A Seafood Quality Program for the Mid-Atlantic Region Part III

A Report

Mid-Atlantic Fisheries Development Foundation, Inc.

The Kroger Company

Sea Grant at Virginia Tech

FINAL REPORT

on

A QUALITY SEAFOOD TESTING PROGRAM FOR THE MID-ATLANTIC REGION PART III

by

Sea Grant at Virginia Tech
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061
Hampton, Virginia 23669

for

MID-ATLANTIC FISHERIES DEVELOPMENT FOUNDATION, INC.
2200 Somerville Road
Annapolis, Maryland 41401

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This project was made possible through the cooperation of the following individuals and organizations:

Brian Mayer
George Flick
Cameron Hackney
Thomas Rippen
Donna Soul
Lisa Sanders
Virginia Polytechnic Institute and State University

William Dupaul
Ronald Grulich
Philip Cahill
Virginia Institute of Marine Science

Chet Smith
Anne Clusman
The Kroger Company

Daniel Kauffman
Charles Amory
L. D. Amory Seafood Co, Inc.

George Harrison
Harrison Seafoods, Inc.

James Rhule
F/V Darana R

Roy Martin
National Fisheries Institute, Inc.

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EXECUTIVE SUMMARY

This project was a culmination of prior programs funded by the Mid-Atlantic Fisheries Development Foundation, Inc. (1983 and 1985) and Virginia Tech (1984) on seafood quality and quality maintenance.

The purpose of the first part of the program (1983-1984) was to conduct a survey of fresh fish marketing practices from harvesting through consumption. Included in the study were three processing and distribution firms employing different levels of sanitary practices. Part I also included specific activities to:

- Determine the shelf-life of fish handled under various conditions.
- Determine what effects, customary and alternative handling procedures on fishing vessels, in processing plants, and during transportation had on shelf-life.
- Identify the appropriate technology for achieving a 12 day minimum shelf-life.
- Establish objective criteria for determining product quality.

The second part of the program (1985) was initiated to define and solve selected quality problems identified during Part I. Specific program activities included:

<u>Fishing Vessel Section</u>

- Effect of day of catch on shelf-life.
- Effect of bleeding and gutting on bluefish quality.
- Effect of a boxing program aboard fishing vessels with respect to quality and profitability.

Processing and Distribution Section

Effect of delayed processing on product quality.

Use of sodium bicarbonate in absorbent pads for controlling odors of tray-packed seafood.

The effect of a high-pressure wash on reducing the surface microflora and extending the shelf-life of fish.

Programs during the first three years focused primarily on factors which effect quality both aboard fishing vessels and in processing plants. This project (1986) expanded the program to include the retailer with the primary goal of developing an economically attractive permanent market for quality mid-Atlantic fish. The corroborating retailer chosen for this project was the Kroger Company of Cincinnati, Ohio.

This marketing effort was divided into two phases. In phase I, which was held from April 14 to May 24, six stores in the Dayton, Ohio area participated. These stores, which were classified according to their consumer income level profile, included one low income store, four middle income stores, and one high income store. During phase II, November 17 - December 20, the project was expanded to include 17 stores (three low income, seven medium income, and seven high income) in the Cincinnati-Dayton, Ohio area.

Training programs were held, before each phase, for the seafood managers of the participating stores. The purpose of these training programs was to introduce the managers to the variety of mid-Atlantic fish species that would be available. Fact sheets on each of the species and point of purchase recipe cards were distributed. It was stressed to the seafood managers the extensive effort (ie. boxing and short-shelving at sea, high pressure washing to reduce spoilage bacteria) in marketing only high quality fish and the importance of them maintaining quality in their stores.

This project was unique, in respect to being vertically integrated. Several of the activities tested, during parts I and II, were implemented in part III to ensure quality. Aboard the vessels the fish were handled quickly to ensure rapid and adequate icing. Stowage methods such as boxing and short-shelving prevented damage from crushing or bruising. In the processing plants sanitation personnel were trained on the proper use of sanitizing equipment and chemicals. All employees were trained to use proper hygiene and sanitary practices, including washing hands prior to entering a work area, use of hairnets and clean attire, elimination of eating and smoking in the work area, use of bactericidal hand and utensil dips, and use of gloves that can be sanitized. A rotation system whereby product totes and cutting boards were scrubbed and sanitized routinely was implemented. All fish processed for this marketing effort were

high-pressure washed to reduce spoilage microorganisms and to ensure at least 12 days of quality shelf-life. Temperature control was also closely monitored to ensure rapid and adequate cooling throughout processing. Tray-packing equipment enabled product to be held at 29°F rather than 33°F thereby extending fresh shelf-life. Packaging, shipping and distribution of the product was executed to ensure rapid delivery without temperature or handling abuse. Upon arrival at Kroger, the fish were checked for proper temperature and quality before the shipment was accepted.

Retail Marketing Phase I

The mid-Atlantic species marketed during phase I were Atlantic Mackerel (skin-on fillets), Whiting (dressed), Porgy (dressed), Bluefish (skin-off fillets), Black Sea Bass (dressed), Atlantic Croaker (dressed), and Gray Seatrout (skin-on fillets). These species were chosen based on availability and quality.

Among the service seafood stores, the low and high income stores reported the best sales. Low income store "A" had sales of 90% or greater for Croaker, Sea Bass, Bluefish, Whiting, and Mackerel. High income store "O" reported sales of 100% for Seatrout, Croaker, Sea Bass, Bluefish, and Whiting. In comparison, the medium income service stores (stores E,G, and I) were not as successful. These stores reported sales of 38-59% for Mackerel, 33-70% for Whiting, 45-49% for Porgy, 25-50% for

Bluefish, 20-87% for Sea Bass, 0-100% for Croaker, and 25-50% for Seatrout. Overall, high income store "O" reported the highest sales with 93.6% of the product sold. Low income store "A" had sales of 91.1%, while the medium income service stores (stores E,G, and I) had the lower sales of 54.7%, 39.4%, and 50.9%, respectively.

On a percentage basis, the amount sold was very similar for all the mid-Atlantic species which were marketed. The sales ranged from a high of 75.6% sold for Sea Bass to a low of 62.4% sold for Porgy. Overall, out of approximately 1330 pounds of fish marketed during phase I, 911 pounds or 68.5% were sold. Bulk packed fish outsold the tray-packed fish by 15%.

Retail Marketing Phase II

The mid-Atlantic species marketed during phase II were Black Sea Bass (dressed), Atlantic Croaker (dressed), and Gray Seatrout (skin-on fillet). These species were chosen based on availability and quality. The success in selling these fish was highly variable. Sales of sea bass ranged from 0 - 100% of the product sold with an average of 46.1%. Sales of croaker ranged from 0 - 98% with an average of 36.6% and seatrout sold from 0 - 95% with an average of 56.9%. If the sales data from three of the middle income stores, which displayed very little active participation (stores D, E, and H), were omitted these averages would increase: sea bass 54.1% sold, croaker 43.0% sold, and seatrout 65.5% sold.

Sales of these fish, broken down into store income profile levels, indicated that the low income stores had the greatest sales for all three species. Dressed sea bass sold at an average rate of 73% for the low income stores, 50% for the medium income stores, and 31% for the high income stores. Average sales of dressed croaker were 56%, 38%, and 27% for the low, medium, and high income stores, respectively. Even the higher priced seatrout fillets ($3.59 - 4.99 / lb.) sold best in the low income level stores. They had an average sale rate of 77%. The high income stores were next with 62% sold, followed by the medium income stores with 43% sold. Overall, seatrout fillets sold best during phase II. Out of 1190 pounds marketed, approximately 715 pounds or 60.0% were sold. The dressed fish, sea bass and croaker, did not sell as well. They sold at rates of 45.9% and 36.6%, respectively.

Out of a total of 3230 pounds of fish marketed, during phase II, 1557 pounds or 48.2% were sold. If we again omit data from stores "D", "E", and "H", the average increases to 56.2% sold. The percentage of fish sold per store ranged from 6.8% to 96.4%.

On a percentage basis, the sales of mid-Atlantic fish during phase I were higher than during phase II. In phase I an average of 68.5% of the product was sold versus 48.2% for phase II. One factor which may have influenced sales, was the greater variety of fish marketed during phase I. In phase I, seven

different species were available. Only three species were available during phase II. Another probable contributing factor was the higher retail price of the fish during phase II. Sea bass, croaker, and seatrout sold for approximately $1.00 / lb. higher during phase II.

It should also be noted that the phase II marketing effort occurred during the off season for finfish sales (November - December). One could surmise therefore, that if you can sell almost 50% of your product during the holiday season, even with the limited availability and higher pricing, that the sales potential at other times of the year would be much greater.

In-Store Demonstrations

Evaluation of the in-store demonstrations indicated that they were beneficial to sales of mid-Atlantic fish. In phase II a total of 469 pounds of product was sold during the demonstrations.

Store Management

The majority of the seafood managers stated, that they believed the in-store demonstrations were beneficial to sales of not only mid-Atlantic fish, but other seafood products as well. The quality of the mid-Atlantic fish that they received was rated from average to excellent; with most of the fish in the above average to excellent range. Many of the managers stated that

they preferred the fish which were packed in bulk over the tray-packed product.

With respect to future marketing of mid-Atlantic fish, the majority of the seafood managers, from the low income profile stores, stated that they believed they could sell the following species and market forms; filleted Atlantic mackerel, dressed or filleted whiting, filleted bluefish, dressed sea bass, filleted gray seatrout, and filleted flounder. The seafood managers, from the middle income profile stores had the following preferences; filleted whiting, filleted bluefish, dressed or filleted sea bass, filleted gray seatrout, and filleted flounder. The managers from the high income profile stores stated that they could only sell fillets. These included filleted mackerel, bluefish, sea bass, seatrout, and flounder.

Some of the overall comments on the project included; "Would like to do it again!", Are we going to get any more mid-Atlantic product?", "Did better with bulk pack...", "Customers liked the variety", "Send more fillets and less dressed fish.", "Bad time for project, too many other things going on.", "Waste of money at this store...too high income level.", "Liked the fish we received, but definitely prefer fillets.", "Tough to sell prior to the holidays", "Program was excellent...very little problem with product overall".

INTRODUCTION

A previous fresh fish study financially supported by the Mid-Atlantic Fisheries Development Foundation, Inc., revealed that major impediments exist to the establishment of a quality fresh fish marketing program in the mid-Atlantic. It is important that each operation in the utilization chain, (harvesting, processing, distribution, and retailing) be conducted with the highest efficiency, reflecting on economic and quality perspectives. Quality is a very fragile, intrinsic component of any food item and only the quality at harvest can be maintained. Quality cannot improve or increase in desirable characteristics but can quickly diminish causing product degradation. This project was a culmination of prior programs funded by the Mid-Atlantic Fisheries Development Foundation, Inc. (1983 and 1985) and Virginia Tech (1984) on seafood quality and quality maintenance. Programs during the first three years focused primarily on factors which effect quality both aboard fishing vessels and in processing plants. This project expanded the program to include the retailer with the primary goal of developing an economically attractive permanent market for quality mid-Atlantic fresh fish.

The corroborating retailer chosen for this project was the Kroger Company of Cincinnati, Ohio. The decision to limit participation to one specific firm was based on the following: The retailer agreed to provide a retail market with known demographics; the firm had substantial experience in the merchandizing of fresh fish; each store had adequate facilities and trained personnel; and adequate technical and marketing support was available at the corporate level.

MARKETING PLAN

I) Experimental Design

	Phase I	Phase II
Schedule		
Base Period	April 14 - April 26	Nov 17 - Nov 22
Promotional Period	April 28 - May 24	Dec 1 - Dec 20
Number of Stores	8	17
Location	Dayton, Ohio	Cincinnati-Dayton, Ohio
Store Socio-Economic Profiles	High - 1 Medium - 5 Low - 4	High - 7 Medium - 7 Low - 3
Full Service Fish Departments	5 Service 3 Self-Service	17 Service 0 Self-Service
Advertising	In-store (posters, recipes, announcements, flyers, demonstrations)	In-store (as phase I)
Training Program	April 8, 1986	October 15, 1986

II) Training Programs

Phase I

The training program for phase I was held at the Kroger Technical Center, in Highland Heights Kentucky. The seafood managers (stores with service seafood shops) and the meat managers (stores with only self-service seafood), of the Dayton, Ohio Kroger stores participating in the marketing project, attended. At this time the managers were introduced to the variety of mid-Atlantic fish species that would be available and fact sheets, on each of the species, (Appendix I) were distributed for future reference. A lunch was provided for the participants, consisting of poached mid-Atlantic fish and selected recipes. Point-of-purchase recipe cards (Appendix III), for store display, were also distributed. It was pointed out, to the seafood managers, the extensive effort (ie. boxing and short-shelving at sea, high pressure washing to reduce spoilage bacteria) in marketing only high quality fish and the importance of them maintaining quality in the store.

