

FACTORS INFLUENCING MARKET DEVELOPMENT
FOR MISSISSIPPI SOFT SHELL CRAWFISH

***SOFT SHELL
CRAWFISH***

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MASGP-89-035

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I. Summary

Markets for Mississippi produced soft shelled crawfish were tested in three locations: Mississippi Gulf Coast (restaurants, seafood retailers and consumers), California (restaurants and restaurant distributors in Los Angeles and San Francisco) and national seafood distributors. Target audiences were identified from published information and contacted to determine interest in the product. In Mississippi and California, the product was cooked and served by a demonstration team, and a questionnaire, product literature and recipes were provided along with samples of one pound block frozen soft crawfish. Those attending the demonstration were also provided an opportunity to buy additional product. Questionnaire responses were used to assess the market potential for the product.

In the Mississippi survey, 50 percent of those contacted agreed to attend a demonstration. Ninety-five percent of those attending accepted a product sample for sale at their establishment and 30 percent purchased additional product. Return rate for questionnaires was 92 percent. Questionnaire responses returned by retailers and restaurateurs were similar. For both groups the major concerns were cost (73 percent), packaging (53 percent) and lack of consumer demand (22 percent). Other quality or portion control concerns were also expressed. Restaurant targets of food cost between 31-35 percent of gross sale and 10 percent profit could be met at soft crawfish prices of \$9.00 per pound to the restaurant. However, most respondents

were not interested in carrying soft crawfish when other menu items brought in profits greater than 10 percent.

Seafood retailers expect a mark-up of 20 percent. A price of \$9.00 per pound to the retailer translates to \$10.80/lb. to the consumer. Retail sales were very poor. Over 80 percent of seafood retail customers offered soft shell crawfish refused to buy the product because it was too expensive. A cooking demonstration and low cost samples of cooked product failed to change consumer position on retail prices for soft shell crawfish. When offered for sale at various prices consumer resistance to price started at \$6.00/lb. and no sales were concluded at a trial price of \$8.00/lb. Consumer acceptance in restaurants, however, was uniformly good. Only 4 percent of consumers in restaurants responded that the product was too expensive and 66 percent found the quality of soft shell crawfish to be good to excellent.

Both southern and northern California markets for soft shelled crawfish were tested. As in the Mississippi Gulf Coast test, one pound blocks of frozen soft crawfish (21-28 count), in sealed plastic bags, was used for cooking demonstrations and product samples. Thirty-one percent of restaurateurs and restaurant distributors contacted in the Los Angeles and San Francisco metropolitan areas agreed to attend a cooking demonstration. While response to the product was positive, no one was willing to buy the product at the going price of \$11.50 per pound. At \$0.48 each (\$5.76/dozen or \$11.50/lb. for 24

count) there was interest in purchasing the product. Eighty-eight percent of demonstration attendees accepted samples for use in their establishments (100 percent of restauranters but only 43 percent of distributors). Over 93 percent of participants returned useable questionnaires.

Price was not a significant factor in the opinion of restauranters. Only 26 percent cited price as a factor in their carrying soft shell crawfish. Product promotion and the need to develop consumer demand was the leading concern among this group (56 percent), followed by the need for portion controlled packaging (52 percent) and the demand for a kitchen-ready cleaned (gastroliths removed) product (40 percent).

However, all restaurant distributors surveyed indicated that the price was too high. Distributors also cited the need for portion controlled packaging. Lack of demand among consumers (57 percent) and unappealing packaging (42 percent) were viewed as major faults of the product. Because restaurants depend almost entirely on distributors, it is important to consider their views in assessing market conditions. Distributors perceive a ceiling price of \$6.00 per dozen or \$0.50 each (\$12.00/lb. for 24 count) to the restaurants. In the distributors view, not enough restaurants will buy the product at higher prices to justify carrying it. Because distributors mark up is 25 percent, maximum prices to restaurant distributors in California would be \$4.80/dozen or \$0.40 each. In addition, distributors insist that current problems with portion control, packaging, quality

control, reliability of shipments and others must be resolved before they would be willing to carry the product. To date, most buyers in California want fresh or even live product, an added hurdle and cost to overcome for local producers.

Most (80 percent) of the 30 national seafood distributors contacted had an interest in the product. However, most also had objections to the price, packaging, quality or were concerned with low market awareness of the product. Twenty percent had no interest in the product. The most common response to queries about carrying the product was that prices to distributors were too high (33 percent). Many of these responded that until prices to distributors were \$6.00 to \$6.50 per pound, they would not be willing to carry the product.

Most foreign markets are currently out of reach to Mississippi producers. Successful penetration of these markets would require high production levels and development of standardization and quality controls that the current Mississippi industry would have a difficult time meeting. Premature shipments to these markets may damage future potential sales.

II. Introduction

Soft shell crawfish are a novelty in the U.S. seafood market. From the first commercial crop of 6,000 pounds in 1985-86 (Louisiana State University Aquanotes, March 1987; Aquaculture News, August 1988), the industry grew in just two years to a peak of over 300 producers and over 300,000 pounds of soft shell crawfish (Seafood Leader, Fall 1988). Because the product was well received in Louisiana and featured by a leading Louisiana restaurant (Seafood Leader, Fall 1988), prices paid to producers remained attractive at \$8.00 to \$10.00 per pound (Baton Rouge Morning Advocate, August 11, 1988; Seafood Leader, March/April 1989).

Speculation projected future prices to producers as high as \$15 per pound (Aquaculture News, February 1988; June 1988). After reaching a high of \$12 per pound in early 1988 (New Orleans Times-Picayune, May 7, 1989), prices for soft shell crawfish collapsed, sliding to \$9.00 (Seafood Leader, March/April 1989), then \$7.00 (Seafood Business, December 1988), then finally bottoming at around \$6.00 per pound (New Orleans Times-Picayune, May 5, 1989). There have been persistent reports of sales as low as \$4.00/lb.

