

**THE MARKETING RELATIONSHIP  
BETWEEN  
PACIFIC AND PEN-RAISED SALMON:  
A SURVEY OF  
U.S. SEAFOOD WHOLESALERS**

By Ronald V. Rogness  
and  
Biing-Hwan Lin

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Alaska Sea Grant College Program  
590 University Ave., Suite 102  
Fairbanks, AK 99709-1046

THE MARKETING RELATIONSHIP BETWEEN PACIFIC AND PEN-RAISED  
SALMON: A SURVEY OF U.S. SEAFOOD WHOLESALERS

By

Ronald V. Rogness  
North Pacific Fishery Management Council  
University of Alaska, Fairbanks  
School of Management

and

Dr. Bing-Hwan Lin  
University of Alaska, Fairbanks  
School of Management

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## INTRODUCTION

The Pacific salmon industry has become increasingly concerned about U.S. imports of fresh Atlantic salmon (Atlantics) from Norway: a product that has built a very strong niche in U.S. salmon markets. Industry members and policy makers are uncertain about how these imports will affect wild Pacific salmon markets.

The worldwide trend in pen-raised Atlantic salmon production is one of rapid increase. Table 1 shows the Norwegian production of Atlantics in the last five years and their projected production in 1990.

Table 1. Norwegian production of pen-raised Atlantic salmon (mt)

<u>Year</u>	<u>Production</u>
1981	8,422 <sup>1</sup>
1982	10,266 <sup>1</sup>
1983	17,016 <sup>1</sup>
1984	22,300 <sup>2</sup>
1985	28,650 <sup>2</sup>
1990 (projected)	80,000

<sup>1</sup> U.S. Department of Commerce, NMFS (1983)

<sup>2</sup> Michael Gordon, 1985 personal communication.

The fish are produced primarily for export, and the United States is the largest importer. Figure 1 shows imports of Norwegian pen-raised Atlantics into the U.S. from 1982 through 1985. The graph shows a substantial increase in imports for each of the last four years.<sup>1</sup> Note the annual upward shift during the late summer and early fall. This is when Pacific salmon reach the markets and when the potential for substitution between the pen-raised Atlantics and the Pacifics is the greatest.

Future production estimates indicate that we can expect continued increases in imports of both pen-raised Atlantic and Pacific salmon. In all, 21,742 mt of pen-raised Norwegian Atlantics were exported in 1985, 6,460 mt of which were sent to the U.S.<sup>2</sup> The Norwegian Fresh Fish Marketing Association predicts that by 1990 their total annual exports will reach 60,000 mt. If the ratio of U.S. imports to total exports remains constant, we can expect approximately 20,000 mt (44 million lbs) of pen-raised Atlantics imported into the U.S. in 1990. In addition, British Columbian salmon

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<sup>1</sup> Norwegian Export Committee for Fresh Fish. 1982-1985. Statistikk: Markeder Eksport av Fersk Fish og Skalldyr.