PHASE II

The training program for phase II was held at the Quality Inn in Dayton, Ohio. The seafood managers of the Dayton and Cincinnati, Ohio Kroger stores participating in the marketing project attended. The same information and materials were distributed as in the phase I training program. The mid-Atlantic fish species were however, presented in slide format instead of

having fresh specimens available for viewing. The tasting of poached mid-Atlantic fish and selected recipes were also eliminated.

III) Product Guarantees

All product was guaranteed for sale. Stores were reimbursed for all unsold product (outdated or spoiled).

IV) Packaging and Shipping

Product for bulk sale (service seafood) were packaged in 10 pound plastic fillet containers with absorbent pads (Appendix V). The filled containers were chilled in a freezer to a surface temperature of 29^{o}F and then packed on ice in a plastic lined master carton.

Product for tray-packs (self-service seafood) were packaged on 10S foam trays with an absorbent pad and overwrapped (Appendix V). The weight of each tray-pack varied from 0.75 - 1.0 pound. After overwrapping the tray-packs were chilled individually to 29^{o}F and then packaged, in 10 pound units, in master cartons. The master cartons were held at 29^{o}F until shipping.

The product was shipped on refrigerated trucks, at a temperature of 35 - 40°F (shellfish also being shipped required a higher temperature than desired for finfish) twice a week. The bulk packed fish, which were packed on ice, maintained a 33°F temperature. The tray-packed fish were packed into insulated EH shipping containers (70 - 80 pounds each) and dry ice was added to maintain their temperature.

V) Quality Shielded Product

In an effort to determine if consumers would pay a higher price for quality, government inspection of tray-packed product was implemented. Our initial goal was to acquire U. S. grade A labelling for approximately one half of all tray-packed product. The grade A labelled product would be marked at a slightly higher price than the nonlabelled product. Unfortunately, even after considerable effort, we could not achieve grade A classification on the selected mid-Atlantic fish which were processed. A major obstacle to acquiring grade A was the lack of specifications for many of the mid-Atlantic fish species.

All dressed fish (mackerel, whiting, porgy, sea bass, and croaker) failed to pass for grade A because of the gut cavity. It was required for grade A that all traces of the kidney be removed. Although this can be accomplished by slicing the membrane, brushing and washing, the task is too tedious and cost prohibitive on a production level. Larger fish could more easily be handled.

Fillets of mackerel, bluefish, and seatrout also failed grade A approval. These species could not pass the stringent specifications for generic white boneless fish fillets. Mackerel fillets failed because of the floating bones which run down the center. Our best chance of acquiring grade A was with the bluefish and seatrout fillets. Our efforts also failed here, however due to pin bones, or the quality of the cut. Seatrout fillets were particularly troublesome due to the soft nature of their flesh.

Since grade A approval could not be achieved, a PUFI (packed under federal inspection) shield was applied to half of the tray-packed product (Appendix V). Product with this quality shield was marked up in price and displayed in self-service seafood cases with nonshielded product.

VI) Advertising

During the promotional period of phase II, it was planned to promote mid-Atlantic seafood with newspaper advertising and to determine its effect on sales. To include mid-Atlantic seafood in their sale papers, Kroger required a one week notice of available species and pricing. Unfortunately, the processor in this project could not provide these figures one week in advance of shipping. During this marketing period (Dec 1 - Dec 20) the availability of specific mid-Atlantic fish species were too unpredictable.

VII) Reporting Of Mid-Atlantic Fish Sales

Sales of mid-Atlantic fish were determined from the known loss data which was provided by each store. When fish was outdated and pulled from sale, it was recorded as known loss. To determine how much fish was actually sold we had to subtract the amount of fish that was reported to us as loss, from the amount of product that was sent to the store. Unfortunately, the known loss data which we received was not always detailed enough. For example, the effect of the quality shield on sales of tray-packed fish could not be determined because the majority of the stores did not specify if the unsold fish had been marked with a quality shield or not.

Other information of interest was whether sales of mid-Atlantic fish differed during the base and promotional periods of the project. This could have been determined from the known loss data, which was provided to us, if the stores had recorded them weekly as requested. Many of the stores sent known loss data which had been summarized from several weeks. Clearly, future marketing efforts should require a more reliable and detailed system of reporting sales.

PHASE I SALES DATA

At the beginning of phase I, eight stores were scheduled to participate in the marketing program. Two nonservice stores (one low income and one medium income), however were dropped from the program due to a lack of cooperation. The marketing data during phase I is therefore based on a total of six stores. The mid-Atlantic species marketed during phase I were Atlantic Mackerel (skin-on fillets), Whiting (dressed), Porgy (dressed), Bluefish (skin-off fillets), Black Sea Bass (dressed), Atlantic Croaker (dressed), and Gray Seatrout (skin-on fillets). These species were chosen based on availability and quality.

The percentages of these mid-Atlantic fish sold by each store, during phase I, are listed in table 1. Store "D", a medium income nonservice store, did not report any losses. Among the service seafood stores, the low and high income stores reported the best sales. Low income store "A" had sales of 90% or greater for Croaker, Sea Bass, Bluefish, Whiting, and Mackerel. High income store "O" reported sales of 100% for Seatrout, Croaker, Sea Bass, Bluefish, and Whiting. In comparison, the medium income service stores (stores E,G, and I) were not as successful. These stores reported sales of 38-59% for Mackerel, 33-70% for Whiting, 45-49% for Porgy, 25-50% for Bluefish, 20-87% for Sea Bass, 0-100% for Croaker, and 25-50% for Seatrout.

Table 1. Percentage of Mid-Atlantic fish sold by each store during phase I.

Store	Income Level Profile[a]	Fish Dept.[b]	% Of Fish Sold			
			Mackerel	Whiting	Porgy	Bluefish
A	Low	Service	100	100	74	97
D	Med	Nonservice	100	100	100	100
E	Med	Service	59	70	49	25
G	Med	Service	38	33	45	40
I	Med	Service	51	45	47	50
O	High	Service	75	100	86	100

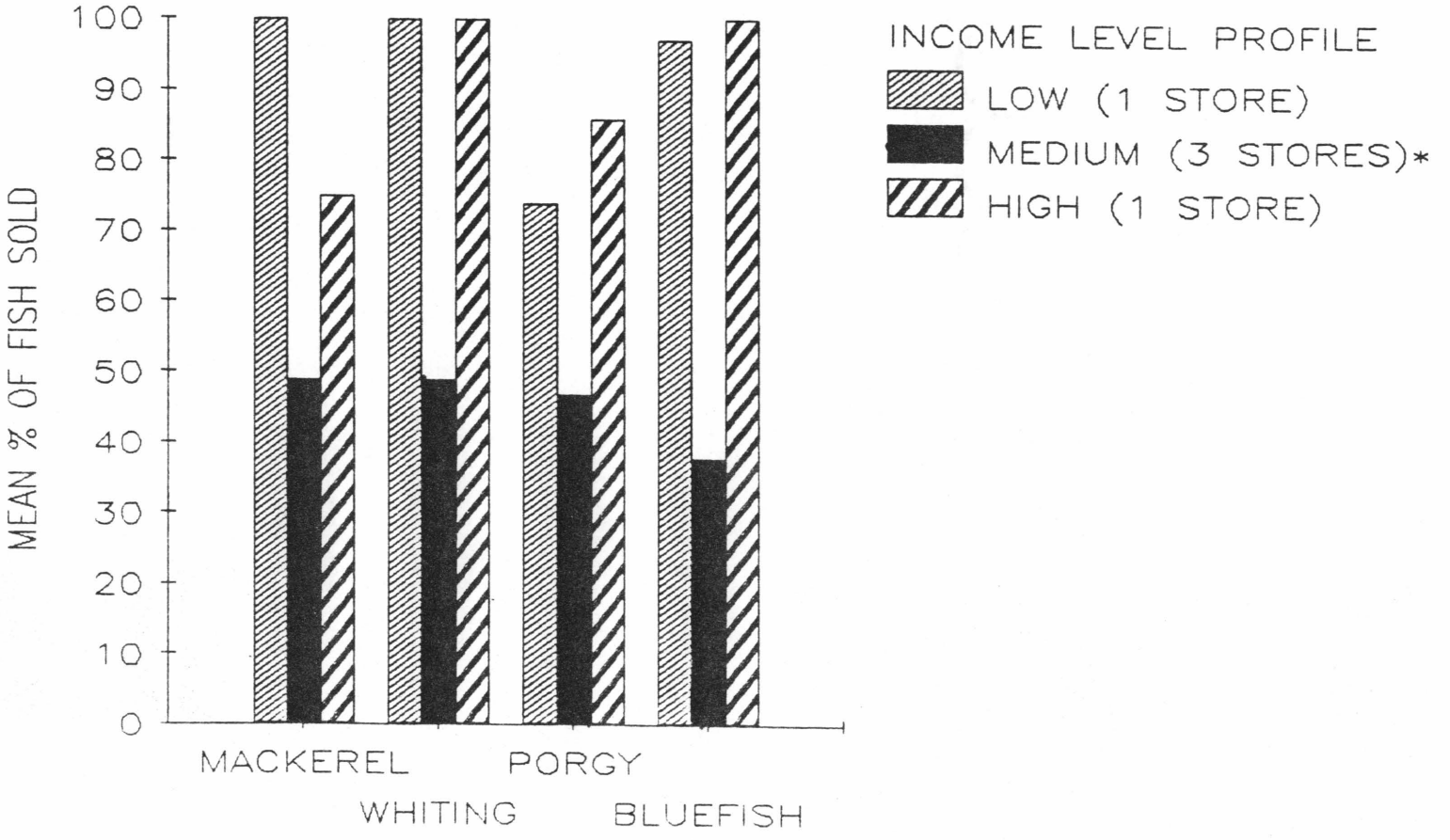
[a] Stores are characterized by income level profile of their customers.

[b] Service seafood stores sold fish in bulk at service counters and tray-packs in self-service cases. Nonservice stores sold tray-packs only.

Store	Income Level Profile	Fish Dept.	% Of Fish Sold		
			Sea Bass	Croaker	Seatrout
A	Low	Service	100	90	71
D	Med	Nonservice	100	100	100
E	Med	Service	87	26	25
G	Med	Service	20	100	50
I	Med	Service	61	0	60
O	High	Service	100	100	100

