thought of consuming sunray venus clams, which is a new, non-traditional seafood item. Only 30 respondents out of the 239 who responded to this question indicated a hesitancy level of 5 or higher.

No strong pattern appears to exist between gender and age with respect to the measure of hesitancy. For example, the overall HI for males was 2.30, while the HI for females was slightly lower at 2.16. In addition, the overall HI for individuals in the "<30" age group was 2.83, while the HI for individuals in the "30-35", "36-49", "50-64", and "65+" groups were 1.52, 1.94, 2.17, and 1.97, respectively. Note that the least hesitant age group was the "30-35" group, while the most hesitant was the youngest age group.

"Would you order this product again at the same price?" and "Would you recommend this product?"

An overwhelming majority (94%) of the respondents indicated that they would order this product again at the price they paid for it. In addition, 97% of the respondents indicated they would recommend this product to others.

Summary

The survey findings suggest that restaurant patrons found sunray venus clams to be a very acceptable product. Patrons were offered the clams prepared a variety of different ways. The pricing was quite variable across entrees, appetizers, and preparation methods. The majority of patrons rated sunray venus clams as Excellent to Very Good, and would order the product again at the price paid, as well as recommend the product to others. In addition, an *a priori* concern regarding the sunray venus clam was the potential for grittiness, due to the "grit pocket" which is naturally occurring in wild sunray venus clams. Approximately 90% of the survey respondents did not detect any grittiness from the cultured clams. Additional cross tabulations may be done to assess the impact of respondent residence location and race or cultural heritage on the acceptance of sunray venus clams. However, given the strong overall acceptance levels, the findings are likely to be very similar to that found for gender and age of respondent.

References

- Babbie, E. R. 2005. *The Basics of Social Research*. Thomson Wadsworth Publishers. Belmont, CA.
- Moss, S., R. Degner, and C. Adams. 2000. "Marketing Analysis", in *Aquaculture and Marketing of the Florida Bay Scallop in Crystal River, Florida*. Technical Paper No. 106. Florida Sea Grant College Program. University of Florida. Gainesville, FL.

Appendix Tables

Appendix Table 1. Appearance Rating by Gender and Years of Age												
	<u>Excellent</u>		<u>Very Good</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>		<u>Total</u>	
	N _q	%	N _q	%	N _q	%	N _q	%	N _q	%	N	%
Gender												
Male	105	43.9	14	5.9	3	1.3	2	0.8	0	0	124	51.9
Female	96	40.2	16	6.7	3	1.3	0	0	0	0	115	48.1
Total	201	84.1	30	12.6	6	2.6	2	0.8	0	0	239	
Years of Age												
< 30	36	15.9	11	4.9	1	0.4	0	0	0	0	48	21.2
30 – 35	14	6.2	1	0.4	0	0	0	0	0	0	15	6.6
36 – 49	42	18.6	9	4.0	1	0.4	0	0	0	0	52	23.0
50 – 64	78	34.5	9	4.0	2	0.9	2	0.9	0	0	91	40.4
65 & above	17	7.5	1	0.4	2	0.9	0	0	0	0	20	8.8
Total	187	83.7	31	13.7	6	2.6	2	0.9	0	0	226	

Note: % values are computed as N_q/239 for Gender and N_q/226 for Years of Age.

Appendix Table 2. Taste Rating by Gender and Years of Age												
	<u>Excellent</u>		<u>Very Good</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>		<u>Total</u>	
	N _q	%	N _q	%	N _q	%	N _q	%	N _q	%	N	%
Gender												
Male	90	37.7	26	10.9	6	2.5	3	1.2	0	0	125	52.3
Female	81	33.9	20	8.4	11	4.6	2	0.8	0	0	114	47.7
Total	171	71.6	46	19.3	17	7.1	5	2.0	0	0	239	
Years of Age												
< 30	36	15.4	9	3.8	3	1.3	0	0	0	0	48	20.5
30 – 35	21	9.0	1	0.4	0	0	0	0	0	0	22	9.4
36 – 49	31	13.2	14	6.0	6	2.6	1	0.4	0	0	52	22.2
50 – 64	62	26.5	21	9.0	6	2.6	3	1.3	0	0	92	39.3
65 & above	14	6.0	2	0.9	3	1.3	1	0.4	0	0	20	8.6
Total	164	70.1	47	20.1	18	7.7	5	2.1	0	0	234	

Note: % values are computed as N_q/239 for Gender and N_q/234 for Years of Age.

