

A Survey on Whiting Fillet Blocks

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Introduction

As a follow-up to the Combs report¹, the New England Fisheries Development Program, during the summer of 1978, began to test the economic feasibility of frozen blocks derived from machine-filleted whiting. A report² on this phase of the overall program was prepared in August 1978 and distributed to the industry. Concurrently, the Marketing Services Branch, NMFS, NOAA, laid the groundwork for an industry evaluation of the frozen blocks derived from that operation.

New England whiting is an abundant species which is not being fully utilized by the New England seafood industry. The present U.S. market for whiting is largely supplied by imported frozen whiting which is imported as H&G (headed and gutted), or as blocks which are then converted to portions for the food service industry. The H&G whiting is used by fish smokers and is also sold in retail packs (usually 5-pound boxes).

The purpose of a survey on whiting fillet blocks was to determine whether domestically produced frozen blocks made of machine-filleted whiting

would be acceptable to U.S. converters.

Survey Methodology

A cover letter and a questionnaire were prepared by the Marketing Services Branch in collaboration with the industry. The questionnaire was evaluated and pretested, both in-house and by a professional consultant. The cover letter, the questionnaire, and one case containing four 18.5-pound blocks of frozen whiting were delivered to processors and converters of frozen fish sticks and portions in August 1978.

With the exception of one West Coast converter, all blocks were hand-delivered by Marketing personnel. The vast majority of processors and converters is in the northeast region.

Questionnaires were independently completed and were returned to the Marketing Services Branch during September and October 1978.

Percentage of Returns and Market Estimate of Respondents

Out of 18 questionnaires distributed, 14 were returned. Thus, there was a 78 percent response. Through direct knowledge of the respondents, it is estimated that this survey has covered 90-95 percent of the U.S. market of the frozen fish blocks processing industry.

Findings

The first five questions were designed to obtain an evaluation of the frozen blocks. The next three questions were designed to elicit a com-

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parison between whiting fillet blocks and other products existing on the market. The ninth question tried to determine the country of origin of existing blocks. Questions No. 10 and 11 tried to assess the market potential of whiting blocks as to prices and quantities. Question No. 12 solicited overall general comments; and question No. 13 tried to determine the potential interest of the respondent in the product. The analysis of the responses yielded the following information.

Question No. 1. "Would you say your overall reaction to this product is very favorable, somewhat favorable,

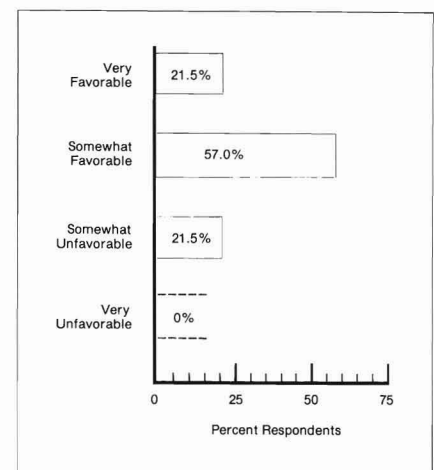


Figure 1.—Overall assessment of whiting fillet blocks by respondents.

¹Combs, Earl R., Inc. 1977. Venture analysis and feasibility study relating to whiting and Atlantic mackerel. Contract Report No. 3-7-073-35121, 111 p. Fish. Dev. Div., NMFS, NOAA, P.O. Box 1109, Gloucester, MA 01930.

²Earl, P. M. 1978. Preliminary results of testing commercially available equipment for processing small whiting, *Merluccius bilinearis*. Preliminary Report, 16 p. Fish. Dev. Div., NMFS, NOAA, P.O. Box 1109, Gloucester, MA 01930.