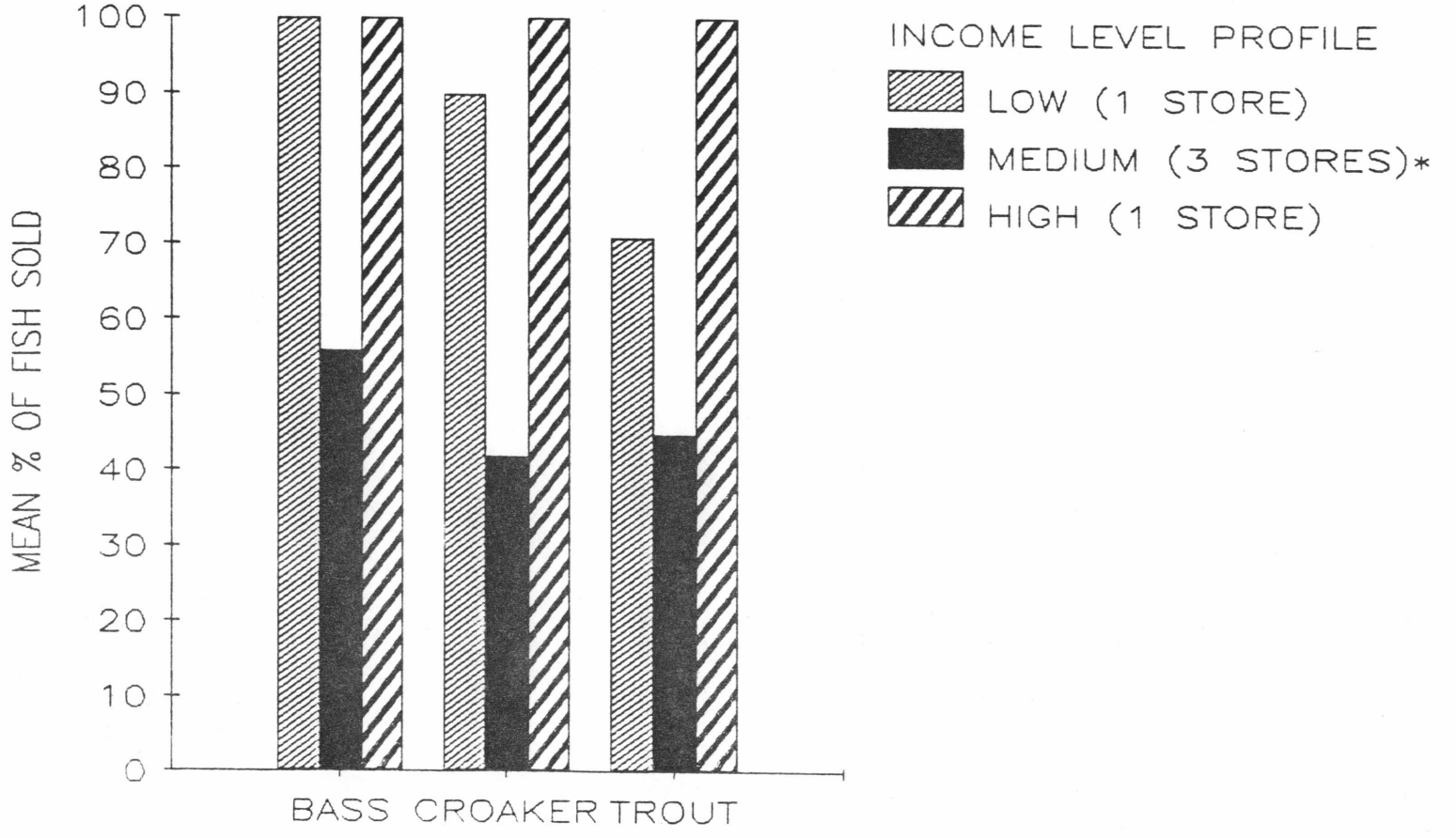
This sales data, broken down into store income profile levels, is also illustrated in figures 1 and 2. By looking at these histograms it is again obvious that sales of mid-Atlantic fish by the medium income level stores were much lower than either the high or low income level stores. Black sea bass was the only species which averaged greater than 50% sales. In contrast, the sales by the high and low income stores were greater than 70% for all seven mid-Atlantic species marketed. The greatest differences in sales, between the high and low income level stores, were with mackerel and seatrout. Mackerel, a lower priced fish ($1.69 - 1.99 / lb.), was sold at a rate of 100% by the low income level store, while 75% of the product was sold by the high income store. Sales of seatrout, a higher priced fish ($2.69 - 3.79 / lb.), were just the opposite. The high income store sold 100% of their product versus 71% sold by the low income level store.

FIGURE 1: MID—ATLANTIC FISH SALES
BY STORE INCOME PROFILES
(PHASE I)



*STORE D (NONSERVICE) OMITTED

FIGURE 2: MID—ATLANTIC FISH SALES
BY STORE INCOME PROFILES
(PHASE I)



*STORE D (NONSERVICE) OMITTED

The overall sales of mid-Atlantic fish per store can be seen in table 2. Medium income nonservice store "D" sold 100% of the fish that they received. It should be noted that as a nonservice store, store "D" received only tray-pack fish. The service seafood stores had both tray-pack and bulk fish to sell. Of these service seafood stores, high income store "O" reported the highest sales with 93.6% of the product sold. Low income store "A" had sales of 91.1%. The medium income service stores (stores E, G, and I) had lower sales of 54.7%, 39.4%, and 50.9% respectively.

Table 2. Sales summary of Mid-Atlantic fish per store during phase I.

Store	Income Level Profile	Fish Dept.	Total Poundage Sold	Total Poundage Lost	% Sold
A	Low	Service	218.7	21.3	91.1
D	Med	Nonservice	120.0	0.0	100.0
E	Med	Service	125.7	104.1	54.7
G	Med	Service	98.5	151.5	39.4
I	Med	Service	132.1	127.4	50.9
O	High	Service	215.8	14.3	93.6
TOTAL			910.8	418.6	68.5

A sales summary of mid-Atlantic fish per species, during phase I, is shown in Table 3. On a percentage basis, the amount sold was very similar for all the mid-Atlantic species which were marketed. The sales ranged from a high of 75.6% sold for Sea Bass to a low of 62.4% sold for Porgy. Overall, out of approximately 1330 pounds of fish marketed, 911 pounds or 68.5% were sold.

Table 3. Sales summary of Mid-Atlantic fish per species during phase I.

Species	Poundage Sold	Poundage Lost	% Sold
Mackerel	149.0	70.5	67.9
Whiting	114.5	45.5	71.6
Porgy	99.9	60.1	62.4
Bluefish	149.0	81.2	64.7
Sea Bass	204.1	66.0	75.6
Croaker	41.6	18.4	69.3
Seatrout	152.7	76.9	66.5
Total	910.8	418.6	68.5

As previously mentioned, both tray-pack and bulk fish were marketed in the service seafood stores. The bulk fish were sold at the service seafood counters, while the tray-packed fish were on display for self-service. Table 4 lists the sales results during phase I. Overall, the bulk fish out-sold the tray-packed fish. The bulk fish sold at an average of 71% compared to 56% for tray-packed fish. Dressed Porgy was an especially poor seller as a tray-packed item. Only 28% of the tray-packed Porgy sold, compared to 78% for bulk.

Broken down by income level profile, it is again obvious that fish sales were much better in the low and high income stores. Store "A" (low income) sold 95.5% of its bulk and 81.5% of its tray-packed product. Store "O" (high income) sold 91.7% of its bulk and 93.0% of its tray-packed product. In contrast, stores "E", "G", and "I" (medium income) sold 55.9% of their bulk and only 35.7% of their tray-packed product.

A few trends are apparent in the sales data from these medium income stores (stores E, G, and I). Dressed Whiting sold better as a tray-pack item (30 - 100% sold) than as bulk (0 - 49% sold). Sales of tray-packed Seatrout fillets were especially poor with only 0 - 33% of the product selling. Sales of Bluefish fillets, in these medium income stores, were more variable. Stores "E" and "G" sold 52 - 100% bulk and 0% tray, while store "I" sold only 20% bulk and 100% of the tray-packed product.

Table 4. Percentage of fish sold as bulk versus tray-pack in service seafood stores (4/11-4/29).

Store	Mackerel		Whiting		Porgy		Bluefish		Sea Bass		Seatrout	
	bulk	tray	bulk	tray	bulk	tray	bulk	tray	bulk	tray	bulk	tray
A	100	100	100	100	100	22	100	100	100	100	73	67
E	65	52	49	61	65	23	52	0	74	94	34	4
G	68	8	0	100	23	11	100	0	50	0	100	0
I	60	45	5	30	100	25	20	100	75	60	67	33
O	50	100	100	100	100	58	100	100	100	100	100	100
Average	69	61	51	78	78	28	74	60	80	71	75	41

Phase II Sales Data

In phase II, mid-Atlantic fish were marketed in 17 service seafood stores in the Cincinnati-Dayton, Ohio area. The decision was made to work only with the stores which have service seafood counters, because two of the three nonservice stores had to be dropped from the program in phase I. It was felt that the service seafood stores, which have a manager dedicated to seafood, would be more cooperative with our marketing efforts and more dedicated to maintaining quality.

The mid-Atlantic species marketed during phase II were Black Sea Bass (dressed), Atlantic Croaker (dressed), and Gray Seatrout (skin-on fillet). These species were chosen based on availability and quality.

The percentages of these mid-Atlantic fish sold by each store, during phase II, are listed in table 5. The success in selling these fish was highly variable. Sales of sea bass ranged from 0 - 100% of the product sold with an average of 46.1%. Sales of croaker ranged from 0 - 98% with an average of 36.6% and seatrout sold from 0 - 95% with an average of 56.9%. If the data from three of the middle income stores, which displayed very little active participation (stores D, E, and H), were omitted these averages would increase; sea bass 54.1% sold, croaker 43.0% sold, and seatrout 65.5% sold.

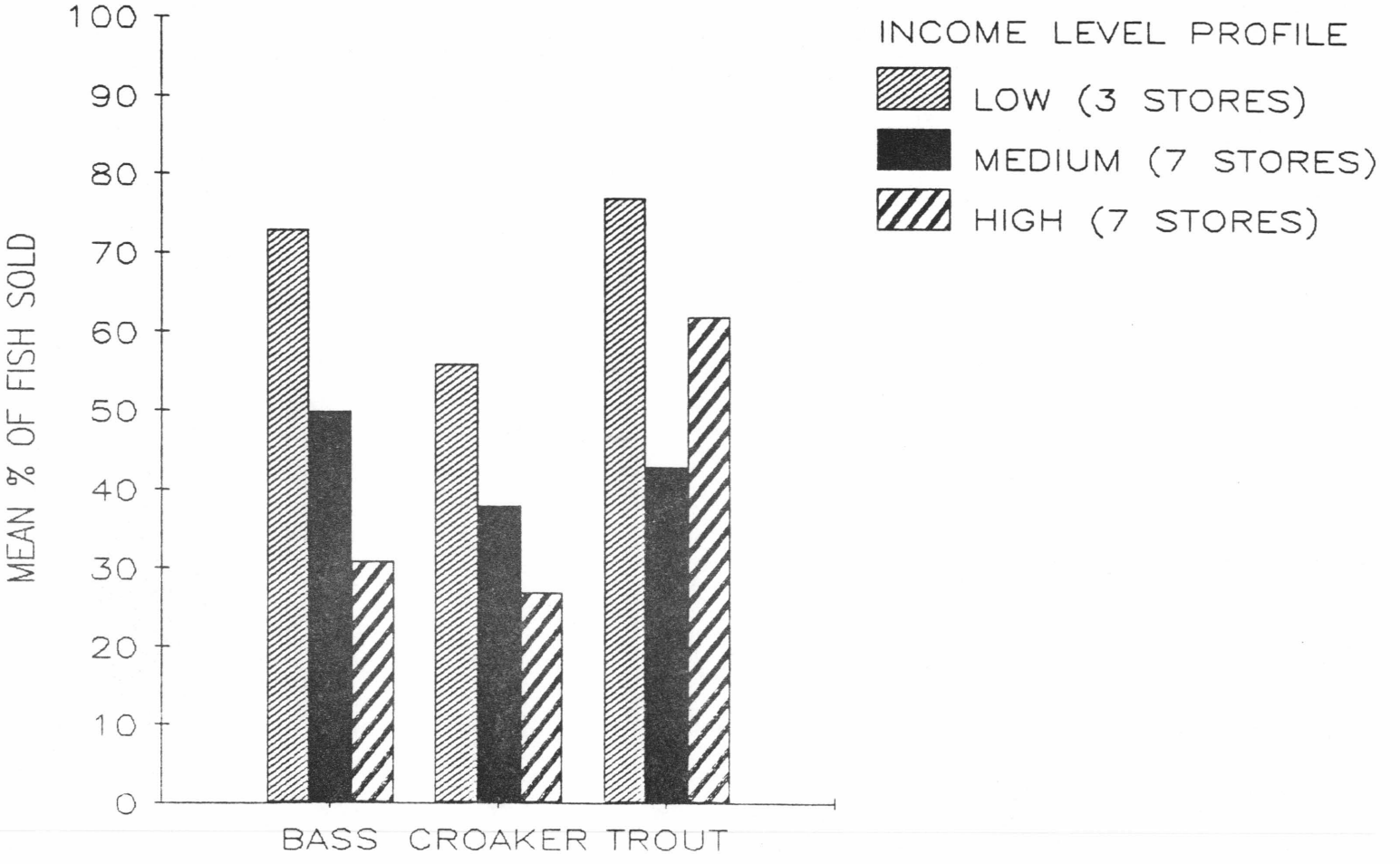
Table 5. Percentage of Mid-Atlantic fish sold by each store during phase II.