<sup>2</sup> Ibid. 1985

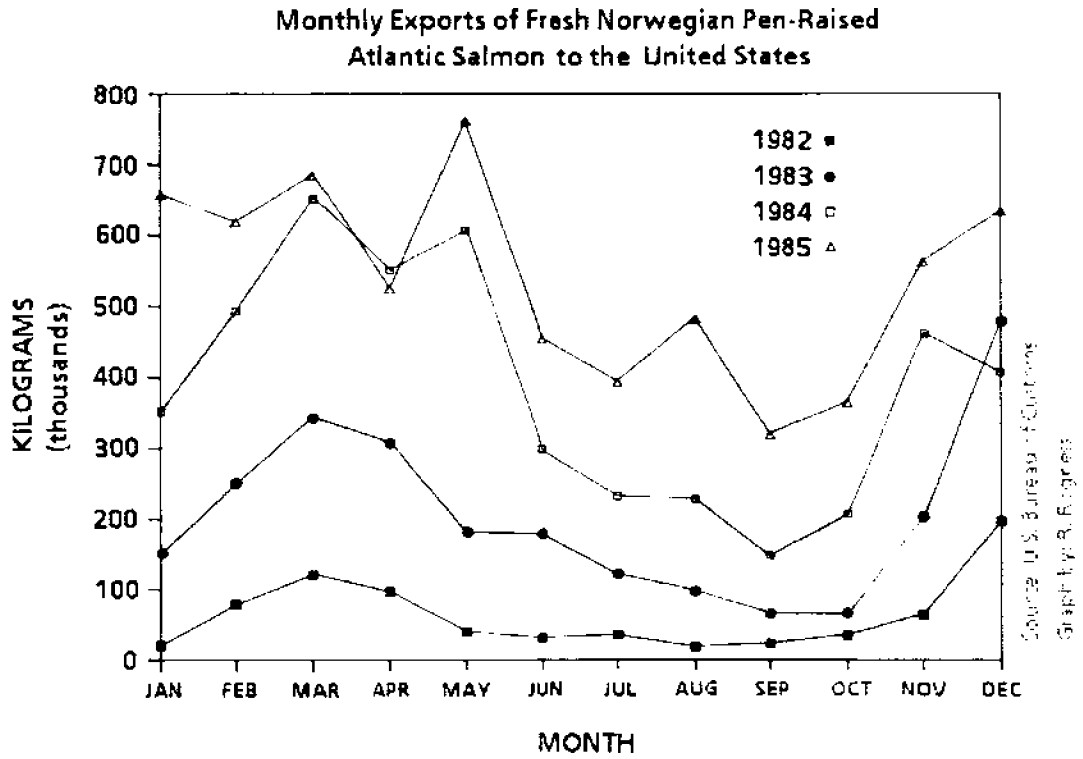


Figure 1.

farmers project they will export 22 million lbs (Atlantics and Pacifics) into the U.S. in 1990.<sup>3</sup> Chile, Scotland and New Zealand are also anticipating major increases in their exports of pen-raised salmon to the U.S. as well. The total imports of pen-raised salmon into the U.S. will still fall substantially below the total wild Alaskan Pacific salmon harvest (729 million lbs in 1985). But these imports exceed recent Alaskan harvests of chinook and coho salmon (19 million lbs in 1985), thought to be the species most affected by increased imports of pen-raised Atlantics.<sup>4</sup> These projected increases in imports highlight the importance of understanding how the fresh salmon market operates.

This report summarizes the results of a mail survey about marketing pen-raised salmon in the U.S. By conducting this survey we hoped to:

- \* Obtain the seafood marketers' opinions on the substitutability between pen-raised and wild salmon in the U.S.
- \* Understand the factors promoting pen-raised salmon marketing in the U.S.
- \* Obtain the seafood marketers' assessments of the future marketing development of pen-raised salmon in the U.S.

This survey is part of an ongoing Alaska Sea Grant project, "Economic Impact of Farmed Salmon Upon the Alaskan Commercial Fishing Industry." In addition to this survey, an econometric analysis is being performed to estimate the cross-price elasticity between pen-raised Atlantic salmon and wild Pacific salmon, and other demand elasticities in the U.S. and European markets. Monthly data on salmon exports from the U.S., Canada and Norway from 1982 to 1985 are used in a market share approach. The econometric analysis should be completed in 1986. Because worldwide marketing of pen-raised Atlantic salmon is recent, the survey approach and the econometric study will produce complimentary results.

This survey was conducted jointly by the Alaska Sea Grant College Program and the School of Management at the University of Alaska, Fairbanks. On July 31, 1985 the Alaska Sea Grant College Program sent questionnaires to 925 seafood wholesalers and distributors listed in the Yellow Pages for Boston, New York, Chicago, Los Angeles, San Francisco and Seattle. It was impossible to determine from

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<sup>3</sup> Michael Gordon, March 3, 1986 personal communication

<sup>4</sup> Alaska Department of Fish and Game. 1985. Preliminary 1985 harvest, by region, by species: 1985 ADF&G Salmon Season Summary.

the listings whether or not the individual firm had handled pen-raised salmon, so two different questionnaires (see Appendix) were sent out to each firm. One questionnaire was for firms that handled or handle pen-raised salmon. The other was for those firms that had not ever handled pen-raised salmon.

Of the 925 firms, 127 returned their questionnaires, about 24 percent. Seven of these returned questionnaires were not used. Of those seven, five were returned blank, and two firms answered both questionnaires. Among the usable questionnaires, 63 were from firms that have handled pen-raised salmon, and 57 from firms that have not. Even though the return rate of 24 percent is less than expected, the budget did not allow for follow-up letters.