Whopping Fish Portion Burgers With Hot Curry or Greek Style Yogurt Sauce

- 8 frozen fried whiting portions
3-4 ounces each
- 4 slices process American
cheese, cut in quarters
- 8 hamburger buns or crusty
oblong hard rolls
- Hot curry or Greek-style yogurt
sauce, or ½ recipe of each
sauce
- Lettuce (optional)
- Cherry tomato slices
- Green onions or assorted
vegetables, relishes

Heat whiting portions in oven as directed on package label. Overlap two quarter cheese slices on each hot fish portion; return to oven just until cheese softens. Cut rolls or buns in half. Spread cut surface on each half with about 1 tablespoon of selected sauce. Cover bottom half of buns or rolls with lettuce leaf, if desired. Top with a fish portion. Garnish cheese with a dollop of sauce and cherry tomato slices. Cover with top half of bun or roll. Serve with green onions or vegetable relishes, as desired. Makes 8 sandwiches.

Hot Curry Sauce

- 1 cup salad dressing or
mayonnaise
- 1 teaspoon curry powder
- 1 teaspoon paprika
- 1 teaspoon prepared mustard
- 1 tablespoon chopped parsley

Combine all ingredients; mix well. Makes 1 cup sauce.

Greek-Style Yogurt Sauce

- 1 carton (8 ounces) plain
yogurt (1 cup)
- ¼ cup sliced green onion
- ¼ cup sliced pitted black



- olives
- 1 small clove garlic, minced
- ½ teaspoon grated lemon
rind

½ teaspoon oregano

Combine and mix ingredients; chill if desired. Makes about 1¼ cups sauce.

somewhat unfavorable, or very unfavorable?"

The majority of the respondents (8 or 57 percent) assessed their overall reaction to the blocks as "somewhat favorable." The remaining six were equally divided between a "very favorable" and a "somewhat unfavorable" overall assessment. None expressed a "very unfavorable" opinion (Fig. 1).

Converting the four categories of answers into a scale from 1 to 100, the blocks can be said to have received a 66 percent favorable rating³.

Question No. 2. "What are the one

³Factoring in the absence of "very unfavorable" answers, this percentage can be raised to 82 percent. Averaging the two figures, one obtains a 75 percent favorable rating.

or two best things about this product?"

Since this is a largely "qualitative" question, only those responses which could, have been tabulated in Figure 2; but without attaching any statistical value to the resulting numbers. All responses are quoted almost verbatim.

Responses from the "somewhat favorable" category of respondents:

1) "Good shape of block; whole

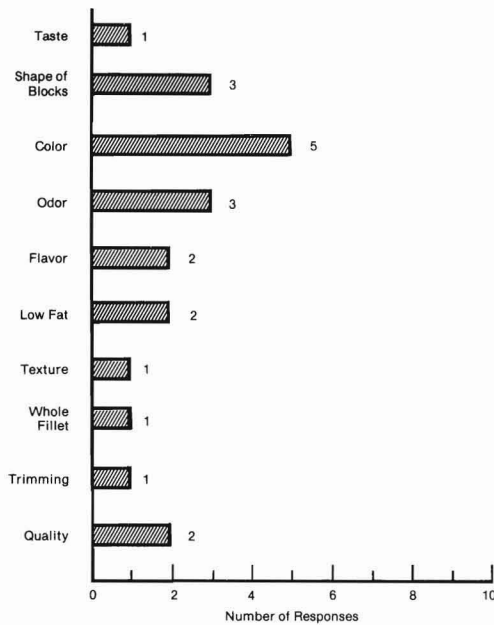


Figure 2.—Number of responses concerning the best features of whiting fillet blocks.

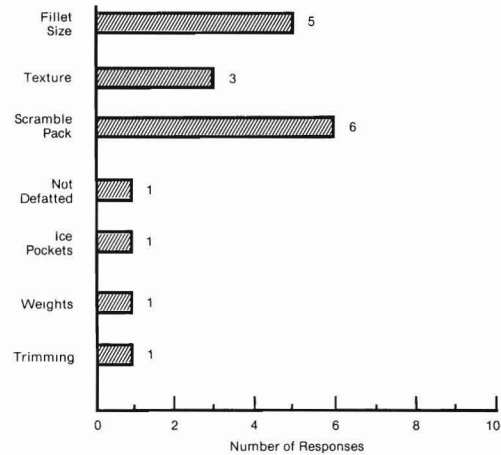


Figure 3.—Number of responses concerning the worst features of whiting fillet blocks.

fillets: very few bits and pieces.”