Store	Income level Profile	% Of Fish Sold		
		Sea Bass	Croaker	Seatrout
A	Low	97	98	95
B	Low	67	50	79
C	Low	54	20	58
D	Medium	0	0	50
E	Medium	22	0	0
F	Medium	91	86	78
G	Medium	85	83	86
H	Medium	4	21	0
I	Medium	100	33	14
J	Medium	48	41	71
K	High	67	60	67
L	High	12	17	17
M	High	25	27	69
N	High	7	21	82
O	High	38	7	59
P	High	17	39	60
Q	High	50	20	82
Average[a]		46.1+/-33.0	36.6+/-28.9	56.9+/-29.6

[a] Average +/- standard deviation of percentage values; not of actual pounds sold. These values may therefore differ slightly from table 7.

Sales of these fish, broken down into store income profile levels, can be seen in figure 3. The low income stores had the greatest sales for all three species. Dressed sea bass sold at an average rate of 73% for the low income stores, 50% for the medium income stores, and 31% for the high income stores. Average sales of dressed croaker were 56%, 38%, and 27% for the low, medium, and high income stores, respectively. Even the higher priced seatrout fillets ($3.59 - 4.99 / lb.) sold best in the low income level stores. They had an average sale rate of 77%. The high income stores were next with 62% sold, followed by the medium income stores with 43% sold.

FIGURE 3: MID—ATLANTIC FISH SALES
BY STORE INCOME PROFILES
(PHASE II)



Overall sales of mid-Atlantic fish per store can be seen in table 6. Out of 3230 pounds of fish marketed, 1557 pounds or 48.2% were sold. If we again omit stores "D", "E", and "H", the average increases to 56.2% sold. The percentage of the fish sold, ranged from 6.8% to 96.4%.

Table 6. Sales summary of Mid-Atlantic fish per store during phase II.

Store	Income Level Profile	Total Poundage Sold	Total Poundage Lost	% Sold
A	Low	183.1	6.9	96.4
B	Low	125.1	64.9	65.8
C	Low	85.2	104.8	44.8
D	Medium	35.0	155.0	18.4
E	Medium	13.0	177.0	6.8
F	Medium	160.9	29.1	84.7
G	Medium	161.0	29.0	84.7
H	Medium	14.7	175.3	7.7
I	Medium	90.0	100.0	47.4
J	Medium	103.8	86.2	54.6
K	High	120.7	69.3	63.5
L	High	67.7	122.3	35.6
M	High	79.2	110.8	41.7
N	High	74.6	115.4	39.3
O	High	68.5	121.5	36.1
P	High	75.1	114.9	39.5
Q	High	99.2	90.8	52.2
Total		1556.8	1673.2	48.2

A sales summary of mid-Atlantic fish sold per species, during phase II, is shown in table 7. Overall, seatrout fillets had the greatest sales. Out of 1190 pounds marketed, approximately 715 pounds or 60.0% were sold. The dressed fish, sea bass and croaker, did not sell as well. They sold at rates of 45.9% and 36.6%, respectively.

Table 7. Sales summary of Mid-Atlantic fish per species during phase II.

Species	Poundage Sold	Poundage Lost	% Sold
Sea Bass	468.6	551.4	45.9
Croaker	373.3	646.6	36.6
Seatrout	714.8	474.9	60.0
Total	1556.8	1672.9	48.2

Conclusions From Sales Figures of Phases I and II

The data from phase I suggests that the greatest sales potential, for mid-Atlantic fish, are with the low and high income level stores. Caution should be used however, from drawing too strong of a conclusion since only one low income and one high income level store were tested. The three medium income full service stores had consistently lower sales. Overall, there seems to be good sales potential for good quality mid-Atlantic fish. The dressed fish (whiting, porgy, sea bass, and croaker) sold as well as the filleted fish (mackerel, bluefish, and seatrout). The sales ranged from 62.4% to 75.6% (table 3) of the product sold.

The data from sales of tray-packed fish versus bulk-packed fish (table 4), during phase I, suggests that both seatrout and porgy may have much greater sales potential when sold over a service counter as a bulk product. Whiting, in contrast, may sell better as a self-service tray-pack.

Sales during phase II were limited to three species; dressed sea bass and croaker, and filleted seatrout. As in phase I, the low income profile stores displayed the highest sales potential (figure 3). Sales of dressed fish (sea bass, croaker) by the high income level stores, however, were much lower during phase II. The medium income stores had their greatest sales with dressed sea bass. The high income level profile stores had better success selling seatrout fillets than either of the dressed fish.

On a percentage basis, the sales of mid-Atlantic fish during phase I were higher than during phase II. In phase I an average of 68.5% of the product was sold versus 48.2% for phase II. One factor which may have influenced sales, was the greater variety of fish marketed during phase I. In phase I, seven different species were available. Only three species were available during phase II. Another probable contributing factor was the higher retail price of the fish during phase II. Tables 8 - 10 list the pricing of sea bass, croaker, and seatrout, and the corresponding sales data, during phases I and II. These species sold for approximately $1.00 / lb. higher during phase II.

Table 8. Sales comparison of Seatrout fillets during phases I and II.

Phase	Wholesale Price/lb.	Retail Price/lb.	Poundage Sold	Poundage Lost	% Sold
I	1.70-2.40	2.69-3.79	152.7	76.9	66.5
II	2.20-2.90	3.59-4.99	714.8	474.9	60.0

Table 9. Sales comparison of dressed Sea Bass during phases I and II.

Phase	Wholesale Price/lb.	Retail Price/lb.	Poundage Sold	Poundage Lost	% Sold
I	1.45-1.70	1.99-2.39	204.1	66.0	75.6
II	2.10-3.20	3.29-5.99[a]	468.6	551.4	45.9

[a] Two stores (D and P) had the sea bass incorrectly priced at $5.99 / lb.

Table 10. Sales comparison of dressed Atlantic Croaker during phases I and II.

Phase	Wholesale Price/lb.	Retail Price/lb.	Poundage Sold	Poundage Lost	% Sold
I	1.25	2.99	41.6	18.4	69.3
II	1.85-2.10	2.99-3.99	373.3	646.6	36.6

It should also be noted that the phase II marketing effort occurred during the off season for finfish sales (November - December). One could surmise therefore, that if you can sell almost 50% of your product during the holiday season, even with the limited availability and higher pricing, that the sales potential at other times of the year would be much greater.

DEMONSTRATION REPORT SUMMARY

During the promotional periods of phases I and II, in-store demonstrations were held to promote the sale of mid-Atlantic fish. In phase I, home economics students from a local university, prepared and served selected recipes. According to the store management some of the students did an excellent job with their demonstrations, while others were less dependable. Information on how their demonstrations effected sales was not available because the known loss data reported by the stores was not detailed enough and the students did not report how much product was sold during their demonstrations. For the promotional period of phase II, a professional demonstration service was contracted. These demonstrators provided detailed reports on each of their demonstrations (Appendix IV). This information has been summarized below.

I) Table 11. Parmesan Broiled Fish Demonstration Made With Gray Seatrout Fillets.

Store	Income Level	Date	# of Customers	Product	Price/lb	lbs. Sold	Comments
A	low	12/5	150	Seatrout	3.59	22	A,B,1,10, a,i
B	low	12/6	200	Seatrout	NR[a]	10	F,E,G
C	low	12/6	130	Seatrout	3.59	12	
D	medium	12/6	200	Seatrout	3.59	18	A,1,22,i
E	medium	12/5	NR	Seatrout	4.99	0	23,c
F	medium	12/5	500	Seatrout	4.49	13	a
G	medium	12/5	100	Seatrout Flounder	3.99 6.99	8 4	D,1 A,B,1
H	medium	12/6	200	Seatrout	4.99	8	A
I	medium	12/5	NR	Seatrout	NR	3	N,12,a,d
J	medium	12/6	150	Seatrout	3.69	19	A,B,C,D, 1,e
K	high	12/5	500	Seatrout	4.49	13	3
L	high	12/5	145	Seatrout Croaker	3.59 2.99	9 2	
M	high	12/6	160	Seatrout	3.99	6	A,16,24, a,j
N	high	12/5	185	Seatrout	3.99	20	A,C,D,P, 18,27,d
O	high	12/6	NR	Seatrout	NR	10	N,5,d
P	high	12/6	NR	Seatrout	4.49	6	N,J
Q	high	12/5	NR	Croaker White fish	3.99 3.59	1 8	R H
Avg.# of Customers/Store			218	Total Pounds Sold		192	

[a] NR = No Report

II) Table 12. Italian Baked Fish Demonstration Made With Dressed Black Sea Bass.

Store	Income Level	Date	# of Customers	Product	Price/lb	lbs. Sold	Comments
A	low	12/13	75	Sea Bass	3.29	20	A,M,2,10 a
B	low	12/12	200	Sea Bass	3.29	30	25,g
C	low	12/12	100	Sea Bass Croaker	2.99 1.99	8 2	
D	medium	12/12	75	Sea Bass	5.99	0	2,11,26, g
E	medium	12/13	250	Sea Bass	3.29	5	H
F	medium	12/12	250	Sea Bass	3.25	13	4,9
G	medium	12/13	70	Sea Bass	3.29	14	A,G,6
H	medium	12/12	150	Sea Bass	3.29	3	A,2
I	medium	12/13	100	Sea Bass	NR[a]	6	A,D,13
J	medium	12/12	120	Sea Bass	3.29	15	F,6,14, f
K	high	12/12	250	Sea Bass	2.29	8	4
L	high	12/13	98	Seatrout Croaker	3.59 1.99	11 2	
M	high	12/12	NR	Sea Bass	3.29	2	I,7
N	high	12/13	NR	Sea Bass	3.29	2	I,E
O	high	12/12	50	Sea Bass	3.29	0	Q,19
P	high	12/12	NR	Sea Bass	3.29	6	H,7,25,g
Q	high	12/13	NR	Sea Bass	3.29	5	F,I,7
Avg.# of Customers/Store			138	Total Pounds Sold		152	

[a] NR = No Report

III) Table 13. Barbecued Fish Demonstration Made With Gray Seatrout Fillets.

Store	Income Level	Date	# of Customers	Product	Price/lb	lbs. Sold	Comments
A	low	12/19	50	Seatrout	4.49	8	A,L,3
B	low	12/20	NR[a]	Sea Bass	NR	5	I
C	low	12/20	110	Seatrout	3.59	6	
D	medium	12/20	50	Seatrout	4.59	0	A,3
E	medium	12/19	150	Seatrout	4.99	0	A
F	medium	12/20	NR	Sea Bass	3.29	20	
G	medium	12/19	80	Sea Bass	3.59	6	G,7
H	medium	12/20	100	Seatrout	4.59	3	A,h
I	medium	12/19	NR	Seatrout	NR	3	a,h
J	medium	12/20	120	Seatrout Sea Bass	3.69 3.29	25 10	C,G,15 C,G,c
K	high	12/19	NR	Sea Bass Seatrout	NR NR	5 5	N O
L	high	12/19	90	Sea Bass Croaker	3.59 2.99	4 1	
M	high	12/20	200	Seatrout	4.59	5	A,L,27, 28,a
N	high	12/19	170	Seatrout	3.99	10	L,a
P	high	12/20	NR	Seatrout	3.59	0	K,J
Q	high	12/19	NR	Seatrout	3.59	0	K,J

Avg.# of Customers/Store 112 Total Pounds Sold 116

[a] NR = No Report

IV) Consumer Comments

A. Very good.

B. Excellent.

C. Delicious.

D. Does not taste fishy.

E. A little fishy.

F. Great flavor.

G. Good recipe.

H. Liked product.

I. Did not like it (too bony, afraid of bones, fish with bones not good to give children).

J. Fish too strong, like milder fish.

K. Better without barbecue sauce.

L. Had never tasted barbecued fish, liked the sauce.

M. Surprised at use of Italian dressing, really liked it.

N. Seatrout too fishy.

O. Black bass very good.

P. Did not smell like fish being fried.

Q. Taste like tuna.

R. Croaker too strong.

V) Demonstrators Comments

1 Fried fish in lemon juice and margarine until almost done; topped with lots of Parmesan cheese and baked until golden crusty.

2 Marinated fish first, then fried, then baked, all in Italian dressing.

3 Prepared sauce in skillet; fried fish until almost done; put some sauce in pan and finished baking in oven.

3 Fixed in skillet with margarine and lemon juice, covered for 10 minutes, removed skin and added salt and pepper.

4 Added Italian dressing, water, margarine, steamed in fry pan.

5 Used a different batter, was not so fishy.

6 I approached people as they came to fish counter; sample helped them decide; I played up the simplicity of the recipe (Italian dressing). Need someone in attendance at fish counter at all times.

7 Bones in fish make it difficult to demonstrate.

8 If demos could be located near the main seafood counter I could approach people as they look at seafood to make selection.

9 Staff was very helpful.

10 This is a majority black store; fish sells well.

11 Sea Bass was incorrectly priced, 5.99/lb. Did not sell.

12 I tried several different ways to cook it and the clerks in the seafood department were a great help but it just did not sell.

13 People started to buy fish but when they found out it was whole fish, would not buy - too much trouble to clean.

14 Late morning, early afternoon was slow, most people did not want fish that early. Afternoon and early evening was great.

15 Ran out of trout by 3:00!! Demonstrated sea bass from 3-5:30.

16 Used oven prepared fish in seafood department, brought it out to broil, had a bad time with fuses blowing for awhile.

17 Used hot plate to keep fish warm, would rather be in front of seafood department and not so close to other demonstrators.

18 Did not have an oven, used my skillet; seafood manager gave me a hot plate, that helped. Had to use the demo samples, seafood department sold out early.

19 Not many wished to try, but liked the recipe. Liked it steamed, reduced calories.

20 White fish sold well.

21 Croaker, a stronger fish, did not sell too well.

22 Parmesan topping helped sell the fish.

23 Some said it tasted like catfish.

24 Would buy the fish at later time when they wanted to fix it (want to buy it fresh).

25 Would only buy in fillet form not whole.

26 Basically white population, fish not an overly popular item.

27 Customers were interested, asked questions.

28 Would buy after Christmas.

VI) Managers Comments

a. Very good demonstrator.

b. Great job.

c. Good with customers.

d. Send demonstrator back any time.

e. Very courteous, helped boost sales of sea trout.

f. Very courteous, made a big difference in sales of merchandise.

g. Too many small bones, had to fillet.

h. People seemed more concerned with holiday items.

i. Sold out.

j. Good selling technique.

VII) Evaluation Of In-Store Demonstrations

The first demonstrations, held on December 5 and 6, highlighted seatrout fillets. A parmesan broiled fish recipe (see appendix II) was prepared and presented to the customers for tasting. An average of 218 customers per store, tasted the recipe, and 192 pounds of product was sold during the demonstrations (table 11). Most of the consumers commented that they liked the recipe and the fish. Interestingly, some of the consumers said that the seatrout tasted too fishy, while others stated that they liked it because it did not taste fishy.

The demonstrators on December 12 and 13, prepared an Italian baked fish recipe (appendix II) with dressed black sea bass. An average of 138 customers per store, tasted the recipe, and a total of 152 pounds of product was sold during the demonstrations (table 12). The majority of the consumers liked the recipe. A few commented, however that they would not buy dressed fish because of the bones.

The final demonstration, held on December 19 and 20, again highlighted seatrout fillets. The recipe prepared was barbecued fish (appendix II). An average of 112 customers per store, tasted the recipe, and a total of 116 pounds of product was sold during the demonstrations (table 13). As before, most of the consumers liked the recipe and the product. Store "J", a medium income store, had particularly good sales during the demonstration. All of the seatrout in stock (25 pounds), and 10 pounds of seabass were sold.

The success of these in-store demonstrations, both in terms of the number of customers who sampled the mid-Atlantic fish and the actual pounds of product sold, was less toward the latter part of December. It appears that less people were interested in tasting or buying seafood so close to the holiday season.

STORE MANAGEMENT EVALUATION SUMMARY

The following evaluation was conducted by telephone, after the marketing project was over, to determine how the Kroger seafood managers viewed the project.

1) Do you believe that the in-store seafood demonstrations helped to increase the sale of Mid-Atlantic fish product at your store?

	YES	NO
STORES	A,B,C,D,F,G,H,I, J,L,M,N,O,P,Q	K,E

2) Do you believe the in-store demonstrations helped to increase sale of all seafood products and not just the Mid-Atlantic products?

	YES	NO
STORES	A,B,C,D,E,F,G, I,J,K,L,M,O,P	H,N,Q

3) Were you satisfied with the job and performance of the demonstrator assigned to your store?

STORE	YES/NO	COMMENTS
A	YES	Not enough product knowledge.
B	YES	Trouble with sea bass. Demonstrator did not know how to cook dressed product.
C	YES	Pretty good demonstrator.
D	YES	
E	NO	No product knowledge; no experience.
F	YES	
G	YES	No problems.
H	YES	
I	YES	
J	YES/NO	One demonstrator was good with the customers; other not satisfied with.
K	NO	Demonstrator would not cook dressed fish. Shop had to fillet if first.
L	YES	Demonstrator could be more aggressive.
M	YES	Real good job. Demonstrator took time to remove bones from dressed fish.
N	YES	
O	NO	Not good seller on the sea bass; Italian dressing was too strong.
P	NO	Demonstrator was not knowledgeable; had to explain about products.
Q	YES	

4) How would you rate the quality of the Mid-Atlantic products?

STORE	BULK PACK	TRAY PACK	COMMENTS
A	ABOVE AVERAGE		1
B	EXCELLENT	ABOVE AVERAGE	2
C	ABOVE AVERAGE	AVERAGE	3
D	EXCELLENT	EXCELLENT	4
E	EXCELLENT	AVERAGE	5
F	EXCELLENT	EXCELLENT	6
G	AVERAGE	AVERAGE	7
H	ABOVE AVERAGE	ABOVE AVERAGE	8,9
I	EXCELLENT	EXCELLENT	
J	AVERAGE	AVERAGE	10,11
K	ABOVE AVERAGE	ABOVE AVERAGE	12
L	AVERAGE	ABOVE AVERAGE	13
M	ABOVE AVERAGE	EXCELLENT	14,15
N	EXCELLENT	EXCELLENT	
O	EXCELLENT	EXCELLENT	
P	AVERAGE	AVERAGE	16
Q	ABOVE AVERAGE	ABOVE AVERAGE	

COMMENTS

(1) Overall okay, no concerns.

(2) Consistent.

(3) Tray pack had a strong odor; after 2 - 3 days got a lot of returns.

(4) Would like to have seen quality shield on them.

(5) Only 2 - 3 days shelf life on tray packs.

(6) Fish arrived fresh; no keeping quality problems.

(7) Similar to other items ordered.

(8) Good shelf life on bulk pack.

(9) Did not sell much tray pack.

(10) Dressed fish looked fine.

(11) Gray seatrout fillets did not look fresh; They were soft and only had a couple days of shelf-life.

(12) Pleased overall with quality; only one shipment was questionable.

(13) Products were too "bony" (not a quality problem).

(14) Liked bulk pack container.

(15) Tray packs had shorter shelf life.

(16) Quality was very good at times, but not consistent.

5) How would you rate the following quality attributes?

STORE	BULK PACK TEMPERATURE	BULK PACK WEIGHT	TRAY PACK TEMPERATURE	TRAY PACK WEIGHT
A	ACCEPTABLE	ACCEPTABLE	NOT MUCH RECEIVED	
B[b]	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
C	ACCEPTABLE[a]	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
D	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
E	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
F	ACCEPTABLE[c]	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
G	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
H	ACCEPTABLE	ACCEPTABLE[d]	ACCEPTABLE	NOT SURE
I	ACCEPTABLE	ACCEPTABLE	UNACCEPTABLE[f]	ACCEPTABLE
J	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
K	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
L	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
M	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
N	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
O	ACCEPTABLE	ACCEPTABLE	UNACCEPTABLE[e]	ACCEPTABLE
P	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE
Q	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE	ACCEPTABLE

COMMENTS

a. A little too warm a couple of times.

b. Equal to other products.

c. Not enough ice on some shipments.

d. A little over weight.

e. Warmer than should be.

f. Should be colder.

6) What Mid-Atlantic fresh fish do you believe your store could sell in the future?

STORE	INCOME LEVEL	SPECIES[a]	COMMENTS
A	Low	Mackerel(F), Whiting (F,H&G), Porgy (H&G), Bluefish (H&G), Sea Bass (H&G), Seatrout (F), Flounder (F).	1,2
B	Low	Mackerel (F), Whiting (H&G), Bluefish (F), Seatrout (H&G), Flounder (F).	
C	Low	Whiting (F), Bluefish (F), Sea Bass (F,H&G), Seatrout (F), Flounder (F).	
D	Medium	Mackerel (F), Bluefish (F), Sea Bass (F), Croaker (F), Flounder (F).	3
E	Medium	Whiting (F,H&G) Bluefish (F), Sea Bass (H&G), Flounder (F).	4
F	Medium	Whiting (F), Bluefish, Sea Bass (F,H&G), Seatrout (F), Flounder (F).	
G	Medium	Bluefish (F), Sea Bass (F), Seatrout (F), Flounder (F).	
H	Medium	Porgy (H&G), Bluefish (F), Sea Bass, Seatrout (F), Flounder (F).	5
I	Medium	Mackerel (F), Whiting (H&G), Bluefish (F), Croaker (H&G), Seatrout (F), Flounder (F).	
J	Medium	Mackerel (H&G), Whiting (F), Porgy (H&G), Sea Bass (H&G), Croaker (H&G), Flounder (F).	6
K	High	Porgy (H&G), Bluefish (F), Sea Bass (F), Seatrout (F,H&G), Flounder (F).	7
L	High	Whiting (F), Bluefish (F), Sea Bass (F), Flounder (F).	
M	High	Bluefish (F), Croaker (H&G), Seatrout (F), Flounder (F).	
N	High	Seatrout (F), Flounder (F).	8
O	High	Mackerel, Bluefish (F), Seatrout, Flounder (F).	
P	High	Mackerel (F), Whiting (F), Bluefish (F)	9,10
Q	High	Mackerel (F), Bluefish (F), Sea Bass (F), Seatrout (F), Flounder (F).	11

[a] F = Fillet, H&G = Headed and Gutted or Dressed.

COMMENTS

1. Could sell any shape or form of Whiting.
2. Skin-off Bluefish fillets looked terrible in display case. Sell whole or skin-on fillets next time.
3. Can only sell fillets, not dressed fish.
4. Prefer just bulk pack product, no tray pack.
5. Some Croaker and Mackerel may sell.
6. Could sell H&G Porgy and Sea Bass only if retail was cheap. Seatrout was not popular, but sold with demo.
7. Believes Flounder would sell best of all.
8. Did not like the way the Bluefish fillets looked.
9. Sea Bass was a big seller.
10. Prefer fillets; do not like bones of dressed fish.
11. H&G does not sell well.

7) Were the recipe cards useful?

All store managers responded **Yes.**

8) How would you rate the training program?

All store managers responded **Useful.**

9) Were the materials you received at the training program beneficial?

All store managers responded **Yes.**

10) Do you have any other comments or suggestions concerning the Mid-Atlantic project?

STORE	COMMENTS
A	Would like to do it again!
B	Fact sheets helped when product first arrived.
C	Did better with bulk pack; tray pack had 1 - 2 days of shelf life. Customers liked the variety.
D	Quality was not promoted. Grade A was not followed though as promised in training program. Recipes were too complicated; too many ingredients.
E	Bad time for project. Too many other things were going on.
F	Would like to order Black Sea Bass and Flounder.
G	Waste of money at this store. Wrong store; too high income level.
I	Send more fillets and less dressed fish (bones cause too much trouble; customers afraid of bones - will not serve bony fish to their children).
J	Managers changed two weeks into the program; Did not attend training program. Seatrout had very soft flesh. It did not look good after a couple of days.
K	Program was excellent. Demonstrators did not do what you wanted them to do. Very little problem with product overall.
L	Tough to sell product prior to holidays.
M	Are we going to get any more Mid-Atlantic product?
N	Liked the fish they received, but definitely prefer fillets. Loved the packaging.
O	Packaging looked good. All distributors should take so much time packaging.

OVERVIEW OF STORE MANAGEMENT EVALUATION SUMMARY

The majority of the seafood managers stated, that they believed the in-store demonstrations were beneficial to sales of not only mid-Atlantic fish, but other seafood products as well. The quality of the mid-Atlantic fish that they received was rated from average to excellent; with most of the fish in the above average to excellent range. Many of the managers stated that they preferred the fish which were packed in bulk over the tray-packed product.