Appendix Table 3. Texture Rating by Gender and Years of Age												
	<u>Excellent</u>		<u>Very Good</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>		<u>Total</u>	
	N _q	%	N _q	%	N _q	%	N _q	%	N _q	%	N	%
Gender												
Male	75	31.4	29	12.1	16	6.7	2	0.8	1	0.4	123	51.4
Female	73	30.5	30	12.6	9	3.8	2	0.8	2	0.8	116	48.6
Total	148	61.9	59	24.7	25	10.5	4	1.6	3	1.3	239	

Years of Age												
< 30	26	11.1	16	6.8	5	2.1	1	0.4	0	0	48	20.5
30 – 35	19	8.1	2	0.9	1	0.4	0	0	0	0	22	9.4
36 – 49	27	11.5	15	6.4	9	3.8	0	0	1	0.4	52	22.2
50 – 64	59	25.2	21	9.0	8	3.4	2	0.9	2	0.9	92	39.3
65 & above	12	5.1	4	1.7	3	1.3	1	0.4	0	0	20	8.6
Total	143	61.1	58	24.8	26	11.1	4	1.7	3	1.3	234	

Note: % values are computed as $N_q/239$ for Gender and $N_q/234$ for Years of Age.

Appendix Table 4. Tenderness Rating by Gender and Years of Age

	<u>Excellent</u>		<u>Very Good</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>		<u>Total</u>	
	N_q	%	N_q	%	N_q	%	N_q	%	N_q	%	N	%
Gender												
Male	70	29.3	32	13.4	15	6.3	5	2.1	3	1.3	125	52.3
Female	68	28.5	28	11.7	11	4.5	6	2.5	1	0.4	114	47.7
Total	138	57.8	60	25.1	26	10.8	11	4.6	4	1.7	239	
Years of Age												
< 30	30	13.0	14	6.1	4	1.7	0	0	0	0	48	20.9
30 – 35	10	4.3	7	3.0	1	0.4	0	0	0	0	18	7.8
36 – 49	26	11.3	13	5.7	9	3.9	2	0.9	2	0.9	52	22.6
50 – 64	53	23.0	21	9.1	9	3.9	8	3.5	1	0.4	92	40.0
65 & above	10	4.3	4	1.7	4	1.7	1	0.4	1	0.4	20	8.7
Total	129	56.1	59	25.7	27	11.7	11	4.8	4	1.7	230	

Note: % values are computed as $N_q/239$ for Gender and $N_q/230$ for Years of Age.

Appendix Table 5. Value Rating by Gender and Years of Age

	<u>Excellent</u>		<u>Very Good</u>		<u>Good</u>		<u>Fair</u>		<u>Poor</u>		<u>Total</u>	
	N_q	%	N_q	%	N_q	%	N_q	%	N_q	%	N	%
Gender												
Male	66	30.1	32	15.0	13	6.1	2	0.9	0	0	113	53.1
Female	63	29.6	23	10.8	10	4.5	3	1.4	1	0.5	100	46.9
Total	129	60.6	55	25.8	23	10.8	5	2.3	1	0.5	213	
Years of Age												
< 30	24	11.7	17	8.3	4	1.9	2	1.0	0	0	47	22.8
30 – 35	13	6.3	4	1.9	1	0.5	2	1.0	0	0	20	9.7
36 – 49	25	12.1	11	5.3	8	3.9	0	0	0	0	44	21.4
50 – 64	48	23.3	20	9.7	8	3.9	1	0.5	0	0	77	37.4
65 & above	13	6.3	2	1.0	2	1.0	0	0	1	0.5	18	8.7
Total	123	59.7	54	25.2	23	11.2	5	2.4	1	0.5	206	

Note: % values are computed as $N_q/213$ for Gender and $N_q/206$ for Years of Age.

Appendix Table 6. Overall Rating by Gender and Years of Age

	<u>Excellent</u>	<u>Very Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Total</u>
--	------------------	------------------	-------------	-------------	-------------	--------------

	N _q	%	N _q	%	N _q	%	N _q	%	N _q	%	N	%
Gender												
Male	83	35.9	24	10.4	10	4.3	2	1.3	0	0	119	51.5
Female	76	32.9	22	9.5	11	4.8	3	0.9	0	0	112	48.5
Total	159	68.8	46	19.9	21	9.1	5	2.2	0	0	231	
Years of Age												
< 30	34	15.1	12	5.3	2	0.9	0	0	0	0	48	21.3
30 – 35	18	8.0	3	1.3	0	0	0	0	0	0	21	9.3
36 – 49	31	13.8	11	4.9	6	2.7	1	0.4	0	0	49	21.8
50 – 64	58	25.8	18	8.0	9	4.0	3	1.3	0	0	88	39.1
65 & above	12	5.3	2	0.9	4	1.8	1	0.4	0	0	19	8.5
Total	153	68.0	46	20.4	21	9.3	5	2.2	0	0	225	
Note: % values are computed as N _q / 231 for Gender and N _q / 225 for Years of Age.												

Attachment 1
Informational Flyer for Waitstaff – The Island Room Restaurant Version



A Wait Staff Primer on Sunray Venus Clams



**A market
research project
conducted by the
University of Florida
in conjunction with
The Island Room**

**Questions, concerns or additional comments regarding this
research effort may be directed to:**

Chuck Adams, Marine Economics Specialist

Florida Sea Grant College Program

P.O. Box 110240

University of Florida

Gainesville, FL 32611

cmadams@ufl.edu

(352) 392-1826, ext. 223



Attachment 1
Informational Flyer for Waitstaff

What are Sunray Venus clams?