2) “Fillet trimming, color and odor.”

3) “The attempt to defat the fillets will help shelf life of blocks, if fillets are of good quality when packed.”

4) “We would like to have more product.”

5) “Flavor, low fat.”

6) “It is a domestic resource. The proximity of this resource will permit greater control on overall product quality.”

7) “Form and measurement of frozen blocks—flesh quality good.”

8) “Good quality product—flavor, odor, and texture.”

Responses from the “very favorable” category of respondents:

9) “Color was best attribute.”

10) “Tasty.”

11) “The product as a whole seemed to indicate that whiting blocks, if handled correctly, would become a product desired by processors.”

Responses from the “somewhat unfavorable” category of respondents:

12) “Good overall fillet color, good odor.”

13) “Good color, deep skinned material, good shape.”

14) “Its color is whiter than South American whiting.”

Question No. 3. “What are the one or two worst things about the product?”

Some responses have been tabulated in Figure 3. All responses are quoted almost verbatim.

Responses from the “somewhat favorable” category of respondents:

1) “Fillet size too small; slightly mushy texture.”

2) “Blocks were scrambled pack—should be linear pack.”

3) “Poor placement of fillets throughout block. Buying larger fillets (if possible) will help placement especially in terms of length pack or cross pack. The defatting did tear up some of the fillets.”

4) “Unless there is some kind of subsidy, the U.S. fisherman cannot fish for whiting at present prices.”

5) “Very small fillets.”

6) “It is a seasonal species. The

cost of blocks may make it unattractive at this time.”

7) “Whiting not defatted.”

8) “Small fillets, mixed pack, and ice pockets.”

Responses from the “very favorable” category of respondents:

9) “Very acceptable product.” (Presumably meaning no major negative features.)

10) “Weights were inconsistent.”

11) “No comment.”

Responses from the “somewhat unfavorable” category of respondents:

12) “Workmanship poor, fillet size small.”

13) “Fillets poorly trimmed (cut pieces in block), randomly packed, fillet size very small, fillets mushy.”

14) “It has a loose texture after cooking. The fillets are not packed in any particular alignment.”

Question No. 4. “How do you rate the whiting block in terms of uniformity, odor, taste, texture, color, angles, and fillet size?”

One respondent did not make the analysis required to answer this question. (This respondent belongs to the “somewhat favorable” category.) The analysis of responses is graphically reported in Figure 4. That analysis yields the following ratings:

Uniformity of the blocks was judged “very satisfactory” by 3 of

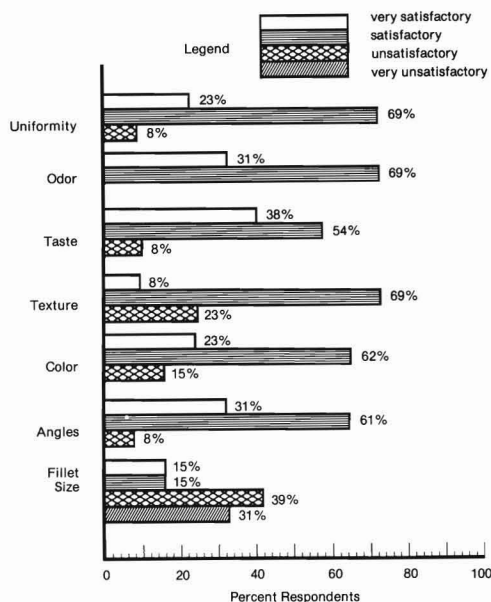


Figure 4.—Characteristics of whiting fillet blocks rated by respondents.

the 13 respondents (23 percent); “satisfactory” by 9 (69 percent); and “unsatisfactory” by 1 (8 percent). There were no “very unsatisfactory” answers. Odor was judged “very satisfactory” by 4 out of the 13 respondents (31 percent) and “satisfactory” by the remaining 9 respondents (69 percent). Taste was judged “very satisfactory” by 5 respondents (38 percent); “satisfactory” by 7 respondents (54 percent); and “unsatisfactory” by 1 respondent (8 percent). Texture was judged “very satisfactory” by 1 respondent (8 percent); “satisfactory” by 9 respondents (69 percent); and “unsatisfactory” by 3 respondents (23 percent). The last three respondents belonged to the “somewhat unfavorable” category. Color was judged “very satisfactory” by 3 respondents (23 percent); “satisfactory” by 8 respondents (62 percent); and “unsatisfactory” by 2 respondents (15 percent). Angles of blocks were judged “very satisfactory” by 4 respondents (31 percent); “satisfactory” by 8 respondents (61 percent); and “unsatisfactory” by 1 respondent (8 percent). Fillet size was

judged “very satisfactory” by 2 respondents (15 percent); “satisfactory” also by 2 respondents (15 percent); “unsatisfactory” by 5 respondents (38 percent); and “very unsatisfactory” by 4 respondents (31 percent). (Percentages have been rounded off and in this case do not add up to 100.)

Question No. 5. “Did you find any defects in this product? If yes, please tell me exactly what defects you found.”

One respondent did not provide any answer to this question. Out of the 13 remaining respondents, 10 (77 percent) did find some defects and 3 (23 percent) found no defects (Fig. 5). Each respondent who found some defects provided the following specific information:

“Small piece of glass.”

“Small voids, slightly rounded edges, scrambled pack.”

“Presence of fins, small piece of cartilage, some small pieces of what appeared to be spinal cord. (Any of above were not in excess.)”

“Block #1 had 3 fillets with pin bones. Block #2 had 1 fillet with pin

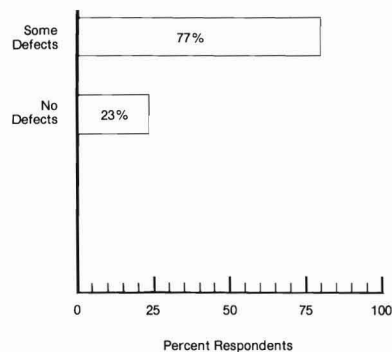


Figure 5.—Percentage of respondents finding defects with the whiting fillet blocks.

bones. Some pieces of skin. Some fillets were not properly polarized.”

“Fillets not defatted.”

“Two small bones, and skin.”

“Weights.”

“Scramble pack, net weight below declared, dimensions inconsistent, voids, bruises, numerous pinbones, shrimp, roe, bacteria count high (A.P.C. 215,000 per gram).”

“Cut pieces attached to fillets, and back bones not completely trimmed away in a few cases.”

“Three pieces of skin, 5 bones, 6 pieces of fin, 5 pieces of backbone, many scales.”

The last three sets of answers belonged to the “somewhat unfavorable” category, while the fourth from the bottom belonged to the “very favorable” category. The other two respondents who belonged to the latter category found no defects.

Question No. 6. “Indicate how you rate the test product as compared with the whiting blocks you are now using in terms of uniformity, odor, taste, texture, color, angles, and fillet size.”

Thirteen respondents answered this question which involved a comparison between the whiting blocks under examination and whiting blocks currently in commercial use.

Two respondents out of 13 (15 percent) found the blocks under examination “better” than those currently in

commercial use, 10 respondents (77 percent) found them “about the same”; and 1 respondent (8 percent) found them “worse” in terms of uniformity.

Four respondents (30 percent) found them “better” and 9 respondents (70 percent) found them “about the same” in terms of odor. Four respondents (30 percent) found them “better”; 8 respondents (62 percent) found them “about the same”; and 1 respondent (8 percent) found them “worse” in terms of taste. One respondent (8 percent) found them “better”; 10 respondents (77 percent) found them “about the same”; and 2 respondents (15 percent) found them “worse” in terms of texture.

Nine respondents (69 percent) found them “better”; 3 respondents (23 percent) found them “about the same”; and 1 respondent (8 percent) found them “worse” in terms of color. Two respondents (15 percent) found them “better”; 10 respondents (77 percent) found them “about the same”; and 1 respondent (8 percent) found them “worse” in terms of angles. One respondent (8 percent) found them “better”; 3 respondents (23 percent) found them “about the same”; and 9 respondents (69 percent) found them “worse” in terms of fillet size.