This report has two sections. In the first, survey results are reported for firms that have handled pen-raised salmon. In the second section are the results from firms that do not handle pen-raised salmon. For discussion, each question is restated (with some format modifications) first, followed by a short numerical summary of the result. Then the question is justified, followed by an interpretation of the results and how they compare with our expectations.

## SECTION I

### SURVEY RESULTS FROM FIRMS THAT HANDLE PEN-RAISED SALMON

#### QUESTION 1

1. Please designate which type(s) of pen-raised salmon your firm has distributed or currently distributes.

<u>Type</u>	<u>Responses</u>
Norwegian Atlantic	59
Pan-sized coho	30
Scottish Atlantic	20
Domestic Atlantic	13
Other Atlantic	12
New Zealand	3
Chilean	1

This question confirms the sources of supply and their relative importance in terms of the number of distributors. Norwegian Atlantics are the the major supply of pen-raised salmon, by a large margin. Fifty-nine of the 63 respondents indicated that they received at least part of their supply from Norway. The next major supplier of pen-raised salmon are the producers of pan-sized coho. These salmon are raised in the Pacific Northwest of the U.S. and in British Columbia. The other major supplier is Scotland. The Chilean product is pen-raised coho, which is notably larger than the pan-sized coho.



The results conform to expectations. Norway has been and will continue to be the world's leading producer of pen-raised salmon. In 1985, the Norwegians exported over 47 million lbs of pen-raised Atlantics with just over 14 million lbs exported to the United States. It is reasonable that the second major exporter of Atlantics is Scotland, since it was the second country to initiate commercial pen-raising. It is surprising that quite a few respondents have distributed domestically-raised Atlantic salmon. The suppliers would have to be in New England since the West Coast producers of pen-raised Atlantics had not yet marketed their fish when this survey was conducted. The large number of firms handling pan-sized cohos seems reasonable since Dom-Sea and some of the other producers around Chehalis, Washington have been marketing their product since the late 1970s.

**QUESTION 2**

2. Please indicate the range of values in which your firm's total sales belong.

<u>Range</u>	<u>Responses</u>
Less than \$10 million	39
Greater than \$25 million	12
\$10 million to \$25 million	11

By combining this question with others, we hoped to detect any patterns in distribution linked to the firms' sizes. The results show that the majority of firms are relatively small, with sales less than \$10 million. The remainder are evenly divided between medium-sized firms with sales between \$10 and \$25 million dollars and large firms. These size categories were taken from a survey of seafood distributors and wholesalers done by the West Coast Fisheries Development Foundation.

**QUESTION 3**

3. If your firm has bought and sold pan-sized coho salmon, do you consider it a legitimate substitute for fresh or frozen wild Pacific salmon?

<u>Product Type</u>	<u>Response</u>		
	<u>Yes</u>	<u>No</u>	<u>No Response</u>
Fresh	5	25	1
Frozen	2	27	

Question 3 is the first of a series of three questions pertaining to substitutability between pen-raised and wild Pacific salmon. The overwhelming majority of them do not feel that the pan-sized cohos are substitutes for either fresh or frozen wild Pacific salmon. The results are consistent with our expectation. In discussions with

industry, the majority opinion has been that pan-sized cohos fill the same market niche as do pond-raised rainbow trout. Neither of these products compete directly, it is felt, with the larger Pacific salmon. Therefore, recent or further development in raising pan-sized cohos should not have any immediate economic affect on the Pacific salmon fishing industry.

**Question 4**

4. If your firm has bought and sold fresh, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?

<u>Product Types</u>	<u>Responses</u>	
	<u>Yes</u>	<u>No</u>
Fresh	49	13
Frozen	15	42

This was one of the most important questions in the survey. It was to determine if firms that have handled pen-raised Atlantic salmon think fresh pen-raised Atlantics are substitutes for wild fresh or frozen Pacific salmon. We felt that these firms might be substituting the products for one another and, if the substitution occurs at the retail level, that they would be aware of it and would adjust their product line accordingly.

The results indicate that the majority of distributors of pen-raised Atlantic salmon believe that fresh Atlantics can compete with fresh Pacific salmon. If these responses truly represent the situation, the results are significant to Alaskan salmon fishermen. Very little of the Alaskan salmon harvest is marketed fresh. The Alaska Seafood Marketing Institute roughly estimates that 3 percent of the market share is for fresh product. Outside of troll-caught chinook and coho, the only other significant quantity of salmon marketed fresh seem to be the Copper River sockeye catch. This means that 97 percent of the harvest, roughly 707 of the 792 million lbs of salmon harvested in Alaska in 1985, would be more or less unaffected by the sales of pen-raised Atlantics. However, a significant portion of troll-caught chinooks and cohos from Southeastern Alaska is frozen and marketed to white tablecloth restaurants, which are one of the primary markets for fresh pen-raised Atlantic salmon. The 15 votes for substitutability between fresh Atlantic and frozen Pacific salmon should therefore not be discounted as unimportant. Nevertheless, the results seem to suggest that some of the concern about pen-raised salmon imports shown by Alaskan commercial salmon fishermen may be somewhat unwarranted.

**Question 5**

5. If your firm has bought and sold frozen, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?

<u>Product Type</u>	<u>Responses</u>	
	<u>Yes</u>	<u>No</u>
Fresh	15	24
Frozen	13	24

This question may not be as important as Question 4 since the quantity of frozen pen-raised Atlantic imports does not rival the quantity of fresh Atlantic imports. In 1985, Norway exported just over 130,000 lbs of frozen pen-raised salmon compared to the 47 million lbs of fresh Atlantics. For this reason, fewer firms answered this question although interesting results have emerged from it.

Even though the majority of the respondents felt that frozen pen-raised Atlantics do not substitute for either fresh or frozen wild Pacific salmon, these results are not as conclusive as those of Question 4. There is a possibility of market competition between frozen Atlantic and Pacific salmon implied in the results. Therefore, an increase in imports of frozen Atlantics could affect the price of Pacific salmon.

The combined results of Questions 4 and 5 seem to indicate that distributors of pen-raised Atlantic salmon are conscious of seafood freshness and are impressed with the freshness of the pen-raised Atlantics. This observation is reinforced in Question 13.

**Question 6**

6. What year did your firm start buying and selling fresh pen-raised Atlantic salmon?

<u>Year</u>	<u>Responses</u>
1974	1
1979	2
1980	9
1981	9
1982	19
1983	8
1984	8
1985	2

This question analyzed the pattern of growth in the number of firms handling pen-raised salmon. The results are quite interesting. One firm started handling pen-raised Atlantic salmon as early as 1974. This date seems early and may be incorrect. The next year any of the respondents started was

1979. Nine started in both 1980 and 1981. In 1982, the largest number of respondents starting selling pen-raised salmon.

After 1982, however, the number of firms starting to buy and sell pen-raised salmon began to decrease. We had anticipated a steady increase, reflecting the increase in imports. U.S. imports of Norwegian pen-raised salmon were 90,076; 335,713; 721,476; and 1,155,752 lbs for 1982, 1983, 1984 and 1985, respectively. If the responses are indicative of the industry, we would expect that those firms already handling the pen-raised product experienced substantial sales increases. This could have resulted from exclusive contracts with producers and importers, or simply from the increases in sales within the existing markets.

#### Question 7

7. Please estimate your annual percent change (+ for increase and - for decrease) in sales of fresh, pen-raised Atlantic salmon for the following years:

- +14.3 percent change from 1982 to 1983
- +22.3 percent change from 1983 to 1984
- +30.3 percent change from 1984 to 1985

This question was designed to find out the growth or decline in sales of those firms that have handled pen-raised salmon. A growth in sales and an increase in the number of firms mean that the market of pen-raised Atlantics is expanding.

Results of this question confirm that on average these companies experienced substantial growth in their business involving pen-raised Atlantic salmon. The annual rate of growth increased steadily from 1982 through 1985. It was thought that firms of different sizes might have experienced different growth rates. To find out, we divided the responses using the size categories established in Question 2 (Table 2).

Table 2. Increases in sales of fresh, pen-raised Atlantic salmon for firms of various sizes<sup>1</sup>

Period of Change	Percent Change		
	Small Firms	Medium Firms	Large Firms
1982 to 1983	11.9	12.9	23.3
1983 to 1984	20.8	21.2	26.5
1984 to 1985	33.6	26.4	23.3

<sup>1</sup> Small firm = less than \$10 million in annual sales  
 Medium firm = \$10 to \$25 million in annual sales  
 Large firm = more than \$25 million in annual sales

The smaller firms have grown the fastest only in the last year. Before that, the growth rates were directly related to the firm's size. We cannot determine if they have taken over a larger market share since we only know the percent increase and not the absolute amounts.

#### Question 8

8. Was your firm's decision to buy and sell fresh, pen-raised Atlantic salmon based on requests to distribute the product from:

<u>Requests Generated By</u>	<u>Responses</u>
Brokers or importers	26
Retailers	24
Yourselves	12
Fishermen (fish farmers)	5
Wholesalers	4
Customers	1
Resort, Country Club, Hotel	1

Question 8 was used to pinpoint who initiated the respondents' handling of pen-raised salmon. If the action was based on demand from customers, it indicates that demand for the product already existed. If the action was based on requests from producers or importers, it indicates that demand for the product was not yet formed.

The results show a fairly even split. From the supply side, 26 started handling pen-raised salmon based on suggestions from brokers or importers and five started upon suggestions from producers of pen-raised salmon. From the demand side, 26 started because of retail demand. This is the sum of the different types of customers mentioned. Also, 12 started handling the product on their own initiative and four started based on suggestions from wholesalers. The wholesalers could be either demand or supply initiated depending on the market level of the respondent.

In order to see how the market has evolved (whether it is supply or demand led), the responses to Question 6 were categorized accordingly. First, the possible responses to Question 11 were combined to make three general categories. Those that selected retailers, resorts, country clubs, hotels, and customers were combined to make the demand-initiated category. Those that selected brokers, importers or fish farmers were combined to make the supply-initiated category. The 12 who started handling pen-raised salmon on their own comprised the last category. The four respondents who started handling it because of requests from other wholesalers and retailers were left out because we could not determine whether they were supply- or demand-initiated.

Table 3. Comparison of years when companies began selling Atlantics and who requested the fish

<u>Year</u>	<u>Demand initiated</u>	<u>Supply initiated</u>	<u>Self</u>
1974	0	0	1
1979	1	1	1
1980	3	5	3
1981	3	7	2
1982	9	10	3
1983	5	5	2
1984	2	3	0
1985	2	0	0

We hypothesized that the producers, importers and brokers would need to promote a new product to the wholesalers, retailers and consumers. Once consumers were introduced to the product, then their requests would drive production and entry of new companies into the market. Although not conclusive, Table 3 shows that until 1982, more wholesalers started to handle pen-raised Atlantics because of broker and producer requests than because of consumer and retailer requests. After 1982 however, the market matured somewhat and more wholesalers entered the market because of requests from consumers and retailers.

**Question 9**

9. Which of the following best describes your firm's purchases of fresh, pen-raised Atlantic salmon?

<u>When Purchased</u>	<u>Responses</u>
Independent of the availability of fresh Pacific salmon	25
When fresh Pacific salmon is not available	18
In place of Pacific salmon for all markets	4
In place of Pacific salmon for the following markets:	5
Restaurants	4
Retail	4
Seafood Markets	4
Other wholesalers	4

This question attempts to verify whether the respondents actually substitute pen-raised salmon for wild Pacific salmon in any or all markets. It allows us to rank firms' degree of belief in the substitutability of these two

species of salmon, while the Question 4 solicited a firm's general opinion regarding substitutability.

Eighteen respondents purchase Atlantic salmon only when fresh Pacific salmon is not available and these firms seem to have a strong commitment to or preference for Pacific salmon. Because 49 of the 62 firms from Question 4 believe that fresh Atlantic salmon are substitutes for fresh Pacific salmon, some of these 18 firms believe that these two species are competing for consumers' dollars to some extent. These firms generally increase the availability of fresh salmon by offering fresh Atlantics when fresh Pacific salmon is not available. If this marketing practice is continued, the fresh Atlantic salmon will contribute toward consumers' demand for all fresh salmon by increasing their exposure to fresh salmon. When this is the case, pen-raised Atlantics can be regarded as a complement of Pacific wild salmon.

Twenty-five firms have purchased fresh Atlantic and Pacific salmon simultaneously, apparently in order to increase their line of products. These firms are more likely to substitute Atlantic for Pacific salmon than those in the first group, since they are willing to place the products on the market at the same time.