Not only was the market apparently over-supplied, but buyers voiced a variety of complaints about quality, packaging and other issues. Until the price collapse, crawfish were frozen in one pound quantities in ziplock bags. Quality control concerns covering a multitude of faults from poor size distribution to

excess drip loss to inaccurate weights and unsafe packaging, seriously damaged product reputation and contributed to the price decline.

While this survey was originally intended to determine how to best position Mississippi produced soft shell crawfish in the market-place, it served to gauge buyers responses to the product during the recent decline in demand and price. It also provides information on price ceilings for the product in the tested markets and provides recommendations to Mississippi producers on pricing, packaging and quality control issues of importance to consumers.

Three separate market areas were selected for testing. Restaurants and retail seafood dealers in coastal Mississippi represented the most accessible market for local producers. Through these outlets, we also determined consumer response to the product and product price as offered in restaurant and retail seafood sales.

A more lucrative market for Mississippi soft shell crawfish, the restaurant trade in California, was also tested. Restaurants and restaurant distributors were exposed to the product and their responses tallied. Because of potential geographic differences, we tested both the Los Angeles and San Francisco area markets. Both the Mississippi Gulf Coast and California market tests involved a cooking demonstration, information on preparation, recipes, free product samples and an offer to purchase more product if desired.

National seafood distributors were also questioned about their familiarity and experiences with the product, but without providing demonstrations or samples.

All of the data and results we report are subject to interpretation. We assume all information provided was accurate. Changes in prices or market conditions may alter these results.

III. Coastal Mississippi Market Test

Survey Procedures

The market test was performed by L_s Associates, a marketing and business consulting firm, in cooperation with Mississippi State University Coastal Research and Extension Center, during the period of April 10, 1989 to May 29, 1989, in the coastal Mississippi area.

A list of survey contacts was compiled through various sources listing Mississippi Gulf Coast restaurants and retail/wholesale seafood dealers (Appendix I). After a letter of introduction was mailed to each of the names appearing on the master list, survey staff contacted them by phone for appointments.

Sixty respondents (49.6 percent) of the 121 persons originally selected agreed to attend a cooking demonstration and taste test. Sixty-one were not included in the survey for a variety of reasons:

No contact by telephone (30), unable to reach owner/buyer (12), no interest (12), and out of business (7), were the reasons given.

All product listed used in the demonstrations and for samples was purchased from four local Mississippi crawfish producers at \$8.00/lb. All four producers had been given identical packaging instructions when they began production.

Demonstration staff were provided a deep fryer, peanut oil, a premixed batter, recommended by a professional chef of flour, cayenne pepper, salt and pepper; and a water, cayenne, and lemon

bath. Each day, a sufficient number of crawfish were defrosted for sample cooking.

Survey staff demonstrated cleaning procedures, then placed defrosted crawfish in the water bath, then in the flour mix, then into 350 degree oil. Following advice of a professional chef, four crawfish were cooked approximately 2 minutes for each taste sample. After witnessing the demonstration and the taste test, participants were offered samples of one pound block frozen ziplock packages of soft shell crawfish at no charge. In addition to the crawfish samples, detailed, written cleaning instructions, recipes, business cards, and a questionnaire for completion after using the product (Appendix III) were provided. Additional product was also made available for purchase.

Ninety-five percent of those attending the cooking demonstrations received product samples and questionnaires. Thirty-nine participants were given one pound samples at no charge along with the questionnaire, product information and recipes. Of the 60 participants, 18 (30 percent) also purchased an additional pound of product and were given one free. Three restaurants, already serving soft crawfish on a regular basis, declined the sample and purchase, but agreed to participate in the survey.

Results

Approximately one week after completion the demonstration and taste test, survey staff contacted participants to pick up questionnaires. Of the 60 who received questionnaires, five did

not return the questionnaire, nor was further contact possible. A summary of the responses is shown in Table 1. (Totals exceed 100 percent because most questionnaires were returned with multiple responses).

TABLE 1. Summary of questionnaire responses, Mississippi Gulf Coast survey

<u>Seafood Retailers</u>	<u>Number</u>	<u>% of Total</u>
	25	100%
Too expensive, no markup room	25	100%
Bad package - unappealing	14	56%
No consumer demand	5	20%
Inconsistent count - different sizes	1	4%
Need smaller quantity	1	4%
No comment	1	4%
<u>Restaurants</u>	<u>Number</u>	<u>% of Total</u>
	30	100%
Too expensive to make a profit	15	50%
Portion control package - Must thaw too much at once	15	50%
Should be cleaned - gastroliths	5	16.6%
No consumer demand - no promotion	7	23.3%
Inconsistent count - different sizes	6	20%
Smaller quantity purchase	6	20%
Product is fine as is	6	20%
No comment	2	6.6%
<u>Combined Results</u>	<u>Number</u>	<u>% of Total</u>
	55	100%
Too expensive	40	72.7%
Poor packaging	29	52.7%
Should be cleaned	5	9.1%
No consumer demand	12	21.8%
Inconsistent count	7	12.7%
Smaller quantity	2	3.6%
Product fine as is	6	10.9%
No comment	3	5.5%

Product price was the most often cited comment on the product, followed by objections to packaging and concern over lack of consumer demand. There were no significant differences in the rank importance of responses between retailers and restaurants (two tailed Mann-Whitney U-test, $p < .001$). Both groups of respondents found the product too expensive at the price of \$10.00 per pound. Both groups also had objections to the block frozen package, with retailers citing poor appearance and restaurant chefs poor portion control. The next most frequently cited reason was the lack of consumer demand.