Perhaps the above data become more meaningful if the responses relating to the categories “about the same” and “better” are combined together, and the results are presented as in Figure 6.

Question No. 7. “In your opinion, what are the major advantages this new product offers as compared to the blocks you are now using?”

Responses are again quoted almost verbatim

“Would expect more consistent quality from domestic fishery.”

“New source of supply. Price—could be cheaper? Better consistency in terms of quality.”

“Flavor not as strong.”

“The proximity of the resource.”

“None.”

“There appear to be no advantages.”

“Color and flavor.”

“U.S. product. Would imagine sanitary conditions under which blocks are being produced would be better than blocks from foreign countries.”

“Color. Angles.”

“None.”

“None. No advantages.”

“It lacks the strong odor often present in whiting and has better color.”

Question No. 8. “What are the disadvantages of the new product compared with the blocks you are now using?”

One respondent left the answer blank. Responses are quoted almost verbatim.

“Fillet size too small.”

“Potential fracturing of pieces cut from scramble packed blocks.”

“Not familiar enough with the characteristics of this type of whiting, and with problems—if any—it could pose after packing and processing.”

“Fillet size, jumble pack. May have trouble with chopper.”

“Seasonal species. Definite flavor, while we try to utilize fish with a bland flavor.”

“Needs defatting.”

“Small fillet size, mixed pack, ice pockets.”

“None.”

“None.”

“Could be price.”

“Inconsistent workmanship, scramble pack and small fillet size.”

“Fillet size and mushiness.”

“It has far too many defects. This block could not make a Grade A portion; it does not even reach the Grade A standard for blocks.”

These comments have been presented in the same order as those quoted earlier under questions number 2 and 3.

Question No. 9. “Please indicate the country or origin from which you purchased the following: whiting, cod, haddock, flounder, ocean perch, and pollock blocks. Include country of origin and quantity purchased each year.”

Six out of the 14 respondents (43 percent) did not answer this question. Among those who answered, one did not provide any quantities and a second provided only percentages presumably relating to his own production but without indicating that total. Also, to avoid potential disclosure of confidential information, the following quantities are tabulated by species without correlating them with their disclosed country of origin.

Whiting blocks were bought from Argentina, Uruguay, Chile, South Africa, and Peru. Approximate yearly totals: 11,500,000 pounds. Cod blocks were bought from Canada, Denmark, Iceland, Norway, Greenland, Scotland, Faroe Islands, and the United States. Approximate yearly totals: 18,000,000 pounds. Haddock blocks were bought from Canada, Norway, Scotland, Iceland, Denmark, and Faroe Islands. Approximate yearly totals: 5,500,000 pounds.

Flounder blocks were bought from Canada, Iceland, Norway, and Scotland. Approximate yearly totals: 5,500,000 pounds. Ocean perch blocks were bought from Canada, Iceland, and Norway. Approximate yearly totals: 500,000 pounds. Pollock blocks were bought from Canada, Japan, Korea, Iceland, Norway, Scotland, Faroe Islands, and United States. Approximate yearly totals: 9,500,000 pounds.

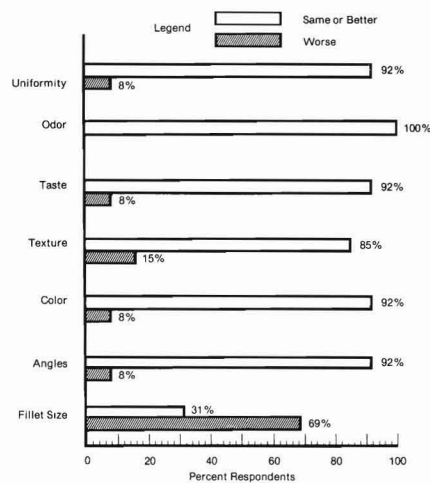


Figure 6.—Characteristics of test whiting fillet blocks compared with those of whiting blocks presently used by respondents.

Question No. 10. "At what price level would you purchase this product and what amount would you purchase?"