Sunray Venus (*Macrocallista nimbosa*) clams are a species of bivalve mollusk which occur naturally in shallow, sandy beach areas throughout the Gulf of Mexico region. These clams burrow into the sandy bottom, where they feed by filtering algae and other plankton from the water. Its attractive shell is popular with shell collectors and tourists. The clam is commonly called Sunray Venus because of the colorful radiating pattern of the shell. During the 1960s, a commercial fishery for this clam was based off the northwest coast of Florida. The tender, sweet meats of the adult clams (4 to 6 inches long) were processed into strips for the popular fried clam markets. However, spotty distribution and the small size of the fishing grounds limited the development of the fishery. Today, sunray venus clams are of interest as a new aquaculture species to diversify the Florida hard clam industry.

Where are they grown?

The Sunray Venus clams being evaluated in this market research study were grown under controlled conditions near Alligator Harbor, Florida by University of Florida researchers with shellfish aquaculture industry partners. The clams were cultured in clean waters approved by the State of Florida. Since they were grown in approved shellfish harvesting waters, the clams can be consumed raw if desired.

How are they cultured?

The Sunray Venus clams utilized for this study were cultured using essentially the same methods to produce Florida hard clams. Adult Sunray Venus clams were collected off St. Teresa Beach and spawned in a hatchery. The tiny seed clams were reared for several months in a land-based nursery, then were placed in soft mesh bags on the sandy bottom of an approved lease site in the Gulf of Mexico. The bags are designed to allow the clams to settle into the bottom, as they would naturally. After 12-15 months, the clams have grown to the size being served to patrons in this study. The clams were harvested by the participating grower, then washed, sorted, and tagged by a certified shellfish wholesale dealer, before being delivered to the restaurant. Harvesting and processing of Sunray Venus clams for this study comply with all federal and state regulatory requirements for molluscan shellfish.

Please remember to...

Check questionnaires for completeness (all questions answered) while the patron is present.

Make sure the information provided is legible.

Thank You!

Attachment 2

Survey Instrument – Ballyhoo Grill Restaurant Version

Thank You!

**Please leave
the completed survey form
on the table
for the wait staff
to retrieve.**

If you do wish to return by mail, please send to the name and address below. Any additional questions, concerns or comments regarding this research effort may be directed to:

Chuck Adams, Marine Economics Specialist
Florida Sea Grant College Program
P.O. Box 110240
University of Florida
Gainesville, FL 32611
cmadams@ufl.edu
(352) 392-1826, ext. 223







Consumer Evaluation of Farm-Raised Sunray Venus Clams



The Sunray Venus clams you have just eaten were grown under controlled conditions near Cedar Key, Florida by University of Florida researchers with shellfish aquaculture industry partners. The Florida Sea Grant Program is conducting research to determine the market acceptance of cultured Sunray Venus clams.

According to UF rules, we must tell you that there are no direct benefits or risks to you for completing the survey and you will not be compensated. Participation is voluntary so you do not have to answer any questions (i.e., you will not be penalized for choosing not to participate or answer certain questions). For questions about your rights as a research participant, please contact the Institutional Review Board at (352) 392-0433 (protocol # 2008-U-908).

The questionnaire requires just two minutes to complete. Your specific responses are anonymous and will **NOT** be reported or shared with anyone or any organization, and will be kept confidential to the extent provided by law.

**A market
research project
conducted by the
University of Florida
in conjunction with
The Ballyhoo Grill**



**Attachment 2
Survey Instrument**

How were the Sunray Venus Clams prepared?

___ Fried ___ Broiled/Baked ___ Raw
___ Soup/Stew ___ Other (_____)

Were the Sunray Venus clams served as an ...

___ Entrée? ___ Appetizer?

Please indicate the price you paid for the Entrée or Appetizer

\$ _____

How would you rate the Sunray Venus clams? (place an "X" in the appropriate box)

	Excellent	Very Good	Good	Fair	Poor
Appearance					
Size					
Taste					
Texture					
Tenderness					
Value					
Overall					

Did you detect any grittiness in the Sunray Venus clams?

___ Yes ___ No

Please indicate (circle) your initial reaction to the thought of eating Sunray Venus clams.

Not Hesitant At All

Extremely Hesitant

1 2 3 4 5 6 7 8 9

Would you order this product again at the same price?

___ Yes ___ No

Would you recommend this product?

___ Yes ___ No

Are you ... ___ Male ___ Female?

In what year were you born? _____

(Ladies ... Remember, this is all *confidential*.)

In what U.S. state or country have you resided the longest? _____

What is the zip code of your current residence? _____

What is your cultural heritage or race?

___ White ___ Afro-American ___ Asian
___ Hispanic ___ Other (_____)

Other Comments:

