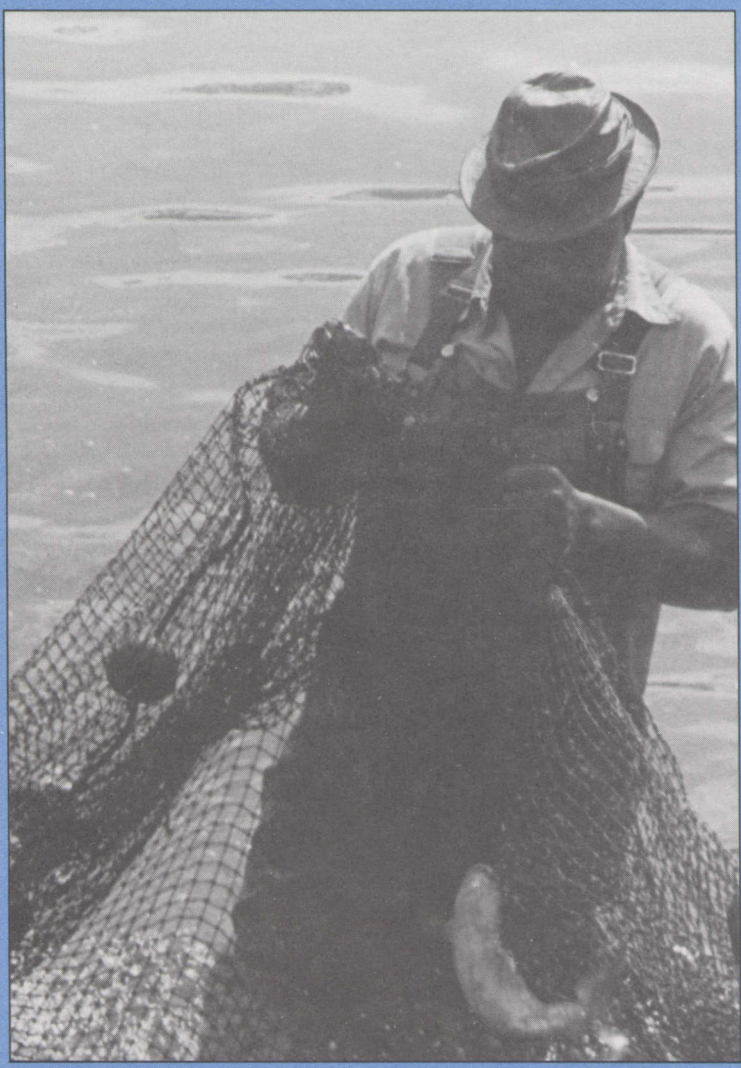


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*Marketing Alternatives for  
East Alabama  
Catfish Producers*

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*Information contained herein is available to all without regard to race, color, sex, or national origin.*

# *Marketing Alternatives for East Alabama Catfish Producers*

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## INTRODUCTION

**C**ONSUMPTION OF FISH and seafood products has increased in recent years. Since 1967, per capita consumption of fish in the United States has increased by 20 percent (10). Production of aquacultural products such as catfish has also increased dramatically. Acreage devoted to commercial catfish production has grown from 400 acres in 1960 to over 130,000 acres in 1988 (5,9).

Market information for catfish and other seafood products has been limited in the past because seafood has comprised only a small proportion of the U. S. consumer's diet. Recent increases in demand for seafood and expansion of the catfish industry have generated interest in marketing seafood products.

Aquaculture has made it possible for fish consumption to increase without adding to the strain on natural fishery resources. U. S. commercial catfish production has soared from 5.7 million pounds in 1970 to 211.7 million pounds in 1986 (8,11). Supply has expanded so fast that real wholesale prices offered by processors have fallen steadily since 1973, except for brief reversals in 1976-77 and 1984-85 (4,11). As the limits

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of traditional markets are reached, fish farmers have shown greater interest in marketing information and strategies.

Catfish farming is the largest sector of U. S. aquaculture (9), and catfish farmers currently show a strong interest in seafood marketing issues. Following the 1987 annual meeting of the Catfish Farmers of America, the Catfish Institute demonstrated a growing concern with marketing by announcing a \$2 million advertising campaign to promote consumption of Mississippi farm-raised catfish (3).

The present marketing study was undertaken as a first step toward understanding seafood markets in a 13-county area of east-central Alabama and west-central Georgia. Surveys were conducted of grocery stores, supermarkets, seafood restaurants, retail seafood markets, seafood wholesalers, and fishout (pay lake) operations. The study zone encompassed the city of Montgomery, Alabama, in the west, Eufaula, Alabama, in the south, Columbus, Georgia, in the east, and Alexander City, Alabama, in the north.

The primary purpose of this study was to characterize the relative importance of grocery store, supermarket, restaurant, seafood market, seafood wholesale, and fishout segments of the catfish market. The prevalence of various product forms currently available on the retail market was determined for catfish and other related species. Information on current seafood suppliers was collected to determine processing, packaging, and volume requirements for different market outlets. Recommendations were developed on marketing opportunities for catfish farmers within the study area.

Although the study area was limited geographically, it included all major market channels for catfish. Comparisons between market channels in terms of product form and relative volume and price requirements should apply to other geographic areas. This information should be useful for catfish farmers in providing general guidelines for marketing in different types of market outlets.

### **Market Channels for Catfish**

McCoy (7) identified processors, grocery stores, restaurants, seafood markets, individuals, live haulers, and wholesalers as market channels for farm-raised catfish. In 1978, 81 percent of catfish produced were sold to processors. However, for continuous sales, producers must be located within 50 miles

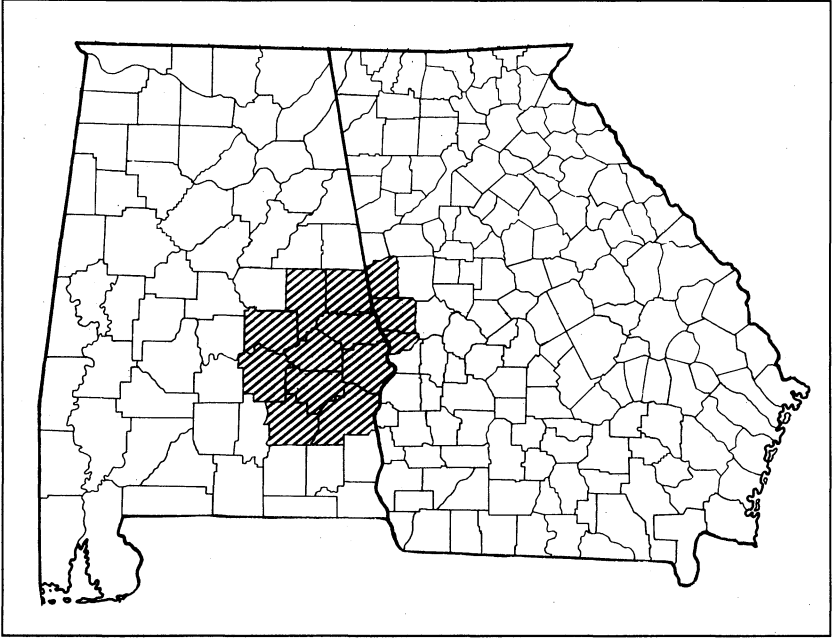
of the processing plant (7). Although there are over 100 catfish producers in east Alabama (approximately 16 percent of Alabama producers), there are no processing plants. These farmers must develop alternative market outlets.

Studies of catfish marketing channels have been conducted at both Mississippi State University (2) and Kentucky State University (1). The Mississippi State University survey began by interviewing firms representing six principal market channels for catfish. The study found that "chain grocery distributors, fish distributors, and poultry distributors handled mostly fresh fish, while food service distributors, food brokers, and catfish specialty restaurants handled mostly frozen fish (2). The study also found that only 24 percent of chain groceries handled catfish, and that those selling fresh catfish sold an average of 61 pounds per week. Since 1981, when the survey was conducted, the proportion of U. S. chain supermarkets carrying catfish and volumes sold have no doubt risen.

The Kentucky State study focused on both catfish and trout, and was limited to marketing in Kentucky. This study found that most retail grocers sold catfish (55 percent sold fresh, 60 percent sold frozen), but fewer sold trout (25 percent sold fresh, 30 percent frozen). A much smaller proportion of restaurants sold these fish. Only 14 percent sold fresh catfish, while 21 percent sold frozen catfish. Twenty-nine percent of the eating establishments carried fresh trout and 22 percent sold frozen trout. Among wholesalers, 28 percent carried frozen catfish and 14 percent frozen trout, but less than 10 percent of them carried fresh fish of either species (1).

### The Survey

Budgetary considerations limited the geographic scope of the study to the 13-county area of eastern Alabama and western Georgia identified in the map on page 6. The sampling universe of grocery stores, supermarkets, restaurants, and seafood markets was developed using telephone directory commercial listings for 1985-87. Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in the store name. Groceries were identified by the word "grocery" in the name of the store. Due to the large number of restaurants, it was decided to restrict the sample to restaurants specializing in seafood sales, as defined by the mention of seafood in their yellow-pages advertisements or in the



**Alabama and Georgia counties included in the study area.**

restaurant name. Fishout operators were identified through personnel of the Alabama and Georgia Cooperative Extension Services.

A stratified random sample was drawn from the universe of grocery stores, supermarkets, and restaurants. During the first stage of sampling, outlets were telephoned to determine if they sold fish. Those that did not sell fish were replaced to obtain a final sample of 25 outlets in each category. Ultimately, 125 groceries were contacted, of which 79 did not sell seafood products, 20 were closed, 1 refused to be interviewed, and 25 were interviewed about their seafood sales, table 1. Of 33 supermarkets sampled, 1 did not sell seafood, 2 had closed, and 30 were interviewed. Because restaurants were preselected to be seafood sellers, all those contacted which were still in business sold seafood.

There were 9 seafood markets, 6 seafood wholesalers, and 33 fishout operations in the study area. All were contacted and 7 seafood market managers, 5 seafood wholesalers, and

TABLE 1. SAMPLING FRAME FOR GROCERY STORES, SUPERMARKETS, SEAFOOD RESTAURANTS, SEAFOOD MARKETS, AND FISHOUT OPERATIONS SURVEYED IN EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Retail outlet	Sampling universe	Sample	No seafood sales	Outlet closed	Refused interview	Interviewed
	No.	No.	No.	No.	No.	No.
Retail grocers						
Supermarket <sup>1</sup> .....	136	33	1	2	0	30
Groceries <sup>2</sup> .....	493	125	79	20	1	25
Restaurants .....	84	48	0	9	9	30
Seafood markets .....	9	9	0	2	0	7
Seafood wholesalers ...	6	6	n.a. <sup>3</sup>	0	1	5
Fishout <sup>4</sup> .....	33	33	0	1	1	26

<sup>1</sup>Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in their name.

<sup>2</sup>Groceries were identified as stores using the word "grocery" in the name of the store.

<sup>3</sup>Not applicable.

<sup>4</sup>Five fishout operators could not be contacted for lack of a phone or an incorrect address.

26 fishout operators were still in business and granted interviews.

The survey instrument was pretested in each type of market outlet. Direct personal interviews were conducted in grocery stores and supermarkets from January to March, 1987; in restaurants from April to June, 1987; with fishout operators from June to August, 1987; and with seafood markets and wholesalers from January to March, 1988.

The survey instrument was divided into two parts. The first part elicited general store information, including perceptions on trends in seafood marketing, promotional tactics utilized, desired improvements to increase seafood sales, perceptions of seasonality in consumer demand, desired changes in supplies, and incidence of purchases from local suppliers. The second part of the questionnaire recorded prices and quantities of fish and seafood sold by level of processing and product conservation. Records were not kept by either the grocery store managers or the supermarket meat managers. Supermarket meat managers send invoices to regional offices that maintain data on sales of different products. Although requested, these regional data were not made available to the researchers. The data, with the exception of prices, were based on memory recall and current invoices of managers. Retail prices were recorded from the displayed products at the time of the interview. For the restaurants, data were gathered on the types of dishes sold and their prices.

Respondents were also asked the origin of their supplies and the age, race, and income levels of customers for each seafood product. The pilot test of the survey instrument indicated that the managers were only willing to divide age into "young" (under 35) and "old" and income into "high" and "low." Interviews were directed to store employees familiar with seafood sales (in groceries, typically the owner; in supermarkets, the meat and frozen foods managers).

Although the present study was motivated by an interest in catfish marketing, it began with the assumption that focusing on catfish sales alone is insufficient to thoroughly understand the market for catfish. Because other species of fish can substitute for catfish, the demand for catfish can only be understood in the context of demand for fish and seafood in general. Therefore, it was decided to survey all sales of seafood which had not been breaded or precooked.

## RESULTS

The study described the distribution of catfish and other seafood sales among grocery stores, supermarkets, restaurants, seafood markets, wholesalers, and fishout operations. Results shed light on monthly sales volumes, levels of processing, and types of seafood most commonly sold by these outlets. Profiles of the types and locations of principal seafood suppliers to retail outlets were developed. Finally, the results gave a profile of customer characteristics and promotional tactics utilized by different types of outlets.

### Catfish Share of Retail Market

Table 2 presents mean monthly quantities and retail value of catfish by market outlet. Mean monthly quantities of catfish sold ranged from 36 pounds in grocery stores to 3,523 pounds per fishout operation. These quantities corresponded to mean monthly sales values of \$81-\$4,200. Depending upon the specific market channel, catfish sales ranged from 7 percent to 95 percent of total seafood sales (both value and quantity).

Market outlets with highest average sales of catfish were different from the market segment having greatest total sales. For example, fishout operations and seafood wholesalers moved the greatest retail value and quantity, respectively, of catfish *per outlet*. Seafood restaurants and supermarkets, when sales



TABLE 2. MEAN MONTHLY QUANTITIES AND RETAIL VALUE OF CATFISH BY MARKET OUTLET TYPE (ALL PRODUCT FORMS) FROM RETAIL MARKET SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Market outlet	Number of outlets	Mean sales		Mean quantity		Mean price per lb.
		Per month	Pct. of seafood	Per month	Pct. of seafood	
		<i>Dol.</i>	<i>Pct.</i>	<i>Lb.</i>	<i>Pct.</i>	
Retail grocer						
Supermarket <sup>1</sup> .....	30	571	11	246	12	2.32
Grocery store <sup>2</sup> .....	25	81	12	36	8	2.25
Restaurant <sup>3</sup> .....	30	1,215	10	456	16	2.66
Seafood market .....	7	1,184	8	525	7	2.26
Fishout <sup>4</sup> .....	12	3,603	95	3,523	95	1.05
Seafood wholesaler .....	5	4,200	19	2,320	22	1.81

<sup>1</sup>Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in the store name.

<sup>2</sup>Groceries were identified as stores using the word "grocery" in the name of the store.

<sup>3</sup>For restaurants, seafood value was calculated as raw quantity purchased times mean grocery retail price of the same product.

<sup>4</sup>Fishout operations with weekly sales less than 100 pounds were excluded.

of all individual outlets were aggregated, sold far more than other market segments. There were many more seafood restaurants and supermarkets than fishout operations or seafood wholesalers in the study area.

Volume sold in individual outlets seemed to reflect the inverse price/quantity relationship of demand. Mean price of catfish in the higher volume fishout operations was substantially lower than price of catfish in the lower volume retail grocer segment, table 2. Mean wholesale price of catfish paid by restaurateurs exceeded other prices, but the volume moved per store was lower than the volumes moved by seafood markets, seafood wholesalers, or fishout operations.

Catfish and shrimp were the only species to be in the top five seafood varieties of all market outlets (excluding fishout operations that primarily sold catfish), table 3. Other than catfish and shrimp, different varieties predominated in different market segments.

While shrimp generated the largest sales volume for both supermarkets and seafood restaurants, restaurants sold more than twice as much as supermarkets; mean monthly sales totaled \$2,813 versus \$1,329 for supermarkets, table 3. If seafood products are divided into price per pound of groups over \$4.00, \$2.00-4.00, and under \$2.00, seafood restaurants led in sales for all four of the higher valued seafood species (oysters, blue crab, red snapper, and clams), as well as shrimp.

TABLE 3. MEAN MONTHLY RETAIL VALUE OF TOP SEAFOOD VARIETIES BY MARKET OUTLET FROM MARKET SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Variety	Retail value, by market outlet <sup>1</sup>				
	Supermarket <sup>2</sup>	Grocery <sup>3</sup> store	Restaurant	Seafood market	Wholesale
	<i>Dol.</i>	<i>Dol.</i>	<i>Dol.</i>	<i>Dol.</i>	<i>Dol.</i>
Blue crab .....	17	0	543	0	0
Catfish .....	571	81	1,215	1,184	4,200
Mullet .....	154	91	34	3,414	3,632
Ocean perch .....	874	58	148	0	0
Oyster .....	264	16	1,457	1,045	813
Red snapper .....	80	24	337	1,063	4,702
Shrimp .....	1,329	41	2,813	1,712	4,085
Speckled trout .....	48	8	48	1,598	376
Whitefish <sup>4</sup> .....	6	0	1,340	0	0
Whiting .....	552	108	166	333	182

<sup>1</sup>Fishout operations sold \$3,603 of catfish per month per operation during a typical season from April to October.

<sup>2</sup>Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in the store name.

<sup>3</sup>Groceries were identified as stores using the word "grocery" in the name of the store.

<sup>4</sup>Two restaurants accounted for all restaurant sales of whitefish.

Sales of mid-priced species were divided between restaurants and supermarkets, with supermarkets leading in ocean perch sales and restaurants leading in sales of catfish, whitefish, and flounder. Whiting and mullet, two low-valued varieties, were sold chiefly through seafood markets and wholesalers, although they comprised a large proportion of grocery sales.

Shrimp sales, overall, comprised 23 percent of total seafood monthly dollar sales per retail grocer. Ocean perch followed with 15 percent and catfish and whiting each comprised 11 percent of monthly dollar sales per store.

Varieties important to seafood market sales were primarily those caught in the nearby Gulf of Mexico. In addition to catfish, shrimp, and oysters, the following varieties all had sales over \$1,000 per month per store: mullet, red snapper, and speckled trout, table 3.

Review of quantities sold indicated that the seafood restaurants vend certain species which are rarely sold through the grocery stores. Table 4 shows that whitefish and blue crab were sold almost exclusively through restaurants. However, this is partly due to survey bias which excluded prepared frozen crab dishes from the supermarket and grocery survey yet accepted them in the restaurant survey. By contrast, the low-cost species mullet and whiting were sold in large quantities

TABLE 4. MEAN MONTHLY QUANTITIES SOLD OF TOP SEAFOOD VARIETIES BY MARKET OUTLET FROM RETAIL MARKET SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Variety	Sales/month, by market outlet <sup>1</sup>				
	Supermarket <sup>2</sup>	Grocery <sup>3</sup> store	Restaurant	Seafood market	Wholesale
	Lb.	Lb.	Lb.	Lb.	Lb.
Blue crab .....	0	0	125	0	0
Bream <sup>4</sup> .....	19	11	20	700	314
Catfish .....	246	36	456	525	2,320
Croaker .....	41	3	7	464	160
Mullet .....	145	134	29	3,586	4,520
Ocean perch .....	348	21	54	0	0
Oyster .....	51	5	299	151	63
Red snapper .....	27	3	68	250	820
Shrimp .....	312	8	485	303	770
Speckled trout .....	31	4	18	621	120
Whitefish <sup>5</sup> .....	1	0	390	0	0
Whiting .....	572	137	91	200	140

<sup>1</sup>Fishout operations sold 3,523 pounds of catfish per month per operation during a typical season from April to October.

<sup>2</sup>Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in the store name.

<sup>3</sup>Groceries were identified as stores using the word "grocery" in the name of the store.

<sup>4</sup>Bream includes tilapia, bluegill, and similar fish.

<sup>5</sup>Two restaurants accounted for all restaurant sales of whitefish.

through groceries, supermarkets, and seafood markets. On a volume basis, whiting comprised 27 percent of the total monthly quantities moved per supermarket, followed by ocean perch at 14 percent, shrimp 13 percent, catfish 11 percent, and mullet 10 percent.

Seafood markets sold far greater volumes of mullet than any other seafood item. Bream (which included tilapia), speckled trout, catfish, and croaker were among the top five products sold in terms of volume.

### Product Form

Results indicated that catfish primarily were sold fresh in the study area, table 5. More catfish were sold whole-dressed than filleted in all outlets studied. Restaurants sold slightly less fresh than frozen catfish. Differences were found in form of product conservation. As mentioned above, catfish primarily were sold fresh (84 percent), as was mullet (80 percent), table 5. On the other hand, 82 percent of ocean perch and 93 percent of whiting were sold frozen.

Over half (55 percent) of the fresh mullet sold was also dressed (eviscerated, headed, scaled), but 45 percent was sold

TABLE 5. PERCENTAGE FREQUENCY OF PRODUCT FORM OF CATFISH PRODUCTS BY MARKET OUTLET FROM RETAIL MARKET SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Product form	Frequency, by market outlet			
	Retail groceries <sup>1</sup>	Restaurant	Seafood market	Fishout
	Pct.	Pct.	Pct.	Pct.
All				
Fresh .....	84	40	100	7
Frozen .....	16	60	0	0
Live .....	0	0	0	93
Fresh				
Dressed <sup>2</sup> .....	76	70	91	100
Fillet .....	24	20	0	0
Other <sup>3</sup> .....	0	10	9	0
Frozen/IQF <sup>4</sup>				
Dressed <sup>2</sup> .....	43	60	0	0
Fillet .....	29	33	0	0
Other <sup>3</sup> .....	28	7	0	0
Live .....	0	0	0	100

<sup>1</sup>Retail groceries includes both supermarkets and grocery stores.

<sup>2</sup>Skinned, gutted, without head.

<sup>3</sup>Includes whole, breaded, or nuggets.

<sup>4</sup>Individually quick frozen

as a whole, undressed product. Frozen whiting was generally (75 percent) sold dressed, but frozen ocean perch was sold as a fillet 100 percent of the time. Most shrimp was sold heads-off when fresh, versus heads-off and peeled when frozen. Oysters were mostly sold fresh shucked, although fresh oysters in the shell made up 38 percent of restaurant sales. Blue crabs were usually sold stuffed and frozen.

TABLE 6. MOST FREQUENTLY OCCURRING PRODUCT FORM OF TOP SEAFOOD VARIETIES BY MARKET OUTLET FROM RETAIL MARKET SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Seafood variety	Most frequent form, by market outlet <sup>1</sup>		
	Retail groceries <sup>2</sup>	Restaurant	Seafood market
Blue crab .....	n.a. <sup>3</sup>	fresh dressed	n.a. <sup>3</sup>
Bream .....	fresh dressed	n.a. <sup>3</sup>	fresh fillet
Catfish .....	fresh dressed	frozen dressed	fresh dressed
Croaker .....	fresh dressed	frozen dressed	fresh whole
Mullet .....	fresh dressed	fresh whole	fresh whole
Ocean perch .....	frozen fillet	frozen fillet	n.a. <sup>3</sup>
Oyster .....	fresh shucked	fresh shucked	fresh whole
Red snapper .....	frozen fillet	frozen fillet	fresh dressed/whole
Shrimp .....	frozen peeled	frozen peeled	fresh peeled
Speckled trout .....	frozen fillet	IQF fillet	fresh dressed
Whiting .....	frozen dressed	frozen fillet	fresh dressed/whole

<sup>1</sup>Fishout operations sold catfish live.

<sup>2</sup>Retail groceries includes both supermarkets and grocery stores.

<sup>3</sup>Not applicable.

Although most of the types of seafood surveyed was sold fresh or frozen, some was also "individually-quick-frozen" (IQF) or salted. Percentages of seafood products reported as IQF products underestimated the actual amount, since some respondents referred to IQF products as "frozen." IQF fish included in the responses were turbot, red snapper, cod, ocean perch, flounder, and grouper. Of these, ocean perch was most often packaged IQF. Salted fish (4 percent) included mullet, cod, mackerel, and herring.

Processing of seafood sold through restaurants was similar to that of retail stores with a few exceptions. Restaurants tended to use more frozen seafood than the groceries and supermarkets, especially where shrimp and catfish, the two largest-volume sellers, were involved. Certain forms of seafood were sold only through restaurants. For example, whole oysters comprised 38 percent of sales by restaurants, versus only 4 percent of retailers' sales. Restaurants sold blue crab mostly as a stuffed or breaded frozen product.

A close look at restaurant menus showed that two-thirds of all seafood dishes were filleted, table 7. Fillets (including peeled and shucked shellfish) comprised over 90 percent of the shrimp, whitefish, clams, and mixed platters offered on menus, as well as 70 percent of the oysters. Among the nine most popular dishes, only catfish and blue crab were not usually filleted. Catfish was sold whole-dressed but not filleted in 67 percent of cases, while most blue crab dishes were either crab legs and claws (46 percent) or stuffed (39 percent).

TABLE 7. FREQUENCY OF PRINCIPAL RESTAURANT SEAFOOD DISHES BY LEVEL OF PROCESSING FROM RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Seafood dish	Frequency, by level of processing				
	Number <sup>1</sup>	Whole	Dressed/ headless	Fillet (peeled)	Other
		<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Blue crab .....	28	7	46	7	39 <sup>2</sup>
Catfish .....	30	0	67	30	3
Clams .....	14	0	0	100	0
Flounder .....	19	16	16	47	16 <sup>2</sup>
Oysters .....	37	30	0	70	0
Red snapper .....	15	27	20	53	0
Shrimp .....	95	3	4	90	3
Whitefish .....	12	0	0	100	0
Mixed platters .....	41	0	0	100	0
All seafood .....	391	8	19	66	6

<sup>1</sup>An observation is an entree type of a specific restaurant.

<sup>2</sup>Stuffed.

Most restaurant seafood dishes were fried (53 percent), table 8. Whitefish, catfish, and clams were primarily sold fried. Just over half of red snapper and flounder dishes were broiled or grilled (the rest being fried). Half of shrimp dishes were boiled, while 48 percent of oyster dishes were raw, steamed, or boiled. Blue crab dishes which were not fried (62 percent) were divided among baked, stuffed, boiled, and broiled dishes.

Table 9 presents average price and price range data for retail grocer outlets. Fresh, whole-dressed catfish had a price range per pound of \$1.49 to \$2.79, whereas fresh fillets varied in price from \$1.99 to \$3.69. Whiting and mullet were generally priced lower than other fish products. Fresh, dressed catfish and ocean perch average prices were comparable, \$2.25 and \$1.96 per pound, respectively, although fresh catfish was more widely available.

Shrimp prices varied primarily by size. Jumbo shrimp (16-20 count, or 16-20 shrimp per pound) were the most expensive (\$7.99-\$10.65 per pound), with 60-70 count shrimp being the least expensive (\$2.99-\$3.99 per pound), table 10. A large percentage (40 percent), however, was sold as "frozen peeled" without specifying the size of the shrimp. Prices for this group ranged more widely than for all other size groups (\$2.59-\$10.65), with a mean of \$5.46 per pound.

Most shrimp were sold frozen (42 percent) or IQF (23 percent). Of these, 85 percent of the frozen shrimp and all of the IQF shrimp were sold peeled. Fresh shrimp, on the

TABLE 8. FREQUENCY OF SEAFOOD PRODUCTS BY FORM OF FOOD PREPARATION FOR PRINCIPAL RESTAURANT SPECIES FROM RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Seafood	Frequency, by form of preparation			
	Fried	Broiled grilled	Boiled	Baked/ stuffed
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Blue crab .....	38	15	19	27
Catfish .....	93	7	0	0
Clams .....	71	0	29	0
Flounder .....	42	54	0	4
Oysters <sup>1</sup> .....	50	0	17	3
Red snapper .....	48	52	0	0
Shrimp .....	38	13	50	0
Whitefish .....	100	0	0	0
All seafood <sup>2</sup> .....	53	18	23	3

<sup>1</sup>Thirty-one percent of oysters prepared in restaurants were raw or steamed.

<sup>2</sup>Three percent of all seafood prepared in restaurants was raw or steamed.

TABLE 9. AVERAGE PRICE AND PRICE RANGE FOR MAJOR PRODUCTS BY VARIETY AND PRODUCT FORM, RETAIL GROCERS<sup>1</sup>, FROM RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Species and condition	Product form	Number <sup>2</sup>	Average price <sup>3</sup>	Price range/lb.,
			per lb.	1987
			<i>Dol.</i>	<i>Dol.</i>
Catfish				
Fresh .....	dressed	28	2.25	1.49-2.79
	fillet	8	3.04	1.99-3.69
Flounder				
Fresh .....	fillet	7	4.20	1.99-7.99
Frozen .....	fillet	19	3.58	1.99-4.79
Mullet				
Fresh .....	whole	8	0.99	0.59-1.69
	dressed	10	1.40	1.07-1.49
Ocean perch				
Fresh .....	fillet	9	3.49	2.29-4.99
Frozen .....	fillet	54	2.65	1.00-4.52
Whiting				
Frozen .....	dressed	43	1.03	0.59-4.99
	fillet	9	1.83	0.99-3.99

<sup>1</sup>Retail grocers include both supermarkets and grocery stores.

<sup>2</sup>An observation is a product form in a supermarket or grocery store.

<sup>3</sup>The following product forms (with prices in parenthesis) were found in less than 10 percent of the surveyed population: frozen dressed (\$2.52) and filleted (\$3.39) **catfish**; fresh dressed (\$2.99) and IQF filleted (\$5.85) **flounder**; frozen whole (\$0.76), frozen dressed (\$1.39), salted dressed (\$1.09), salted fillet (\$0.97) and salted steaks (\$0.59) of **mullet**; fresh dressed **ocean perch** (\$1.96); and fresh dressed (\$1.09), fresh dressed filleted (\$2.59), and frozen whole (\$0.97) **whiting**.

TABLE 10. AVERAGE PRICE AND PRICE RANGE OF SHRIMP BY SIZE<sup>1</sup>, RETAIL GROCERS<sup>2</sup>, FROM RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Size, no. per pound	Frequency of product occurrence	Average price/lb. <sup>3</sup>	Price range/lb., 1987
	<i>Pct.</i>	<i>Dol.</i>	<i>Dol.</i>
16-20 .....	19	9.96	7.99-10.65
26-30 .....	6	6.35	4.69- 8.00
36-42 .....	11	5.86	4.99- 6.99
50-60 .....	13	4.64	2.99- 6.99
60-70 .....	4	3.49	2.99- 3.99
Unspecified size <sup>4</sup> .....	40	5.46	2.59-10.65

<sup>1</sup>Sizes listed are those found in the sampled stores. Some sizes, such as 21-25 and 31-35, were not observed in any of the stores studied.

<sup>2</sup>Retail grocers includes both supermarkets and grocery stores.

<sup>3</sup>Two percent of shrimp sold were butterfly shrimp (\$5.46 per pound).

<sup>4</sup>Labeled "frozen peeled" in stores.

other hand, were sold mostly unpeeled with the heads off (76 percent). Only one store handled heads-on shrimp.

### Acquisition of Seafood Supplies

How and where retailers acquire their supplies should be of particular interest to local aquaculture industries. Groceries appeared to be linked most to local suppliers; table 11 indicates that virtually all grocers purchased their seafood supplies from local sources. However, all grocers interviewed worked in independently owned establishments which may have lacked access to national and regional warehouse suppliers. Sixty percent of supermarkets obtained their seafood supplies locally, including all independent supermarkets and 37 percent of the chain stores. However, an additional 26 percent of chain supermarket outlets claimed that with authorization from central management they were permitted to make local purchases. Seventy-five percent of restaurants interviewed obtained their seafood supplies locally. The highest percentage (83 percent) was represented by independent restaurants versus 60 percent for chain-owned or franchised restaurants.

Seafood market managers in the study area generally traveled to fishing ports to purchase supplies. Fish sold through these outlets were primarily wild-caught fish purchased directly from fishermen at boat landings or from fish wholesalers located near boat landings. Even the majority of catfish sold

TABLE 11. PERCENTAGE OF OUTLETS THAT BUY SEAFOOD SUPPLIES LOCALLY<sup>1</sup> BY FORM OF OWNERSHIP IN RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Market outlet	Buy seafood locally, by form of ownership					
	Chain		Independent		Overall mean	
	No. <sup>2</sup>	Pct. <sup>3</sup>	No.	Pct.	No.	Pct.
Retail grocer						
Supermarkets <sup>4</sup> .....	19	37	11	100	30	60
Grocery stores <sup>5</sup> .....	1	0	24	100	25	96
Restaurant .....	10	60	19	83	29	75
Seafood market .....	0	n.a. <sup>6</sup>	7	43	7	43
Seafood wholesaler .....	0	n.a. <sup>6</sup>	5	0	5	0

<sup>1</sup>All the fishout operators interviewed produced their own fish.

<sup>2</sup>The total number of outlets surveyed with that type of ownership.

<sup>3</sup>The percent of surveyed outlets of that type that purchased seafood supplies locally.

<sup>4</sup>Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in the store name.

<sup>5</sup>Groceries were identified as stores using the word "grocery" in the name of the store.

<sup>6</sup>Not applicable.



was wild-caught river catfish. Only 43 percent of the seafood markets in the study area purchased seafood supplies locally, table 11.

None of the seafood wholesalers interviewed purchased seafood from local suppliers. Three of the five interviewed indicated they would buy locally if supplies were available.

TABLE 12. DISTRIBUTION OF MEAN MONTHLY RETAIL SALES VALUE FOR PRINCIPAL SEAFOOD VARIETIES CARRIED IN RESTAURANTS AND RETAIL GROCERIES<sup>1</sup> BY TYPE OF SUPPLIER FROM RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Seafood variety	Sales distribution, by supplier					
	Chain warehouse	Seafood wholesale	General wholesale/food broker	Independent jobbers	Direct purchase	Other/no response
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
<b>Restaurants</b>						
Blue crab .....	20	45	24	11	0	0
Catfish <sup>2</sup> .....	5	20	33	0	4	2
Clams .....	16	63	21	0	0	0
Flounder .....	5	82	7	2	4	0
Oysters .....	1	50	4	16	28	1
Red snapper ....	0	30	10	48	8	5
Shrimp .....	7	57	20	6	9	1
<b>Retail groceries</b>						
Catfish <sup>3</sup> .....	34	28	23	0	11	0
Flounder .....	27	1	70	0	0	1
Mullet .....	7	91	2	0	0	0
Ocean perch ....	58	3	38	0	0	1
Oyster .....	49	24	35	0	1	0
Shrimp .....	91	7	1	0	1	0
Whiting .....	40	7	53	0	0	1

<sup>1</sup>Retail groceries include both supermarkets and grocery stores.

<sup>2</sup>Thirty-six percent of the catfish supplied to restaurants was obtained from catfish processors.

<sup>3</sup>Three percent of catfish purchased by retail grocers was purchased from catfish processors.

Restaurants bought from a fairly wide range of supplier types. Table 12 presents the distribution of mean monthly retail sales value by type of supplier. Seafood and general wholesalers along with chain management controlled the largest part of seafood supplies. Other than these three, most seemed to specialize by species. For example, 36 percent of catfish were supplied by catfish processors and 48 percent of red snapper by independent jobbers acting as intermediaries between fishermen and the restaurants. General merchandise wholesalers tended to handle only frozen products.

Most store managers surveyed were satisfied with their cur-

TABLE 13. PERCENTAGES OF RETAIL MANAGERS THAT EXPRESSED DESIRE FOR CHANGES IN SEAFOOD SUPPLIES BY OUTLET TYPE IN RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88<sup>1</sup>

Change	Managers desiring change, by market outlet			
	Supermarket	Grocery store	Restaurant	Total
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Diversity .....	61	40	30	44
Steady supplies .....	19	40	10	23
Better quality .....	0	20	30	17
Better packaging .....	10	0	0	3
Greater freshness .....	0	0	20	7
Delivery by wholesalers .....	10	0	0	3
Smaller catfish .....	0	0	10	3

<sup>1</sup>Half of all managers interviewed did not express desire for any changes and 25 percent also indicated a desire for lower prices of seafood supplies.

rent supply of seafood products. Of those expressing desire for change, 61 percent of the supermarket managers wanted increased diversity in the form of different products, table 13. Greater availability of fresh tilapia, mullet, oysters, salt water fish, snapper, hardtail, and bluetail were mentioned. Grocery managers were as concerned with diversity (40 percent) as with steady supplies (40 percent). These same grocery stores relied more heavily on local suppliers than did supermarkets that arranged supplies through regional warehouses. Others expressed a need for steady supplies, packaged fresh shrimp, better quality, and delivery by wholesalers. Thirty percent of restaurant managers would like improved quality and increased diversity. Restaurant managers were the only managers to express a desire for greater freshness. Given that their current supplies are largely frozen, there may be potential for introducing fresh products. Overall, greater diversity, steady supplies, and improved quality were the primary changes managers would like to see.

### Promotion

Promotions were used by over three-fourths of supermarkets and seafood restaurants, but by only 28 percent of groceries, table 14. The advertising practices used by supermarkets and groceries appeared to differ significantly from those used by seafood restaurants. In-store signs and discount specials (advertised in newspapers by supermarkets) formed the basis of retailers' promotional efforts, and were used by 63-70 percent of all supermarkets. Thirteen percent of supermarkets oper-

TABLE 14. PERCENTAGE OF OUTLETS EMPLOYING SPECIFIC PROMOTIONAL TACTICS (BY OUTLET TYPE) FROM RETAIL SEAFOOD MARKETING SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88

Promotional tactic	Employing tactics, by outlet type				
	Groceries <sup>1</sup> (n=25)	Supermarkets <sup>2</sup> (n=30)	Restaurants (n=30)	Seafood markets (n=7)	Fishout (n=12)
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
<b>Advertisements</b>					
Newspaper .....	4	70	47	14	42
Radio .....	8	3	50	14	17
Television .....	0	0	20	0	8
Billboard on highway .....	0	0	20	0	0
<b>In-store</b>					
Sign in store/on road .....	28	63	13	14	33
Recipes .....	0	13	0	0	0
Discount special ...	12	67	30	0	0
Fish market section .....	4	13	0	n.a. <sup>3</sup>	n.a. <sup>3</sup>
Announcement over P.A. system .....	0	10	0	n.a. <sup>3</sup>	0
Taste tests .....	0	7	3	0	0
<b>Coupons</b>					
Direct .....	0	0	10	0	0
Newspaper .....	0	0	13	0	0
Other <sup>4</sup> .....	0	6	10	57	0
No promotion used	72	17	30	0	50

<sup>1</sup>Groceries were identified as stores using the word "grocery" in the name of the store.

<sup>2</sup>Supermarkets were defined as regional and national chain grocers and those that used "supermarket" in the store name.

<sup>3</sup>Not applicable.

<sup>4</sup>Including: for supermarkets, a seafood newsletter and lectures to school children; for restaurants, flyers, yearbook advertisements, musical entertainment.

ated fish market counters. These were often accompanied by the distribution of seafood recipes, announcements over the store public address system, and taste tests.

Restaurants relied more on broadcast media, with 50 percent using radio ads and 20 percent using television ads, compared with 47 percent using newspaper ads. Close to a third used discount specials, usually in the form of an all-you-can-eat buffet special rather than discounts on specific dishes. Smaller numbers of restaurants used road signs or billboards and discount coupons in newspapers or direct-mail solicitations.

Seafood markets relied on in-store signs and newspaper and radio advertisements.

## Observed Customer Characteristics

Knowledge of customer characteristics is important in designing promotional strategies. Retail managers were asked to describe age, income, and race of customers who purchased different species.

Of the responses obtained, 71 percent indicated that people over 35 years of age are the primary purchasers of catfish and 92 percent said the same for whiting, table 15. Two-thirds of the managers indicated that young people (under 35) buy more shrimp than older people. Both younger (48 percent) and older (52 percent) people were the perceived purchasers of ocean perch.

Retailers responded that both high (56 percent) and low income people (44 percent) purchased catfish. Whiting and ocean perch, however, were viewed as products bought by

TABLE 15. RETAILERS' PERCEPTIONS OF FISH AND SEAFOOD CUSTOMER CHARACTERISTICS BY SEAFOOD VARIETY FROM RETAIL MARKET SURVEY OF EAST-CENTRAL ALABAMA AND WEST-CENTRAL GEORGIA, 1987-88<sup>1</sup>

Species and retailer	Retailers' perceptions, by customer characteristics					
	Age		Income		Race	
	Over 35	Under 35	High	Low	White	Black
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
<b>Catfish</b>						
Fishout .....	74	26	38	62	34	66
Retail grocers .....	71	29	56	44	51	49
Restaurants .....	89	11	n.a. <sup>2</sup>	n.a. <sup>2</sup>	71	29
Seafood markets .....	71	29	20	80	36	64
<b>Mullet</b>						
Retail grocers .....	85	15	6	94	7	93
Restaurants .....	50	50	n.a. <sup>2</sup>	n.a. <sup>2</sup>	0	100
Seafood markets .....	71	29	20	80	36	64
<b>Ocean perch</b>						
Retail grocers .....	52	48	19	81	44	56
Restaurants .....	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>
<b>Oysters</b>						
Retail grocers .....	46	54	80	20	83	17
Restaurants .....	50	50	n.a. <sup>2</sup>	n.a. <sup>2</sup>	93	7
Seafood markets .....	71	29	20	80	36	64
<b>Shrimp</b>						
Retail grocers .....	66	34	82	18	44	56
Restaurants .....	51	49	n.a. <sup>2</sup>	n.a. <sup>2</sup>	95	5
Seafood markets .....	71	29	20	80	36	64
<b>Whiting</b>						
Retail grocers .....	92	8	6	94	10	90
Restaurants .....	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>	n.a. <sup>2</sup>

<sup>1</sup>The percentages indicate the frequency of responses by retailers of the observed characteristics of customers of different varieties.

<sup>2</sup>Not available.

low-income people by 94 percent and 81 percent of respondents, respectively. Shrimp was perceived as a product purchased by high-income customers (82 percent).

Retailers observed that both whites and blacks purchased catfish, ocean perch, and shrimp. However, whiting was perceived as a black customer's product (90 percent).

Seafood market managers indicated that their clientele was primarily older, of low income, and black. In general, they could not differentiate customer purchases by these categories.

Patrons of fishout operations tended to be older, middle-lower income blacks from urban areas. Most patrons lived within a 30-minute to 1-hour drive of the fishout operation. Few lived within 5-10 minutes or over 1 hour from the fishout operation.

### *Market Characteristics*

Supermarkets were more likely to handle seafood than were grocery stores. Of the 125 grocery stores contacted, only 20 percent sold any type of seafood, while 94 percent of the 32 supermarkets sold seafood. Supermarkets also handled a greater variety of products (78 different products) than groceries (only 38 different products). Both supermarkets and groceries commonly handled products like catfish, whiting, turbot, red snapper, croaker, mullet, and some oysters and shrimp. Only supermarkets, however, handled haddock, sole, grouper, monk, rainbow trout, shark, amberjack, scallops, mussels, lobster, king crab, or caviar. Two Asian groceries handled Oriental specialty seafood, such as walking catfish, snails, eel, and snakehead, as well as unidentifiable fish labeled "yellowfish," "wingfish," "hairtail fish," and "scomber fish."

Store managers of suburban supermarkets perceived seafood sales as generally increasing and planned to increase counter space, in-store fish markets, and varieties handled. On the other hand, rural grocery store managers anticipated declining sales and generally expected to sell less seafood in the future.

Store managers were divided on whether demand for seafood was seasonal (44 percent) or not (46 percent). While approximately 60 percent of store managers professed to not knowing if demand was high or low in different seasons, 30 percent indicated demand was low in the summer and 22 percent said demand was low in the spring. Over 30 percent

indicated that demand was high in the winter and 18 percent said demand was high in the fall.

The majority of seafood managers (51 percent) indicated that there was no particular season of high sales, although the rest indicated higher sales in winter. Fish was always readily available, although the availability of specific species varied seasonally.

When asked what "improvements" would increase seafood sales, store managers cited: lower prices (21 percent), availability of fresh fish (19 percent), more advertising (12 percent), greater variety of seafood products (12 percent), an ice display case (10 percent), and increased counter space (10 percent). The need for knowledgeable staff (2 percent), fish tanks (3 percent), special fish sales persons (2 percent), more advertised discounted specials (3 percent), elimination of fish smells (2 percent), and a person to dress fish (2 percent) were mentioned less often.

### *Wholesalers*

Although this study focused on retail market outlets, seafood wholesalers may provide additional marketing opportunities for fish farmers. Six seafood wholesalers were located in the study area and five granted interviews. Although none currently used local suppliers, three of the five interviewed said they would. The predominant (52 percent) source of supply for wholesalers was other wholesalers. The second most important was food brokers.

The largest-volume products handled by the wholesalers included red snapper, catfish, mullet, and shrimp. Over half (56 percent) was handled fresh and the rest frozen; only 1 percent was IQF. Fish were purchased fresh, either whole or dressed, on ice. Four of the five wholesalers custom processed fish at no charge. Nearly half (48 percent) of the products sold were dressed without the head, 24 percent were filleted, and 22 percent were sold whole.

Red snapper sales had the greatest mean retail value for the wholesalers. In declining order were catfish, shrimp, and mullet. The mean retail value of catfish sold by the wholesalers was larger than for any other outlet. However, total value for the study area, given the small number of seafood markets, was low.

The same four varieties accounted for the largest sales

volume. Mullet sales were greatest, followed by catfish, red snapper, and shrimp.

### *Fishout Operations*

Fishout operations in the study area were an extremely diverse group. Of the 33 identified in the study area (those that had classified themselves as "fishout" to Alabama Cooperative Extension Service personnel), 5 could not be contacted, 1 refused the interview, and 1 had closed. Of the remainder, only 12 had weekly sales greater than 100 pounds of catfish during the fishing season (spring, summer, fall). Half of these had sales of 100-500 pounds per week and the other half had weekly sales over 500 pounds.

The group of firms with sales less than 100 pounds per week included a fishing club, two farms that were initiating fishout operations, and one that had made concrete plans to switch to commercial-scale production for sale to a processor. None of the others had plans to expand operations. This group was composed primarily of retired persons who allowed friends to fish. Typically, this farm would have one to five ponds ranging in size from 0.25 to 17 acres. Fish were fed and, in general, a price per pound charged for fish caught. The most commonly cited problem was theft of fish.

The six fishout operators with weekly sales of 100-500 pounds were similar to the first group except that some facilities, such as picnic tables or fishing piers, were provided. Only two of the six had plans to expand, and this group also found poaching to be the major problem.

The group with largest sales (over 500 pounds per week) managed their operations as a business. Four of the six sold bait, maintained concession stands, and provided restrooms, in addition to having fishing piers and picnic tables. One also sold ice. Five of the six advertised on radio and television and in newspaper, in addition to placing signs on the road. Both part-time and full-time labor were employed to operate special fishout ponds separate from grow-out ponds. Two-thirds of this group had plans to expand; they cited financing, fish not biting, and inclement weather as major problems.

The majority of fishout customers were regular, repeat customers. Firms with sales over 500 pounds per week may have 75 to 350 customers during a weekend. Most of these drove 30 minutes-1 hour. Clients were primarily older, middle-

to lower-income blacks from urban areas. Saturday was the highest sales day, although some fishout managers remained open all week. Customers preferred fish 1 pound and larger.

Demand for fish from retail fishout operations was highest in the spring and autumn. Summer heat decreased interest in fishing and few fishout operations were open during the winter.

## **MARKET ALTERNATIVES FOR CATFISH PRODUCERS**

Market requirements, constraints, and opportunities should determine the framework within which production takes place. An individual catfish farmer should thoroughly investigate market opportunities available in the area and select the most appropriate market outlets before investing in catfish production. General requirements for each type of market outlet available to catfish farmers in east Alabama are given on the following pages.

### **Supermarkets and Grocery Stores**

Grocery stores handled little fish and many were being converted into convenience stores. Thus, their potential as a market for catfish was limited.

Supermarkets sold, on average, 250 pounds of catfish monthly. The majority of this was fresh dressed catfish.

Independent supermarkets purchased seafood from local suppliers. Fewer chain supermarkets do at present, but indicated they would with permission from regional management.

The great number and diversity of retail supermarkets offered great flexibility in terms of volume requirements. An individual producer could contract with the number of supermarkets adequate for moving his total production. Independent supermarkets were especially inclined to purchase from local suppliers. The trend towards special fish market sections in supermarkets and an emphasis on the freshness of fish delivered within 24 hours of processing, for example, could be advantageous to the local catfish producer.

The supermarket outlet would require processing by the producer and regular delivery. Designs for small-scale processing plants are available (6). Production would have to be planned so as to provide a constant, year-round supply of freshly dressed catfish. Access to a delivery truck would be essential.



## **Seafood Restaurants**

Seafood restaurants sold an average of approximately 450 pounds of catfish per month. Although restaurants sold more frozen catfish, 40 percent of catfish sold was fresh dressed. The majority of catfish sold by restaurants was filleted. Restaurant managers were more concerned with freshness and quality than were supermarket managers.

Both chain and independent restaurant managers frequently purchased seafood from local suppliers. Most of the catfish purchased was from catfish processors or seafood wholesalers.

Restaurant market outlets require a processed product and the steady, constant supplies needed for supermarket outlets. However, since seafood restaurants moved larger volumes per store, less time would be spent in delivery. An emphasis on freshness would be an important attribute.

## **Seafood Markets**

Seafood markets moved an average of 525 pounds of catfish per store per month, but these markets were not abundant and may not be located conveniently for catfish producers. Seafood markets almost exclusively purchased fresh seafood on ice (whole or dressed), and many then custom processed for consumers.

Seafood markets primarily sold lower-valued seafood like mullet and croaker. Catfish sold were river catfish that could be purchased at a much lower price than pond-raised catfish. It may be difficult for fish farmers to utilize seafood markets as a market outlet, because of price competition from river catfish and the income levels of their patrons.

## **Wholesalers**

Seafood wholesalers moved large monthly volumes of catfish. The average wholesaler sold 2,320 pounds of catfish per month. On a 12-month basis, this would represent production from approximately 8 acres of fish ponds. Marketing, however, would become a year-round activity.

Four of the five seafood wholesalers interviewed processed fish. Catfish producers may be able to provide continuous supplies of live, whole fish to selected seafood wholesalers.

## Fishout Operations

Fishout operations were generally operated 9 months per year. In contrast to the previously mentioned market outlets, fishout operations do not require processing facilities or delivery trucks.

The successful fishout operation was a business that attracted and maintained a regular clientele. Successful fishouts provided amenities such as fishing piers, picnic tables, concession stands, on-site dressing of fish, bait, and ice. Successful fishout ponds were constantly restocked with large fish from grow-out ponds.

Success of a fishout operation depended upon location. Clients traveled approximately 30 minutes from a town or city.

## SUMMARY AND CONCLUSIONS

In many respects, it is far easier for a catfish farmer to grow catfish, harvest in the fall, and sell to a processing plant. However, a farmer may not be located close enough to a processing plant, the price paid by the processor may not be attractive, or the sales date may not be for the fall.

Other marketing opportunities exist for the catfish producer, but these entail a greater commitment of time and capital to the marketing process. Supermarkets and restaurants sell fresh catfish, and both purchase from local suppliers. Sales to these market outlets require processing, a high quality product, and timely deliveries. Seafood markets and wholesalers may purchase catfish whole on ice, but catfish producers may have to compete with lower prices of wild-caught river catfish. Successful fishout operations command high prices for catfish without the investment of processing facilities, but require the establishment of a well-suited location that will attract and keep clientele.

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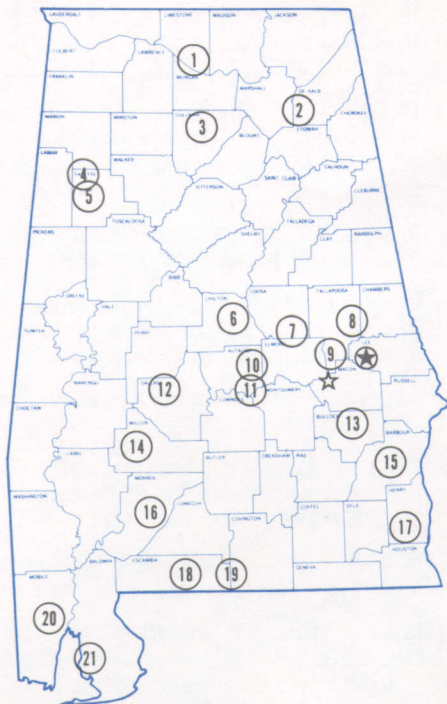
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# Alabama's Agricultural Experiment Station System

## AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



### Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Chilton Area Horticulture Substation, Clanton.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Plant Breeding Unit, Tallahassee.
10. Forestry Unit, Autauga County.
11. Prattville Experiment Field, Prattville.
12. Black Belt Substation, Marion Junction.
13. The Turnipseed-Ikenberry Place, Union Springs.
14. Lower Coastal Plain Substation, Camden.
15. Forestry Unit, Barbour County.
16. Monroeville Experiment Field, Monroeville.
17. Wiregrass Substation, Headland.
18. Brewton Experiment Field, Brewton.
19. Solon Dixon Forestry Education Center, Covington and Escambia counties.
20. Ornamental Horticulture Substation, Spring Hill.
21. Gulf Coast Substation, Fairhope.