With respect to future marketing of mid-Atlantic fish, the majority of the seafood managers, from the low income profile stores, stated that they believed they could sell the following species and market forms; filleted Atlantic mackerel, dressed or filleted whiting, filleted bluefish, dressed sea bass, filleted gray seatrout, and filleted flounder. The seafood managers, from the middle income profile stores had the following preferences; filleted whiting, filleted bluefish, dressed or filleted sea bass, filleted gray seatrout, and filleted flounder. The managers from the high income profile stores stated that they could only sell fillets. These included filleted mackerel, bluefish, sea bass, seatrout, and flounder.

Some of the overall comments on the project included; "Would like to do it again!", Are we going to get any more mid-Atlantic product?", "Did better with bulk pack...", "Customers liked the variety", "Send more fillets and less dressed fish.", "Bad time for project, too many other things going on.", "Waste of money at

this store...too high income level.", "Liked the fish we received, but definitely prefer fillets.", "Tough to sell prior to the holidays", "Program was excellent...very little problem with product overall".

APPENDIX I

FACT SHEETS ON MID-ATLANTIC FISH SPECIES

The following fact sheets were prepared and distributed to the in-store demonstators and to the seafood managers at the participating Kroger stores.

Gray Seatrout

Atlantic Mackerel

Spot

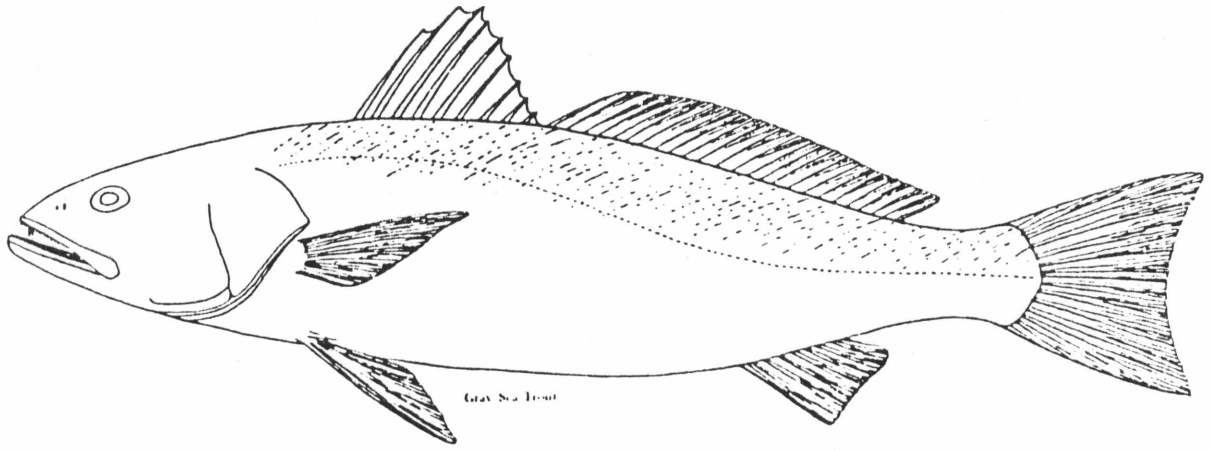
Whiting

Bluefish

Porgy

Atlantic Croaker

Black Sea Bass



Gray Sea Trout (Cynoscion regalis)

DESCRIPTION: The gray sea trout is a member of the drum family. Other common names for this species include weakfish (because it has delicate tissue around the mouth), squeteague and yellowfin. The males of the species make a drumming noise by rapidly contracting abdominal muscles which resonate against the air bladder. The drumming can be heard by boaters; during the spawning season the drumming noise is louder. Its body is long and slim and quite colorful. It is dark green above with purple, green, blue or copper tints along the back and sides. Above the lateral lines it is marked with many small black, green or bronze spots which are vaguely outlined and form regular lines. The lower surfaces are white or silvery. The dorsal fins are dusky, tinged with yellow, and the other fins have yellow tints. They have large mouths with two canine teeth in the upper jaw and the lower jaw protrudes beyond the upper jaw. The tail is moderately broad and slightly curved.

DISTRIBUTION: Gray sea trout usually travel in small schools and can be found along the east coast of Florida to Massachusetts, occasionally straying northward to the Bay of Fundy. During the summer they live in shallow shore waters, usually over sandy bottoms and move south to offshore waters in the autumn. Spawning occurs from May to October.

HARVESTING METHODS: Most of the commercial catches along the mid-Atlantic are made with otter trawls. Although, gill nets, pound nets, haul seines and floating traps are also used.

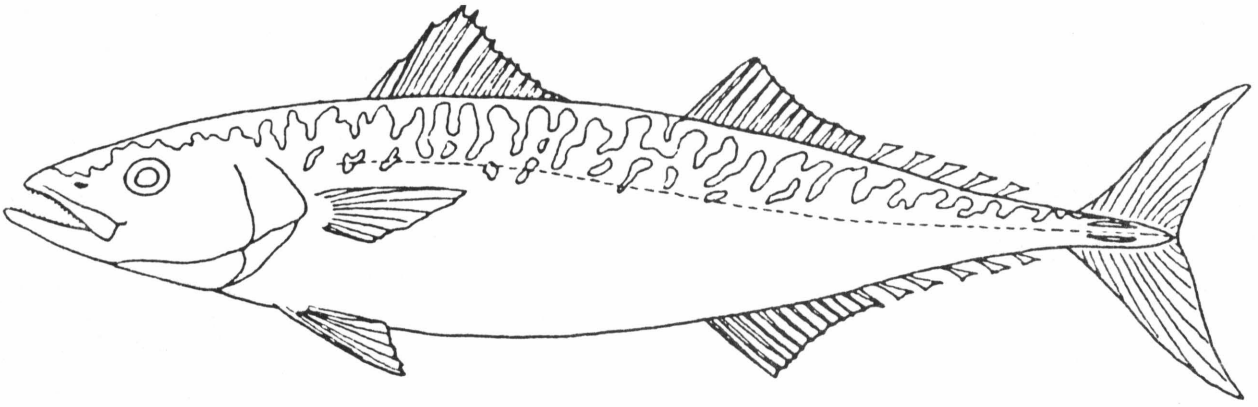
AVAILABILITY/MARKET FORMS: Fresh gray trout are available from mid-Atlantic waters from April to November. Common market forms are whole, drawn and pan-dressed. Larger fish are filleted.

EATING QUALITIES: The meat of the gray sea trout is tender, lean and white. Broiling, baking, sauteing or pan-frying will bring out its mild flavor. The bones can be easily lifted out with a fork once the fish is cooked.

NUTRITIONAL VALUE:

94 Calories (100 gms, 3½ oz)
19% protein
1-4% fat

HANDLING: Tender flesh requires that sea trout be handled gently. Wet fish should be packed with fine crushed or flake ice rather than chunks. Properly wrapped and stored frozen gray sea trout will maintain quality for about 6 months.



Atlantic or Boston Mackerel (Scomber scombrus)

DESCRIPTION: The Atlantic or Boston mackerel is related to tuna but much smaller, 12-18 inches long, and weighing 1-2½ pounds. It is very colorful, satiny blue-green, with a silvery belly and dark wavy bands on the back.

DISTRIBUTION: Atlantic mackerel are found from Labrador to North Carolina but are devided into two populations. The southern population appears offshore in late winter, advancing toward Virginia, Maryland and New Jersey and spawning off New Jersey and Long Island. The northern group enters southern New England in late May and mingles with the southern group for a short time. Then they move again to spawn off Nova Scotia and in the Gulf of St. Lawrence.

HARVESTING METHODS: Atlantic mackerel are fished with bottom and mid-water trawls, mainly off Nova Scotia, the Gulf of St. Lawrence and New England, and increasingly in the middle Atlantic region. The traditional U.S. commercial fishery is based in Massachusetts ports (hence the name Boston mackerel). Atlantic mackerel have been known to be highly abundant in some years and almost completely absent in other years. This depends on survival of the young.

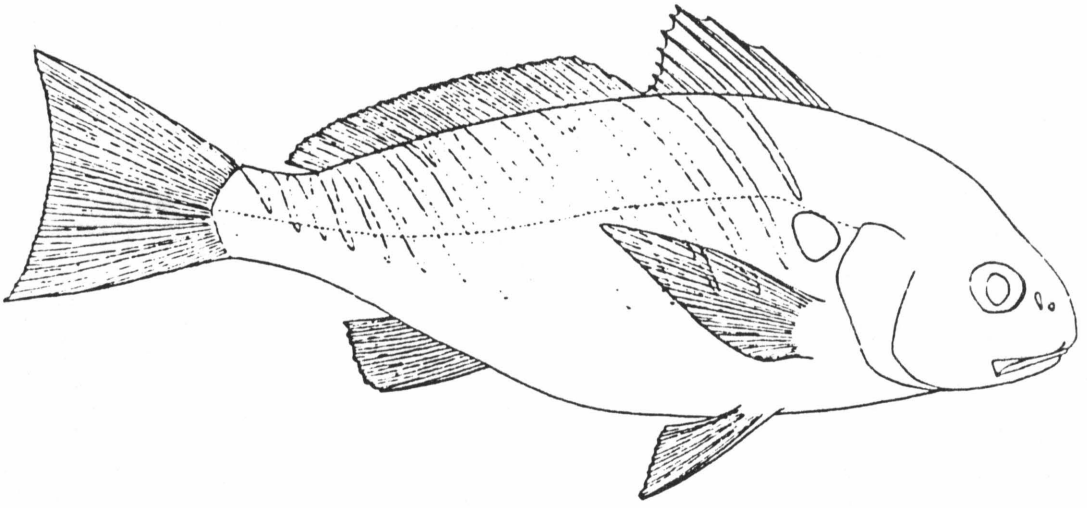
AVAILABILITY/MARKET FORMS: Mid-Atlantic mackerel is available from mid-February to April and North Atlantic mackerel becomes available in July and continues to November. Much attention is now focused on the Mid-Atlantic for future supplies. Atlantic mackerel is available fresh from spring to fall and frozen, canned or salted year around. Until 1870 most mackerel was consumed salted when the use of ice permitted the sale of fresh fish.

EATING QUALITIES: Atlantic mackerel are oily fish with a firm textured flesh. Oil content is especially high in the later season when they are well fed. Actually, a fat mackerel is often preferred when fresh. Most cooking methods may be used, but broiling lends itself well for mackerel, especially when served with a contrasting sauce.

NUTRITIONAL VALUE:

198 Calories (100 gms, 3½ oz.)
20% protein
5-20% fat

HANDLING: The Atlantic mackerel needs to be well iced as soon as it is caught, and fishing trips are kept short. Rarely food poisoning (scombroid) can be caused by elevated temperatures. More significantly, insufficient cooling anywhere in the marketing channel will destroy the fine flavor. For frozen storage the fish should be well packaged and used within 1-3 months to avoid rancidity.



Spot (Leiostomus xanthurus)

DESCRIPTION: The spot is a small well-known member of the croaker family which derives its name from the black spot directly behind the gills. Its body is short and deep and the body coloration is usually bluish-gray with gold or bronze reflections above and a silvery cast below. It has 12-15 yellowish oblique bars on the side which become indistinct with age. Like croakers, the male spot makes a drumming sound using the swimbladder. Spot are usually smaller and rounder than croaker and average only half a pound.

DISTRIBUTION: Spot are found along the Atlantic coast from Massachusetts to Texas. They are most common south of New Jersey. Spot can tolerate a wide range of temperatures and salinities. They sometimes occur in large schools, from the shallows of coastal marshes to at least 670 feet, and occasionally they are extremely abundant in deepwater.

HARVESTING METHODS: The bulk of the commercial spot catch in Virginia is made by haul seines and pound nets in shallow waters. Winter landings are made offshore with otter trawls.

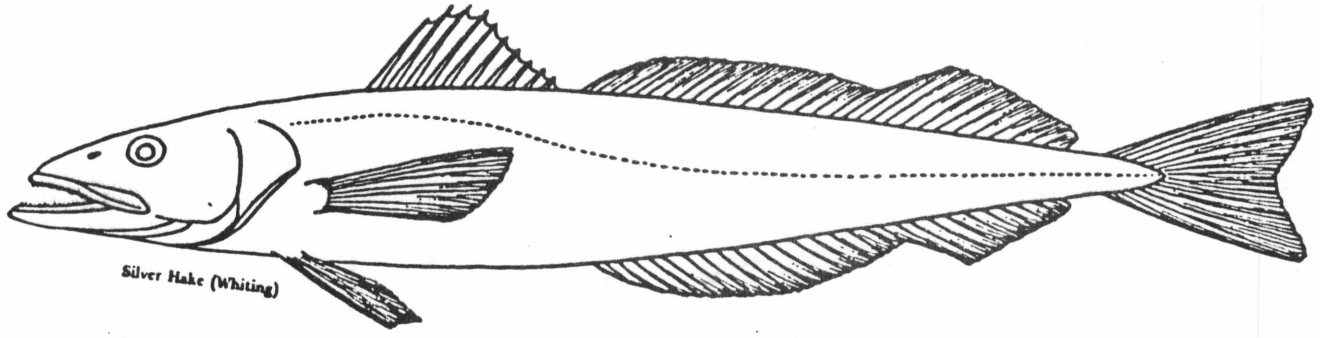
AVAILABILITY/MARKET FORMS: Spot are available whole, drawn and pan-dressed. They are marketed fresh from April through February in mid-Atlantic states.

EATING QUALITIES: Spot is an excellent pan fish. Its meat is lean or slightly oily, tender and flaky. Preparation methods include butter-sauteing, pan-frying, oven-frying and broiling.

NUTRITIONAL VALUE:

100 Calories (100 gms, 3½ oz)
18% protein
2-3 % fat

HANDLING: Spot is a relatively low fat, light fleshed fish and should maintain its quality 3-4 months when frozen.



Whiting (Merluccius bilinearis)

DISCRIPTION: Whiting is a common name used to identify several species of hakes which are members of the cod family. One abundant Atlantic whiting is also referred to as winter trout or more properly silver hake because of their silvery iridescent color. The upper body has brown or dark gray tints which darken when exposed to air. The long body has small scales and a relatively small tail with the lateral line running the length of the fish. The whiting has a flat topped head, large eyes and a large mouth with 2 or more rows of sharp teeth. This fish is distinguishable from other members of the cod family because it has only 2 dorsal fins, one ventral fin, and no barbels on the lower jaw. They reach 30 inches in length and a weight of 8 pounds; although, the average size is less than 14 inches and 1 to 2 pounds.

DISTRIBUTION: Whiting can be found along the Continental Shelf of the Atlantic from the Newfoundland banks to Cape Hatteras, North Carolina. They may live in water as deep as 3000 feet during the winter months and seem to prefer warmer water than other members of the cod family.

HARVEST METHODS: The principal fishing gear for commercial whiting is the otter trawl.

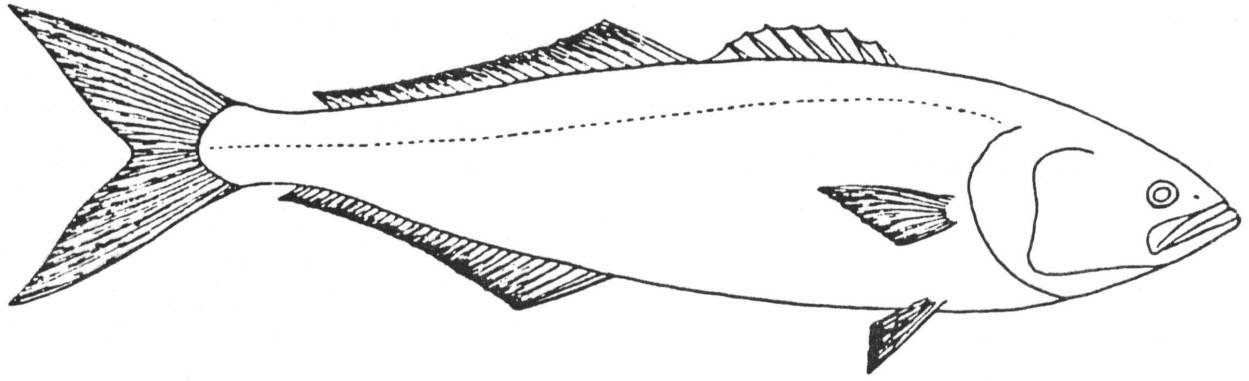
AVAILABILITY/MARKET FORMS: Whiting are caught primarily from January to April, often peaking in March. Generally, they are marketed whole, dressed (head and gutted), and in the case of larger fish, filleted.

EATING QUALITIES: Whiting are one of the most versatile fish on the market. They are lean and mildly flavored. The texture may vary from firm to tender depending on the season and handling. Dressed whiting can be prepared by baking, pan-frying, and poaching. The fillets can also be baked, sauteed in butter, broiled, pan-fried or steamed.

NUTRITIONAL VALUE:

107 Calories (100 gms, 3½ oz)
17% protein
0.2-2.4% fat

HANDLING: Like sea trout, whiting are tender and must be packed and handled carefully to avoid crushing. They are lean fish and can be stored 4 to 6 months in the freezer when properly packaged to exclude oxygen.



Bluefish (Pomatomus saltatrix)

DESCRIPTION: Bluefish, sometimes called blues or snapper or chopper blues, are stout bodied fish having few relatives. Coloration is attractive; blue green on the back shading to silver toward the belly. Their sharp, slicing teeth have injured many an unwary fisherman. They are voracious feeders often tearing into large schools of baitfish, leaving a trail of scraps for seabirds. Size ranges from 1 to 20 pounds with most market fish weighing 2 to 5 pounds.

DISTRIBUTION: Bluefish are found from New England to the Gulf of Mexico. Offshore stocks move inshore beginning mid-winter in Florida and proceeding northward. Schools of blues enter the Chesapeake Bay in early spring and New England waters in early summer.

HARVESTING METHODS: A variety of gear types are used, including trawls, seines, gill nets and pound nets.

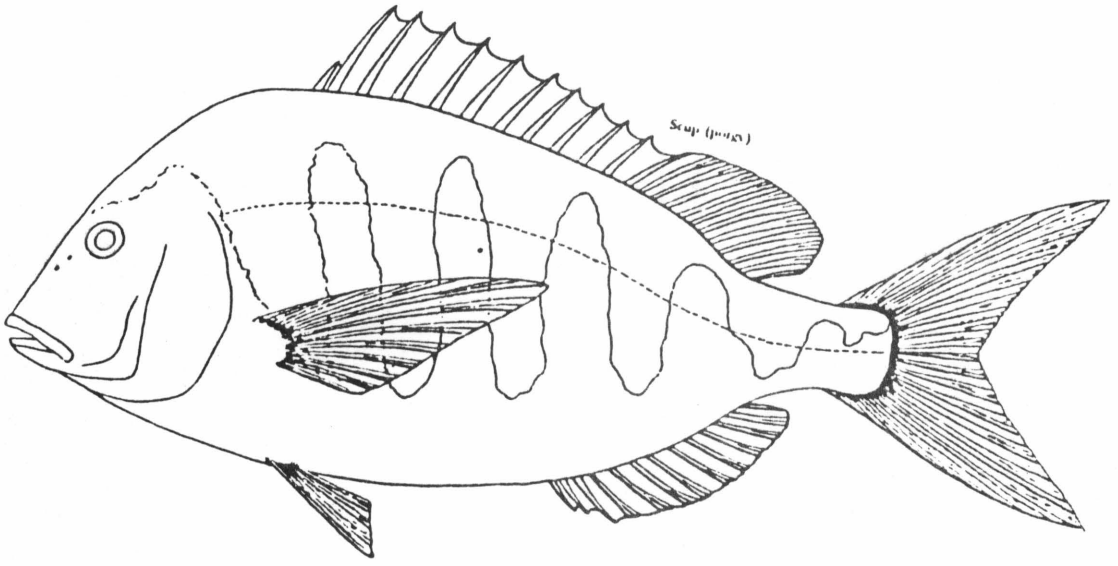
AVAILABILITY/MARKET FORMS: Although supplies are occasionally spotty, bluefish are available year around. In the mid-Atlantic, the major run is early April to June with a secondary run in late fall. The harvest has been large in recent years. It is marketed whole, drawn, dressed and as skin-on filets. Some smoked bluefish is available. Very little is frozen.

EATING QUALITIES: Bluefish are known for their rich but fine flavor. They are moderately oily and contain appreciable amounts of red muscle. Texture is smooth and long flaked. They are a very good choice for charcoal grilling especially when basted with a tart oil marinade. They are also baked or broiled. Pan-frying is best limited to small filets.

NUTRITIONAL VALUE:

107 Calories (100 gms, 3½ oz)
19% protein
2-7% fat

HANDLING: Cutting yields are good and produce meaty, nearly boneless, filets. Occasionally heavy feeding will accelerate softening from digestive enzymes. Extended storage or temperature abuse can lead to a strong flavor. Frozen shelf-life is limited to 3 months.



Porgy (Stenotomus chrysops)

DESCRIPTION: Porgy or scup (the species of commercial importance), have deep, flattened bodies resembling those of freshwater sunfish but with crescent shaped tails. They are dull silver in color and often iridescent with flecks of faint blue. Their scales are quite large and tough. Although porgies up to three or four pounds and 20 inches in length occasionally enter markets, they average one to two pounds and under 14 inches.

DISTRIBUTION: Porgy are found from Massachusetts to North Carolina moving in schools generally north and shoreward in spring and south and offshore in fall. They seem to have a strong preference for certain bottom types making for a locally spotty distribution.

HARVEST METHODS: Porgy are caught commercially with bottom trawl gear in 120 to 300 feet of water during the winter fishery. Floating traps are sometimes employed in summer.

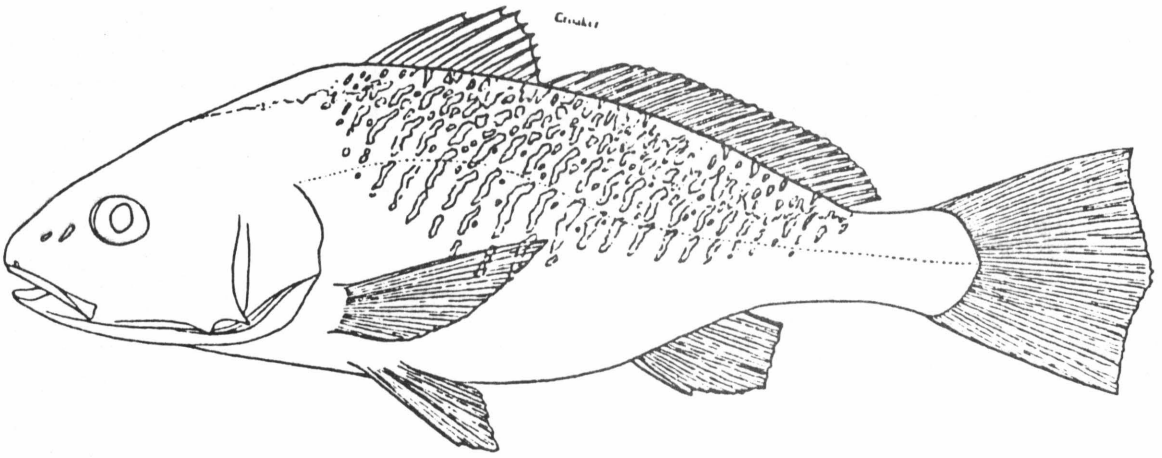
AVAILABILITY/MARKET FORMS: Mid-Atlantic landings are mostly January to April; New England landings late spring and summer. Historically, abundance varies widely from season to season. Fresh and frozen porgy is shipped whole, dressed (usually scaled, headed and gutted), or, less commonly, fileted.

EATING QUALITIES: Porgy have lean, tender, large flake flesh of mild to moderate flavor intensity. Small individuals may be somewhat difficult to debone at the table when eaten dressed. Popular preparation methods include pan-frying (lightly breaded) and grilling.

NUTRITIONAL VALUE:

92 Calories (100 gms, 3½ oz)
18% protein
1-6% fat

HANDLING: Like all seafood, porgy should be handled carefully and be kept cold for best flavor, but they do appear to maintain quality better than some species. Frozen shelf-life should be 3-6 months when properly packaged.



Croaker (Micropogonias undulatus)

DESCRIPTION: The Atlantic croaker has several aliases such as drum, golden croaker or hardhead. The names croaker and drum are descriptive of the noise the fish makes by vibrating strong muscles agianst its swim bladder which acts as a resonating chamber much like drum. The upper body of the croaker is covered with small dark spots which extend up onto the first dorsal fin. The lower third of the body is white. The tail is slightly rounded and the lateral line continues onto the tailfin, sometimes to the end. A row of little barbels border each side of the lower jaw. The body of the fish is silvery green or gray with a silvery white underside. Its sides are often covered with brown wavy bands. During spawning season they become a distinct bronze or yellow color hence the name golden croaker. At maturity (reached in 3-4 years) croakers reach between 1-1½ feet long and 4-5 pounds. The average size of croaker is between ½ to 2 pounds.