Three respondents answered this question and one stated that he would not buy any frozen whiting blocks even at 40 cents per pound. One respondent indicated that he would buy "at the most" 1,000,000 pounds and "at the least" 500,000 pounds per year if the price ranged between 40 cents and 50 cents per pound; at 60 cents per pound he would buy 500,000 and 150,000 pounds, respectively. There would be no purchases at higher prices.

The other respondent indicated he would buy "at the most" 600,000 pounds and "at the least" 200,000 pounds if the price ranged between 40 cents and 60 cents per pound. At 65 cents per pound, purchases would be reduced to 500,000 pounds and 150,000 pounds, respectively. At 70 cents per pound, purchases would be further reduced to 350,000 pounds and 100,000 pounds respectively. At 75 cents per pound, the respondent would buy 200,000 pounds per year "at the most." At 80 cents per pound, he would buy "at the most" 100,000 pounds per year. Beyond that price, the demand would be reduced to zero.

Question No. 11. "Would you consider substituting this product for cod or haddock?"

Two respondents did not give any answer to this question. Three out of 12 respondents (25 percent) indicated they would substitute whiting blocks for both cod and haddock blocks. The remaining 9 respondents indicated that they would not (Fig. 7).

Question No. 12. "Do you have any comments or suggestions regarding this product?"

Five out of 14 respondents did not give any answer to this question. The remaining nine answers or sets of answers were as follows:

"Is this sample representative of a production run or a 'hand made sample'?"

"I believe this is a good idea. It could open up interest in other areas of fish processing."

"We are producers of blocks. We are not processors."

"Need a steady supply at competitive price."

"This product appears to have potential. Some of the whiting fillets in the block were starting to turn color. The keeping quality of this fish in the fresh state presents a problem because it has a short shelf life."

"We would have to be assured of continuous supply of top quality blocks at competitive prices."

"The fillet size appears to be the cause of many of the defects in workmanship."

"Vast improvements in raw material are necessary before we would even begin to consider this product in our production."

"Silver hake is a low quality fish. It should not be compared with cod and haddock and could do great harm to the fish industry if promoted."

Question No. 13. "This product is not now available in the marketplace. If it should become available, would you wish to be contacted by a domestic supplier?"

Of the 14 respondents, 13 stated they would like to be contacted by a

domestic supplier if whiting blocks became available in the market.

Comments

This survey has produced some valuable information on the potential market for domestically produced frozen whiting blocks. To recapitulate the major findings:

1) 57 percent of the respondents indicated that they currently buy approximately 11,500,000 pounds of whiting blocks per year from a number of foreign countries;

2) 92 percent of the respondents found the whiting blocks under evaluation either "better" or "about the same" in terms of uniformity; 100 percent of the respondents found them either "better" or "about the same" in terms of odor; 92 percent found them the same in terms of taste; 85 percent in terms of texture; 92 percent in terms of color; 92 percent in terms of angles; but only 31 percent found the blocks either "better" or "about the same" in terms of fillet size.

3) 25 percent of the respondents indicated that they would consider substituting the product under evaluation for both cod and haddock blocks.

This survey has produced little or no information in relation to the price that U.S.-produced whiting blocks might command on the market. The only two respondents who answered the pertinent question indicated that they would accept a 40-60 cents per pound price range.

The bulk of the information produced by this survey relates to the technological aspects of the product. Both the qualitative and the quantitative information provided by the industry and collated here should prove useful to the potential producer of whiting blocks.

Perhaps the most indicative summary figure of the technological characteristics of these blocks is the 66 percent (or 75 percent weighted average) overall favorable rating given to the product by the respondents.

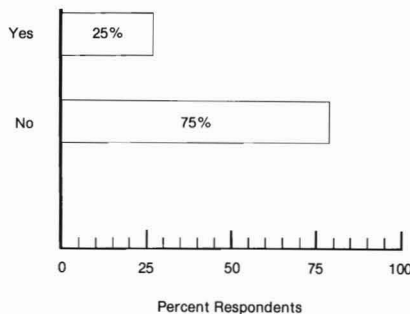


Figure 7.—Percentage of respondents who would consider substituting whiting fillet blocks for cod and haddock blocks.