All participating restaurants wanted to know unit cost for crawfish. Because the sample packages contained between 20 and 30 count crawfish, it was not possible to determine a unit cost. Assuming a 24-count per pound package with crawfish of 3" to 3 1/2" unit costs to the restaurant were estimated at \$0.38 each.

The food cost of soft shell crawfish served as appetizers, small entrees and large entrees in a typical Mississippi Gulf Coast restaurant is shown in Table 2.

TABLE 2. Food cost of soft shell crawfish served as appetizers, small entree and large entree in a hypothetical Mississippi Gulf Coast Restaurant

<u>Price Per Lb.</u>	<u>Count</u>	<u>Cost Each</u>	<u>Cost as Appetizer</u>	<u>Cost as Entree (6)</u>	<u>Cost as Entree (8)</u>
\$9.00	24	.38	\$1.58	\$2.28	\$3.04
Add: other food costs, i.e., sauce, pasta, potatoes, vegetable, etc.:			<u>.30</u>	<u>.75</u>	<u>.75</u>
Total per plate cost:			\$1.82	\$3.03	\$3.79
Restaurant charges:			\$5.95	\$8.95	\$10.95
Food cost as percent of gross sale:			31%	34%	35%

Recent trade publications cite food costs of 35 percent of gross sales as the average food cost in a full service restaurant (Restaurant Business, Volume 88 (7), May 1989). This allows for a 10 percent profit. Although the estimated food cost percentages for soft shell crawfish would fall within accepted industry levels for local restaurants, most restaurant operators indicated they were looking for products and recipes that provide profit margin greater than 10 percent. Compared to soft shell crawfish, many other menu items have ready consumer acceptance, require less effort to prepare and provide returns in excess of 10 percent. As a result, most local restaurants are not willing to take the risk required to promote a new product such as soft shell crawfish at profit margins of 10 percent.

Local retail dealers generally receive a 20 percent mark-up on products they carry. At prices of \$9.00 per lb., dealers must charge

at least \$10.80 for the product. All dealers surveyed, with no exceptions, agreed that customers would not pay \$10.80 per lb. for an untried product.

The response to packaging in one pound, block frozen ziplock bags was negative in some way for all but six of the participants. Most retail dealers stressed poor visual appeal and all said that ziplock bags made customers question the safety of the product. Apparently, the ability to clearly see the contents made a negative impression on consumers. Because there were no recipes or directions on the packages, dealers also complained of having to educate customers in cleaning and preparing the product when profits were insufficient to justify the effort.

Restaurants' main packaging objection was that a block-frozen packages required that the entire package of crawfish be defrosted even if only one appetizer of 4 crawfish was ordered. If more orders could not be encouraged that day or the next, the remaining 20 crawfish would spoil. All but six restaurants felt this risk of loss was too high with no verified consumer demand in place. Most restaurant respondents indicated that they would purchase at least small quantities if the product was portion controlled and had a proven shelf-life of 6 months or longer.

Five of the restaurants indicated reservations about the product because of the added labor costs incurred in cleaning the product in-house and the potential of product liability claims arising from improper gastrolith (stone) removal in cleaning by inexperienced staff. Twenty percent of the restaurants in the survey objected to

the variation in size of crawfish received in each package. Wide ranges were especially objectionable. Inconsistency in sizes requires sorting and repackaging, increased food preparation time and labor costs, and leaves unsalable odd-sized crawfish. Interestingly, complaints of claw losses or similar defects were minimal.

The six participants that indicated satisfaction with current price and packaging have large volume, up-scale businesses, have received special promotional considerations from suppliers, and have a history of serving new and unique products. Because of these factors, consumer acceptance of soft shell crawfish at their establishments was high. Table 3 shows a summary of consumer responses reported by survey participants.

TABLE 3. Consumer responses to soft shell crawfish offered for sale in restaurants and retail seafood outlets, Mississippi Gulf Coast

Seafood Dealers		Restaurants:	
Good	2	Very good/excellent	6
Fair	3	Good	14
No Comment	14	Interesting	2
Too Expensive	6	Afraid to Try	2
		No Comment	5
		Too Expensive	1

Consumer response was especially favorable in restaurants. Twenty out of thirty responded with "excellent" to "good" opinions of soft shell crawfish in a restaurant setting. The five restaurants who did not report consumer response all experienced financial losses because of previously cited packaging and other problems (variable size, no portion control, low consumer awareness of the product).

Most of the retail seafood dealers did not solicit customer response because customers obviously balked at the posted price. Five of the seafood dealers prepared soft-shell crawfish to serve as samples to customers. Three of these indicated fair and two indicated good customer response. It must be noted, however, that most of these establishments did not have adequate cooking or food service capabilities.

As part of this study soft shell crawfish were served by a professional chef at the St. Claire Seafood Festival in Waveland, Mississippi in 1989. Soft crawfish were served for a two-hour period. Forty-seven people were served 3 crawfish each, double-battered, deep-fried at 350 degrees for 2 minutes, then covered with crab meat sauce. The price was \$2.50. Only one participant did not like the soft shell crawfish. Forty-six responded favorably, and indicated interest in purchase for home use. When offered at various prices, resistance began at \$6.00 per pound, or \$.25 per crawfish, to the individual home buyer. No sales were concluded to retail consumers at a cost of \$8.00 per pound.

These results suggest that the retail consumer on the Mississippi Gulf Coast is not yet ready to experiment with home preparation at the 1989 price of \$9.00 per pound but will try and like the product if promoted in restaurants. Consumers like and will buy the product if properly prepared and presented, especially in an up-scale restaurant setting.

IV. California Market Test

Demonstrations were arranged with ten restaurants and three restaurant distributors in southern California, and seventeen restaurants and four distributors in the San Francisco Bay area in April, 1989. A total of 108 firms, both restaurants and restaurant suppliers/distributors, were identified for the California market test. Only 31 percent (27 restaurants, 7 distributors, Appendices III and IV) of these firms responded to invitations to participate in a cooking demonstration.

* In California, participants were given the same cooking demonstration detailed in the Mississippi test market description, including recipes and a questionnaire. Six to eight defrosted crawfish were prepared and each participant was given one 1 lb. block frozen sample of soft shell crawfish packed in a ziplock bag. At the end of one week, all participants were contacted for responses to the questionnaire.

Price for the product was initially quoted at \$11.50 per pound. When strong resistance to that price was encountered with the first three restaurants contacted, the product was then quoted at \$0.48 each, or \$5.76 per dozen. Under this pricing system most price resistance was eliminated. It should be noted that the actual price of \$11.50 for a 24-count pound did not change.

Of the 34 firms that participated in the survey, thirty received samples (twenty-seven restaurants and three distributors); four distributors declined samples, and two restaurants did not return

questionnaires nor was further contact possible. The questionnaire responses are summarized in Table 4.

TABLE 4. Summary of questionnaire responses, California market test

S.Calif.	N.Calif.		Number	% of Total
10	15		25	100%
		Restaurants		
4	9	Need portion control package	13	52%
5	9	Need producer promotion	14	56%
1	2	Buy only live, fresh product	3	12%
-	2	Need to purchase in small quantity with new product	2	8%
4	6	Must be cleaned and processed	10	40%
3	5	Too expensive	8	26%
1	2	No comment	3	10%
S.Calif.	N.Calif.		Number	% of Total
3	4		7	100%
		Distributors		
-	1	Want live product	1	14.3%
3	4	Need portion control	7	100%
3	4	Too high. Must have 25-30% mark-up on perishable product	7	100%
1	2	Needs attractive retail package	3	42.9%
2	2	No consumer demand	4	57.1%

Note: Totals may exceed 100 percent because of multiple responses by participants.

Contrary to the results of the Mississippi Gulf Coast survey, price was not a significant objection in the California restaurant survey. Instead, the need to promote the product and to increase consumer awareness was the leading response among restaurants, followed closely by the need for portion-controlled packaging.

The responses of California distributors were quite different from the restaurateurs. Aside from a unique preference by California distributors for live product, there was a high degree of concordance between their responses and those of Mississippi seafood retailers. Both unanimously ranked cost as the most important factor affecting their decisions to carry the product. But, where portion control was identified as important by all California distributors, only 4 percent of Mississippi retailers thought this was a significant concern. About half of each group (56 percent MS, 42 percent CA) found the packaging (1 lb. block frozen plastic bag) objectionable. While 57 percent of California distributors cited the need for increasing consumer awareness of the product, only 20 percent of Mississippi retailers felt this was significant.

For producers potentially interested in the live trade, the following description maybe useful. Two of the distributors contacted in San Francisco had already purchased soft shell crawfish from a major soft shell crawfish market in Louisiana. One of these distributors handles only live or fresh product. He receives live soft shell crawfish in low-calcium water, in quantities of 36 dozen, twice a week. They arrive packed in refrigerated, disposable containers, 4 1/2 to 5 dozen per tray, and 8 trays per master case. The air freight time in transit is approximately 26 hours. Shipment from Louisiana to restaurant often takes a total of three days. The distributor purchases at \$8.50 per dozen and sells for \$10.75 per dozen. The monthly volume is approximately 300 dozen, or the equivalent of 150 lbs. However, the distributor is considering

discontinuing the product, because of stiff price resistance from restaurants except up-scale, high volume operations. To receive supplies of live crawfish restaurants are required to purchase at least two dozen per delivery. Losses of crawfish are high due to hardening to paper shell and mortality in transit. Losses average one crawfish in eight trays. If crawfish arrive dead, the supplier issues credit, if they die after delivery, the distributor absorbs the loss.

Several distributors have had difficulty in moving live product in large quantities. After taking some financial losses with the high-priced live product, these distributors are understandably cautious. However, follow-up inquiries reveal that these distributors may be willing to carry both fresh and frozen Mississippi product if the packaging is attractive and allows portion control, restaurant contacts are provided and prices to the distributor are \$5.00 per dozen or less. Arrangement for consignment sales would be especially attractive.

The importance of distributors in the California market should not be overlooked. Space is at a premium in most California restaurants, and large freezer inventories are not maintained. All twenty-five restaurant participants indicated they purchased seafood from local distributors, and no restaurant does business directly with producers. Distributors deliver weekly or twice weekly, and a seven-day inventory was the maximum reported held at any restaurant.

The California up-scale market prefers fresh or live product, especially seafood. Because of the large number of high volume restaurants, distributors are able to sell live or fresh product in

this market with negligible loss. Shipping losses are generally absorbed by the out-of-state supplier.

The restaurants surveyed responded favorably to the product, and many indicated a willingness to purchase so long as quantities were small. Five dozen soft crawfish or less was the maximum quantity that restaurants indicated they would be willing to purchase. All reported concern about the ability of suppliers to provide consistent quality product year-round. All restaurants indicated they would not accept product packed in ziplock bags on anything but a one-time sample basis. All insisted on a sanitary, attractive, portion controlled package for any future transactions.

Lack of consumer awareness of the product was cited as a limiting factor in over half of the responses. Most restaurants agreed that producer or private promotions would be necessary to help create a demand for soft shell crawfish in the California market.

Restaurant distributors unanimously responded that a 25 percent mark-up was necessary and that the price to the restaurant could not exceed \$0.50 each, or \$6.00 per dozen (\$12.00/lb. for 24 count). The price to distributors could not exceed \$0.40 per crawfish or \$4.80 per dozen (\$9.60/lb. for 24 count). Three of seven said that the initial price should be even lower in order to cover distributor costs of sale and promotion of a new and unknown product.

The senior author attended a food show sponsored by the Louisiana Seafood Promotion Board on April 24, 1989, in Los Angeles. A California public relations and marketing firm coordinated the show. The guest chef preparing soft shell crawfish was Jon Folsie of

Laffite's Landing Restaurant in Donaldsonville, Louisiana. The show was by invitation only, to member chefs in the American Culinary Association. Approximately 200 chefs and/or restaurant owners attended the cooking demonstration. It was a well-produced show and response to soft shell crawfish was consistently favorable.

The senior author had an opportunity to discuss the product with numerous chefs attending the show. All indicated that they would like to try the product, but were not willing to call six or seven producers or to pay shipping. All wanted to be able to purchase through established and reliable distributors.

V. National Food Distributors/Brokers

Thirty seafood distributors, nationwide, were contacted by telephone in May, 1989. The master list of contacts was compiled from various sources, primarily the Quick Frozen Foods Annual Buyers Guide (Saul Beck, Publishers, New York, NY). There were 41 names on the master list (Appendix V).

Brokers/distributors were asked if they had ever been exposed to soft shell crawfish, and, if they had, their response to the product. If they had never been exposed to this product, it was described to them in relation to soft shell crab. They were quoted a selling price of \$8.00 per pound for a 1 pound frozen block, containing from 20-29 count crawfish per pound. This price was quoted for minimum shipments of 20 pounds, and the purchaser would pay shipping costs. We indicated that the producers were flexible in packaging, and that the product could be sold under the distributor's label in the 1989 season. Table 5 provides a summary of responses from this group.

TABLE 5. Summary of responses provided by national brokers/distributors to a telephone survey.

	<u>Number</u>	<u>% of Total</u>
	30	100%
Too expensive	10	33.3%
Not taking new product	1	3.3%
Must process themselves or be assured of quality	6	20%
Have tried without success block-frozen soft crawfish	2	6.6%
No market demand	4	13.3%
Send literature and sample	6	20%
Not interested	6	20%
Need large volume	2	6.6%
Unable to contact	1	3.3%

Totals exceed 100 percent because of multiple responses by participants. Twenty percent of those contacted were unfamiliar with the product and but were willing to sample it. These contacts wanted assurances of quality control, consistency, and other factors before they would handle the product. They wanted producers or marketers to assume responsibility for product liability until a market is established. Most felt that the product was too expensive and were unwilling to handle it until prices dropped to around \$6.00 to \$6.50/lb. Thirteen percent of the respondents said they would consider the product for re-sale if a market demand was created by the industry. Twenty percent exhibited no interest in the product under any circumstances. The balance was interested, but had price, package, quality, or market demand objections.

VI. International Buyers

We examined this segment of the market only briefly. Market research in this segment is extremely difficult because of a scarcity of credible U.S. contacts or trade organization support. We contacted buyers in nine foreign countries by phone, and were able to overcome language barriers with only four of eight firms. Those firms were Canadian, English, Swedish, and Japanese.

While all four firms contacted indicated some interest, none were willing to negotiate unless samples could be provided to them. All four suggested that the crawfish industry participate with product and information in international food shows to facilitate contact. The Swedish firm indicated particular interest, since the Swedish population is fond of crawfish.

It is important to recognize the difficulties inherent in penetrating foreign markets. The Mississippi crawfish industry would have to provide product, personnel, transportation, and accommodations in order to participate in international food shows. The industry would also need to establish and enforce quality control standards before trying to penetrate the foreign markets. In addition, opening international markets takes a long time. Negotiations are slow and a large volume of product is required to justify transportation and handling costs. Finally, international markets are subject to increased risks because of currency fluctuations and changing international relations.

We do not feel that the international market is a viable alternative market for the Mississippi soft shell crawfish industry

until production levels, product standardization, and quality control can be established. Premature shipment to foreign countries can damage future market potential.

VII. Discussions and Conclusions

Five states had active soft shell crawfish production at the time of this survey: South Carolina, Alabama, Mississippi, Florida and Louisiana. Of these states, only Louisiana and Florida have organized marketing or promotion efforts for the product.

Louisiana has numerous small markets for soft shell crawfish. Current (1989) prices range from \$4.50 per pound to \$7.00 per pound. The only major marketing effort is by Handy Soft Shell Crawfish, a joint venture involving the soft shell crab firm of John T. Handy, Inc., of Crisfield, Maryland. They purchase direct from about 50 producers under contract and pay \$6.00 per pound (May, 1989) for perfect crawfish, delivered live to the processing plant in Baton Rouge. Handy does not sell product in Louisiana, Mississippi, or surrounding states because individual producers not under contract to Handy have saturated the market with block frozen, inconsistent quality product at deeply discounted prices.

Mississippi producers should be aware of current marketing and packaging procedures used by Handy Soft Shell Crawfish. Handy has devised a system of grading based on length, and sales by the dozen rather than by weight. Packages are portion controlled and individually quick-frozen. Prices quoted by Handy on 5/28/89 were as follows:

	<u>Package/Size</u>	<u>#per box</u>	<u>Minimum Purchase</u>	<u>May 1989 Price/doz.</u>
Block frozen	approx. 28	4 bags	8 doz.	\$3.00
Big Daddies	3" to 3 1/2"	7 1/2 doz.	1 box	5.50
Giants	3 1/2" & up	7 1/2 doz	1 box	6.90

The boxes are packed with five trays per box of 18 crawfish per tray, or 90 crawfish. May, 1989, price quotes, equate to 45.8 cents each for Big Daddies, and 57.5 cents each for Giants. The minimum purchase price per box of Big Daddies is \$41.25, the Giants are \$51.75. These boxes are packed in a master case containing five boxes. If only one box is ordered, there is an additional box and dry ice charge of \$14.00 per box. This charge is eliminated if a full master case is ordered (37 1/2 dozen). A master case of Big Daddies is \$206.25; Giants are \$258.75. In all cases, the buyer must pay shipping charges unless ten master cases are ordered.

Crawfish One, near Panama City, Florida, is producing soft shell crawfish in quantity. The product is being marketed by their marketing division in Memphis, Tennessee. Their promotional literature indicates that they are the largest single producer of soft shell crawfish in the U.S., with their own ponds and processing plant. They sell crawfish in a block-frozen, heat-sealed, one pound bags. The price quoted (May, 1989) was \$8.50 per pound in quantities of 500 lbs. or more. They pay shipping.

No market information was obtained on product from South Carolina or Alabama. Several small Mississippi marketing firms that operated prior to the recent price decline have since gone out of business and no information on their prices was available. One buyer remains active in Mississippi. Mississippi sales range from reported highs of \$8.00 to \$9.00 per pound around Jackson to lows of \$4.00 per pound.

Almost all participants in the market feasibility study responded positively to soft shell crawfish, and felt the product was marketable

if packaged and priced correctly. Price was the most consistently repeated objection to soft shell crawfish, with packaging and lack of consumer demand a close second and third. Brokers, distributors, and international buyers will require consistency, standardization, quality control, producer promotion, and year-round availability.

In order to overcome buyer objections, the Mississippi soft shell crawfish industry needs standardized grading, quality control, processing, packaging, and correct pricing. Without producer organization and cooperation, this standardization will be difficult to achieve. Private and public funds for processing, packaging, and promotion are difficult to obtain without cost of production guidelines.

The best hope for the industry in Mississippi is a producer cooperative and/or contract production for private investors. The price paid to producers cannot exceed \$6.00 to \$6.50 per pound in order to keep the market price at or near \$10.00 per pound or \$5.00 per dozen.

To be competitive in the soft shell crawfish industry, producers will need to control prices of immature crawfish, transportation costs and have central processing and packaging facilities available to them. Especially important is portion control packaging. Without these facilities, quality control, portion control or product standardization cannot be realized. Producers should also be aware that the cost of processing, delivery to plant, packaging and marketing may be costly, especially in the early period of market development.

Mississippi producers contacted by survey staff indicated that the cost per pound paid to producers must be between \$7.00 and \$8.00 in order to continue producing. We were unable to determine actual costs of production, since producers' systems varied widely in design and operating costs. A survey and analysis of cost of production for Mississippi soft shell crawfish is under way. The immediate focus for producers must be determination of actual costs of production. Until these costs can be firmly established, the profitability of any operation cannot be determined. Private investment in processing and packaging facilities will not be made unless reliable information is obtained on cost of production.

In order to capture a sizable market share in the soft shell crawfish industry, Mississippi producers must be able to produce, process, package and market their product at or slightly below levels established by the major competitors.