DISTRIBUTION: Atlantic croaker can be found along the Atlantic coast from Massachusetts to Florida and into the Gulf of Mexico around to Texas. Large concentrations of croaker can be found in the Chesapeake Bay and the Mississippi River delta. It inhabits the Chesapeake Bay from March to October over sandy or grassy shallows then moves out into deeper water, up to 240 feet, in the winter. Spawning occurs from late August to December.

HARVEST METHODS: Croaker is caught in Chesapeake Bay waters from April to November using pound nets and haul seines, gill nets and otter trawls.

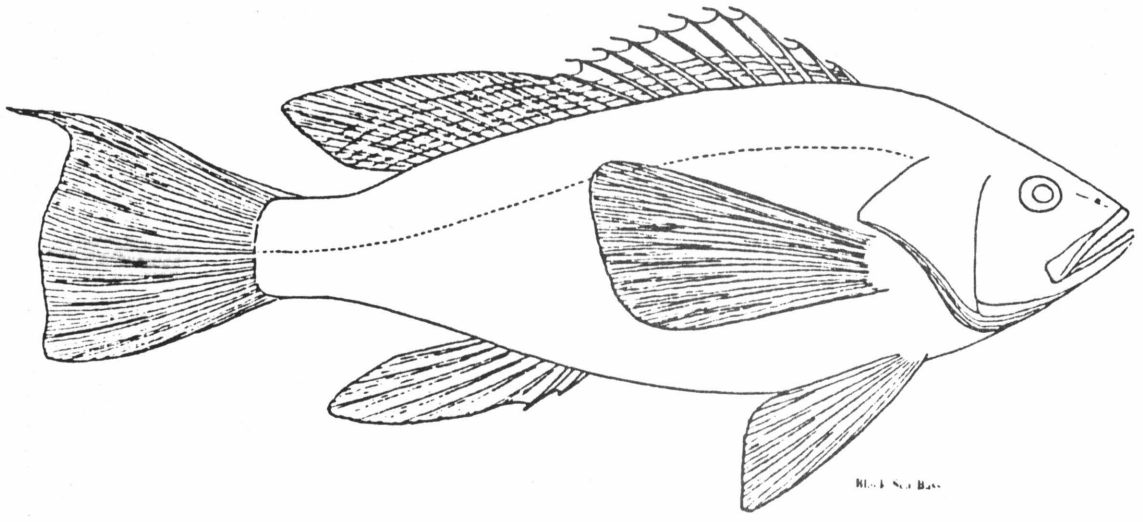
AVAILABILITY/MARKET FORMS: Croakers are relatively small fish and are often marketed drawn or dressed. Large fish can be filleted. The bulk of the mid-Atlantic catch is usually taken in July, August and September.

EATING QUALITIES: Croaker offers tender meat with a mild sweet flavor. They may be baked, broiled or fried to bring out their flavor.

NUTRITIONAL VALUE:

92 Calories (100 gms, 3½ oz)
17-18% protein
1-3% fat

HANDLING: Croaker have a moderate to lean fat content which is in their favor in the freezer. Properly wrapped croaker should maintain quality for 4-6 months in the freezer.



Black Sea Bass (Centropristis striatas)

DESCRIPTION: The black sea bass is one of the most popular bottomfish species of the northeast Atlantic coast. It can readily be identified by its moderately stout body, which has a high back, flat-topped head and moderately pointed snout. Like many fish which inhabit rocky bottoms the color of the sea bass is variable. It ranges from smoky gray to dusty brown to a blue-black. The color is sometimes mottled, or has a barred appearance with longitudinal spots of a lighter shade. Sea bass are not large fish. The average weight is 1½ pounds and they are seldom heavier than 5 pounds. All black sea bass begin life as females and then change into males at the age of 2 to 5 years of age.

DISTRIBUTION: Black sea bass are commonly found in cool water from southern Massachusetts to North Carolina. They are most abundant off the middle Atlantic states. Being exclusively marine, sea bass never venture into rivers. They are found in bays, sounds, and along the inshore and offshore zones. These fish are essentially bottom dwellers, spending most of their time on, or a short distance above, the sea floor.

HARVESTING METHODS: In the mid-Atlantic states most black sea bass catches are made with trawl nets, some however, are also caught in unbaited wooden traps fished in offshore depths of 65 to 110 feet from May to November.

AVAILABILITY/MARKET FORMS: Black sea bass are available fresh in mid-Atlantic states primarily from September to April, whole, dressed or filleted.

EATING QUALITIES: Sea bass are excellent eating. Their flesh is white, firm and delicately flavored. It goes well with lemon juice, soy sauce or other simple sauces. Sea bass can be prepared by butter-sauteing, pan-frying, oven-frying, baking, broiling and poaching.

NUTRITIONAL VALUE:

89 Calories (100 gms, 3½ oz.)
18% protein
1-3% fat

HANDLING: Sometimes a black sea bass' swim bladder is pushed into its mouth when lifted from deep water. This does not affect shelf-life but may be asthetically unappealing when fish are marketed whole. They require no special handling and can be frozen for up to 6 months.

APPENDIX II

RECIPES USED FOR IN-STORE DEMONSTRATIONS

1) Parmesan Broiled Fish

fish fillets
grated parmesan cheese (preferably
freshly grated)
margarine
lemon juice
lemon pepper

Dot fillets with margarine then squeeze lemon juice over them. Cover the fillets generously with parmesan cheese. Season to taste with lemon pepper.
Broil 6-10 minutes or until fish is opaque throughout when separated with a fork.

2) Italian Baked Fish

fish fillets or whole fish
commercial Italian salad dressing

Shake salad dressing well and pour over fish in a shallow pan. Allow fish to marinate for about 20-30 minutes.

Bake fish 10 minutes per inch of thickness, turn about halfway through the cooking time.

3) Barbecued Fish

3 lbs pan dressed fish or 2 lbs fillets
3 tablespoons margarine
2 tablespoons finely minced onion
3 tablespoons lemon juice
3/4 cup commercial barbecue sauce
1 1/2 teaspoons Worcestershire sauce
salt and pepper

Rinse fish and dry with paper towel. Melt margarine in a small saucepan. Saute onions until tender. Mix lemon juice, Worcestershire sauce, and barbecue sauce. Pour the sauce into an electric frying pan and begin warming at 400^{o}F.

Sprinkle fish with salt and pepper, when sauce begins to bubble place the fish skin side down in a single layer in the pan. Turn the fish over to cook it with the sauce.

Cook about 10 minutes per inch until the meat turns opaque through the center of the fillet or dressed fish.

APPENDIX III

POINT OF PURCHASE RECIPES

The following recipes were available as recipe cards at the seafood counters. The front of the cards listed ingredients and directions, while the back listed the nutritional composition.

Fish Salad with Bass

Trout and Potato Salad

Marine Minestrone with Croaker

Chinese Steamed Spot

Cashew Mackerel over Rice

Barbecued Baked Bass

Bluefish and Veggie Microwave Medley

Broiled Seatrout with Sour Cream Sauce

Bluefish Tomato Cups

Oriental Mackerel Steaks

Marinated Seatrout Charcoal Grilled

Poached Porgy with Mornay Sauce

Marinated Seatrout Broiled

Poached Bass with Tarragon Sauce

Broiled Whiting

Trout Foldovers

Broccoli and Whiting Roll-ups

Bluefish in Puff Shells

Hearty Seatrout Fillets

Smokey Broiled Mackerel

EXAMPLE OF RECIPE CARDS

FRONT

MARINATED SEA TROUT BROILED

1 pound gray sea trout
½ teaspoon salt
⅛ cup steak sauce
¼ cup pinapple juice
dash pepper

1. Skin and wash fish fillets.
2. Place serving-size portions in a single layer in a shallow baking dish.
3. Combine remaining ingredients and pour over fish.
4. Marinate for 30 minutes, turning once.
5. Remove fish from pan, reserving marinade for basting.
6. Place fillets on a well greased broiler pan.
7. Broil about 4 inches from heat for 4-6 minutes.

Nutritional Composition on back.

BACK

8. Turn fillets, brush with margarine, and broil about 4-6 minutes longer.

NUTRITIONAL COMPOSITION

SERVING SIZE: 4 ounces	NUMBER OF SERVINGS: 4
CALORIES:	low
CARBOHYDRATE:	low
FAT:	high
PROTEIN:	high
POTASSIUM:	low
SODIUM:	moderate
TEXTURE:	soft, easy to chew
EDIBILITY:	white meat; moderate flavor

APPENDIX IV

IN-STORE DEMONSTRATION REPORT FORM

P
D
S

Professional Demo Services

2020-B Beechmont Avenue, Suite 224
Cincinnati, Ohio 45230
(513) 232-8660

DEMONSTRATION REPORT

DEMONSTRATOR'S NAME (PLEASE PRINT)	ADDRESS & PHONE#

	MON	TUES	WED	THURS	FRI	SAT	TOTAL
DEMO DATES							
HOURS DEMONSTRATED (LIST EXACT HOURS)							
ESTIMATED NO. PEOPLE SAMPLED							

STORE, ADDRESS & PHONE#

PRODUCT CODE	PRODUCTS DEMONSTRATED	OPENING INVENTORY	CLOSING INVENTORY	AMOUNT SOLD	FEATURED PRICE	SAMPLES USED
		NO. LBS.	NO. LBS.	NO. LBS.		LIST POUNDS

CONSUMER COMMENT

DEMONSTRATOR'S COMMENTS (INCLUDE ANY SPECIAL METHODS USED)

LOCATION OF DEMO IN STORE:

STORE TRAFFIC ☐ GOOD ☐ FAIR ☐ POOR

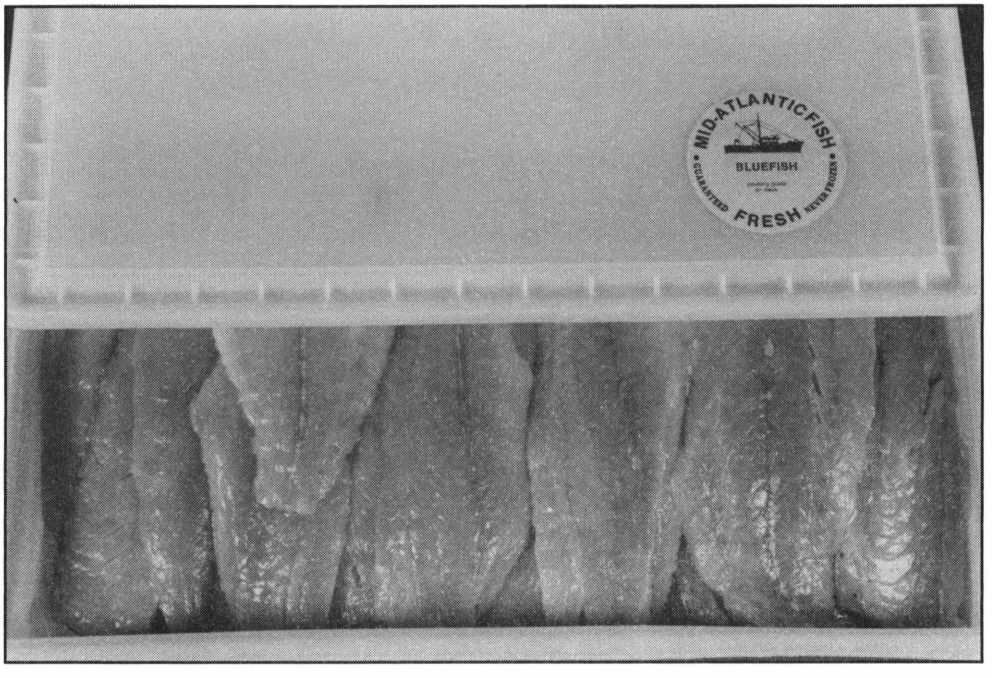
WEATHER CONDITIONS ☐ CLEAR ☐ RAIN ☐ SNOW

STORE MANAGER'S SIGNATURE	COMMENTS
DEPT. MANAGER'S SIGNATURE	COMMENTS

APPENDIX V

PACKAGING OF MID-ATLANTIC FISH

BULK-PACKED FISH



TRAY-PACKED FISH