APPENDIX I

MISSISSIPPI ESTABLISHMENTS
CONTRACTED TO MARKET SOFT SHELL CRAWFISH

Beach Seafood, Inc.
Biloxi, MS

Biloxi Seafood & Ice Company
Biloxi, MS

Captain Ed's
Biloxi, MS

Desporte & Sons Seafood, Inc.
Biloxi, MS

Gollott CF & Son Seafood, Inc.
Biloxi, MS

Quality Seafood
Biloxi, MS

Louis Suarez Seafood
Biloxi, MS

Capt. Bob's Gulf Fresh Seafood
Gulfport, MS

Coastal Seafood
Gulfport, MS

Crystal Seafood
Gulfport, MS

Doc's Seafood Market
Gulfport, MS

Dominick Seafood
Grenta, LA

Gulfport Seafood & Ice Company
Gulfport, MS

H & G Seafood
Gulfport, MS

The Landing Restaurant
Gulfport, MS

Mississippi City Seafood
Gulfport, MS

Pass Road Seafood Market
Gulfport, MS

Seafair Seafood
Gulfport, MS

Seven Seas Seafood
Gulfport, MS

Long Beach Seafood
Long Beach, MS

Mr. T's Seafood
Long Beach, MS

Aunt Jenny's Catfish Restaurant
Ocean Springs, MS 39564

Bommarilo's Corner Store
Ocean Springs, MS 39564

Ocean Springs Seafood
Ocean Springs, MS

Diamondhead Ship Store & Marina
Pass Christian, MS

Jerry Forte Seafood
Pass Christian, MS

Kajean's Fresh Seafood
Pass Christian, MS

Kimball's Seafood
Pass Christian, MS

Pass Seafood Co., Inc.
Pass Christian, MS

Hygience Crab Co. of Vancleave
Vancleave, MS

Caldwell's Grocery & Deli
Waveland, MS

Peterman's Seafood
Waveland, MS

Waveland Seafood Center & Deli
Waveland, MS

Bayou Caddy Fisheries and Ice
Lakeshore, MS

Fournier and Sons Seafoods
Biloxi, MS

Gollott Bros. Seafood Co., Inc.
Biloxi, MS

North Bay Seafood, Inc.
D'Iberville, MS

Premium Oyster Company
Biloxi, MS

Progressive Seafood Brokerage
Biloxi, MS

Sea Harvest, Inc.
Biloxi, MS

Seymour & Sons Seafoods, Inc.
Biloxi, MS

Shemper Seafood Company
Biloxi, MS

Southern Seafood Wholesalers, Inc.
Biloxi, MS

Suarez Seafood
Biloxi, MS 39530

Tibliet Stuffed Crabs
Biloxi, MS

Arrow Sysco Food Services, Inc.
Gulfport, MS

Gulfport Purchasing Seafood Company
Gulfport, MS

Gulfport Quick-freeze Company
Gulfport, MS

Terry's Seafood
Bay St. Louis, MS

Bud's Catfish House, Inc.
Bay St. Louis, MS

The Cat House
Bay St. Louis, MS

The Dock of the Bay
Bay St. Louis, MS

The Eatery
Bay St. Louis, MS

First Precinct Restaurant & Lounge
Bay St. Louis, MS

King Wah Restaurant
Bay St. Louis, MS

The Landmark
Bay St. Louis, MS

The Paddle Wheel Restaurant
Waveland, MS

Baricev's Seafood Harbor Restaurant & Lounge
Biloxi, MS

Best Western Biloxi Inn
Biloxi, MS

Biloxi Blues American Cafe
Biloxi, MS

Bombay Bicycle Club
Biloxi, MS

Cap'n Hoagie
Biloxi, MS

Catch of the Day
Biloxi, MS

Catfish Charlie
Gulfport, MS

Chieu Anh
Biloxi, MS

The China Bo
Biloxi, MS

Chinese Kitchen Restaurant
Biloxi, MS

Copper Lobster
Biloxi, MS

Donnovan's Restaurant
Biloxi, MS

Dasty's Diner
Biloxi, MS

The Factory
Biloxi, MS

Fisherman's Wharf Restaurant
Biloxi, MS

Flagship Restaurant
Biloxi, MS

The Fountain Restaurant & Lounge
Biloxi, MS

The French Connection
Biloxi, MS

Geno's Restaurant
Biloxi, MS

McElroy's Harbor House
Biloxi, MS

Hickory Hills Country Club
Biloxi, MS

Hook, Line & Sinker Seafood Restaurant
Biloxi, MS

House of Chin
Biloxi, MS

Jay's Fishing Camp
Gulfport, MS 39503

Mary Mahoney's
Biloxi, MS

Morrison's Cafeteria
Biloxi, MS

O'Charley's
Biloxi, MS

Ole Biloxi Schooner
Biloxi, MS

Pier 90 Restaurant & Lounge
Biloxi, MS

Po-Boy Connection
Biloxi, MS

Po Folks Restaurant
Biloxi, MS

Popps Ferry Seafood Restaurant & Lounge
Biloxi, MS

Port-O-Call Seafood Restaurant
Biloxi, MS

Taurus
Biloxi, MS

Captain D's Seafood Restaurant
Biloxi, MS

Catfish Shack of America, Inc.
Gulfport, MS

The Chimneys
Long Beach, MS

Gumbo House
Gulfport, MS

The Landing Restaurant
Gulfport, MS

Lil' Ray's
Gulfport, MS

Lil' Ray's (#2)
Gulfport, MS

Nicholnof's
Gulfport, MS

Seafood Kitchens
Gulfport, MS

Sugar Mill Restaurant & Lounge
Gulfport, MS

Vrazel's Fine Food Restaurant
Gulfport, MS

White Cap Seafood Restaurant
Gulfport, MS

Widow Watson's Restaurant
Gautier, MS

Amelia's Po-Boys
Long Beach, MS

Barnaby's Seafood Restaurant
Long Beach, MS

Chappy';s Seafood Restaurant
Long Beach, MS

Ye Ole Meat Market & Deli
Long Beach, MS

White Pillars
Biloxi, MS

Trilby's
Ocean Springs, MS

Henderson Point
Pass Christian, MS

Pirate's Cove
Pass Christian, MS

Rooster's Cafe
Kiln, MS

Cajun Cuisine
Waveland, MS

House of Catfish
Waveland, MS

Jack's Restaurant & Lounge
Waveland, MS

J's Restaurant
Waveland, MS

Lil' Ray's
Waveland, MS

Rusty Pelican
Pass Christian, MS

APPENDIX II
QUESTIONNAIRE

1. Which size package would you prefer for ease in defrosting?
 1 lb. package -- approx. 28 crawfish
 5 lb. package -- approx. 140 crawfish
 10 lb. package -- approx. 280 crawfish

2. Would you prefer a minimum purchase of:
 25 lbs. of 5 lb. bags
 25 lbs. of 1 lb. bags
 10 lbs. of 5 lb. bags
 10 lbs. of 1 lb. bags

3. Would you prefer vacuum packaging?
 Yes No Doesn't Matter

4. Should each package be labeled with cleaning instructions, brand name, recipes, count, etc., or can shipping box only be labeled with above information?
 Each Package Shipping Box Only

5. Did you use soft shell crawfish as:
 entre' (6 to 10 per serving)
 appetizer (4 to 5 per serving)
 as a part of other dishes (2 or 3 per serving)
 all of the above

6. After initial salesman contact, would you reorder by phone or do you prefer continuing personal contact with salesman?
 telephone personal contact

7. Was our representative well-informed?

Yes No Somewhat

8. Do you receive restaurant or trade publications? If so, which ones?

9. When purchasing a new product, do you require samples? If so, how much do you consider an adequate sample?

1/2 lb. 1 lb. more how much? _____

10. How do you select suppliers?

Trade Publications

Personal contact with salespeople

Referrals from other users

Other _____

11. How often do you rebid product quality and price?

monthly

quarterly

semi-annually

annually

depends on service and quality

12. Do you prefer a set time and date for product delivery?

Yes No

13. How often do you require delivery of product to your facility?

weekly monthly twice monthly

14. Would you be willing to pick up product at a central facility if a price break could be obtained?

Yes No

15. If there were a price incentive, would you use soft shell crawfish that is "irregular," i.e.: missing legs and claws? These "irregulars" can be used on sandwiches, in soups, and in mixed dishes.

Yes No Don't Know

16. Would you prefer larger crawfish with less count per pound (10-16)?

Yes No Doesn't Matter

17. Do you currently serve soft shell crawfish?

Yes No

18. If yes, is it on your menu or only as a special when available?

Menu Special

19. Please provide us with any additional comments about the product.

1. Response from your customers:

2. Your response to packaging, flavor, count, recipes, and ease of preparation:

Thanks so much for your cooperation.

Sincerely,

Respondent:

APPENDIX III

CALIFORNIA RESTAURANTS CONTRACTED TO
TEST MARKET SOFT SHELL CRAWFISH

Amelio's
San Francisco, CA

The Balboa Cafe
San Francisco, CA

Bay Wolf Restaurant
San Francisco, CA

The Blue Fox
San Francisco, CA

Buca Giovanni
San Francisco, CA

Butler's
San Francisco, CA

The California Culinary Academy
San Francisco, CA

Campton Place Restaurant
San Francisco, CA

The Casa Madrona Restaurant
San Francisco, CA

China Moon Cafe
San Francisco, CA

Chef Panisse
San Francisco, CA

Ernie's Restaurant
San Francisco, CA

Fournou's Ovens
San Francisco, CA

Fleur de Lys
San Francisco, CA

The French Room
San Francisco, CA

Green's At Fort Mason
San Francisco, CA

Hayes Street Grill
San Francisco, CA

Il Fornaio
San Francisco, CA

La Folie
San Francisco, CA

The Maltese Grill
San Francisco, CA

The Mandarin
San Francisco, CA

Oliveto Cape and Restaurant
San Francisco, CA

Masa's
San Francisco, CA

Pierre At Meridien
San Francisco, CA

The Portman Grill
San Francisco, CA

RAF Restaurant
San Francisco, CA

Ristorante Donatello
San Francisco, CA

Silks at Mandarin Oriental
San Francisco, CA

Square One Restaurant
San Francisco, CA

Stars
San Francisco, CA

Tadich Grill
San Francisco, CA

Taxi
San Francisco, CA

Zola's
San Francisco, CA

Zuni Cafe & Grill
San Francisco, CA

Bix
San Francisco, CA

Hillcrest Bar's Cafe
San Francisco, CA

Lascaux
San Francisco, CA

Rosalies
San Francisco, CA

San Francisco Brewing Company
San Francisco, CA

Tutto Bene
San Francisco, CA

La Bergerie
San Francisco, CA

APPENDIX IV

RESTAURANT DISTRIBUTORS CONTRACTED TO
TEST MARKET SOFT SHELL CRAWFISH

California Sunshine Fine Foods
San Francisco, CA

Crest International Corporation
San Diego, CA

Meredith Fish Company
Sacramento, CA

Oceanic Pacific Marketing
Sausalito, CA

Oceans of the World
Carmel, CA

Purcell & Associates
San Mateo, CA

Paladine Seafood Company, Inc.
San Francisco, CA

Standard Fisheries Corporation
San Francisco, CA

State Fish Company
San Pedro, CA

Washington Fish & Oyster of California
San Francisco, CA

California Shellfish
San Francisco, CA

King Fish Ocean Packing
New York, NY

Dry Dock Fish Company
Anaheim, CA

Santa Monica Seafood Retail

California Crayfish
San Francisco, CA

Anchor Shellfish Company
San Francisco, CA

Fresh Prawns
So. San Francisco, CA

W. L. Merry Company
Los Angeles, CA

APPENDIX V

NATIONAL BROKERS/DISTRIBUTORS CONTRACTED TO
TEST MARKET SOFT SHELL CRAWFISH

Arden International Kitchen, Inc.
Lakeville, MN

Bayou Land Seafood
Breaux Bridge, LA

Bayou Land E'Crevisse, Inc.
Franklin, LA

Bill & Sons, Inc., Harry H.
St. Petersburg, FL

Bozoo's
Pascagoula, MS

Crawfish One
Memphis, TN

Crawfish Processors, Inc.
Eunice, LA

Darik Enterprises, Inc.
Woodside, NY

ECF, Inc.
Miami, FL

G. E. Consultants
Huntington, NY

St. Peter Projects
Marietta, GA

International Oceanic Enterprises
Bayou LaBatre, AL

Jessie's Ilwaco Fish Company
Ilwaco, WA

Lombardi's Seafood, Inc.
Winter Park, FL

Lunds Fisheries
Cape May, NJ

Matassini & Sons Fish Company
Tampa, FL

Mazur Bros. & Jaffe Fish Company
New York, NY

McRoberts Sales Company
Ruskin, FL

Missouri Fish Company
Kansas City, MO

National Fisheries Company
Miami, FL

Northwest Food Company
Detroit, MI

Pacific Salmon Company
Seattle, WA

Petersen International, Inc., Arne
Gloucester, MA

Reede Seafood Corporation
Roslyn Heights, NY

Seafood, Inc.
Henderson, LA

Sessler Company B
New York, NY

Shell Key Seafood Packing Company
Baldwin, LA

Shore Lobster & Shrimp Corporation
Perth Amboy, NJ

Slade Gorton & Company
Boston, MA

Superior Seafood, Inc.
Grand Rapids, MI