Five firms have substituted Atlantic salmon for Pacific salmon in certain markets. Four of them do so in their dealings with restaurants, retail seafood market and other wholesalers, respectively. These five firms, together with the next group of firms, are strong advocates of Atlantic salmon. The next group contains five respondents who have completely substituted Atlantic salmon for Pacific salmon.

In summary, 18 firms are committed to marketing Pacific salmon and 5 of them believe that the two salmon are substitutes; 25 firms not only believe in substitutability between these two salmon, but also market both salmon simultaneously; 9 firms strongly believe that Atlantic salmon are superior to Pacific salmon, at least in certain markets.

#### Question 10

10. Please estimate the average composition of your annual sales of fresh, pen-raised Atlantic salmon by category of retailers as a percent of the total.

<u>Market</u>	<u>Percent of Total Annual Sales<sup>1</sup></u>
Restaurants	42.3
Other wholesalers	28.8
Retail seafood markets	19.1
Supermarkets	5.5
Others	4.7

<sup>1</sup> Percentages for the "average" respondent

Here we intend to verify the contention that the restaurant trade, particularly the white tablecloth segment, is the primary market for pen-raised Atlantic salmon. As the responses show, the average respondent sells 42.3 percent of his/her Atlantic salmon product to restaurants. The average distributor sells a large percentage of the product to other wholesalers. This would indicate that some of the respondents are brokers rather than wholesalers. Thus, this percentage is high not because many firms sold both to other wholesalers and retailers, but because a few firms sold only to wholesalers. The other major type of market was retail seafood. Many of these shops specialize in fresh seafood, and thus are naturally well-suited for the fresh Atlantic product. Although supermarkets do not currently account for a large portion of the total harvest sold, they are a market with potential that we expect will be targeted for expansion soon.

#### Question 11

11. Please estimate the average composition of your total annual sales of fresh, pen-raised Atlantic salmon by seasonal percent of total.

<u>Season</u>	<u>Percentage of Total</u>
Winter (Dec.-Feb.)	43.7
Summer (June-Aug.)	10.1
Spring (March-May)	23.1
Fall (Sept.-Nov.)	23.0

This question is designed to determine the seasonal variation of imports into the U.S. by requesting the percentage of composition by season. The response is consistent with the general pattern of Norwegian exports to the U.S. The mean responses confirm that the largest quantities were sold in the winter. The sales of pen-raised salmon dropped sharply to about 20 percent in the spring and then bottomed out at about 9 percent in the summer, when Pacific salmon begins to reach market. In the fall, the sales of pen-raised Atlantic salmon moved back up to their spring level.

Because Norwegian salmon imports have increased substantially and will likely continue this trend, the seasonal pattern in the supply of Norwegian Atlantics may vary. If distributors sense possible consumer resistance to high price and large volume in a particular season, they may alter their distribution pattern. In any event, we do not expect a big push in the sales of Atlantics during the Pacific salmon season. Fresh Atlantic salmon commands a high price mainly because of its quality advantage when the Pacific salmon season is closed. In order to confirm this, we asked a follow-up question.



## Question 12

12. Does your firm plan to increase its distribution of fresh, pen-raised Atlantic salmon?

Yes	45
No	9

If yes, does your firm plan to?	
Maintain current seasonal distribution pattern?	30
Concentrate more distribution during winter and spring?	12
Concentrate more distribution during summer and fall?	3

This question solicits distributors' opinion on the market condition for pen-raised Atlantics. Because the supply of pen-raised Atlantics will be increased, distributors will make their business decision based upon the strength of demand in each season. According to the results, 45 firms are optimistic about the market for Atlantic salmon and plan to increase their distribution. Nine firms do not plan to increase their distribution of Atlantic salmon. These firms are not necessarily pessimistic about the market for Atlantic salmon, they may have other difficulties (such as capital and capacity constraints) in increasing their distribution. In short, the market for Atlantic salmon will continue to grow.

It is interesting to note the direction of growth in terms of seasonal marketing pattern. Of the 45 firms that plan to increase their future distribution, 30 plan to maintain current seasonal marketing pattern. In economic terms, these 30 firms indicate an equilibrium in marketing pattern; that is, the demand price elasticity is roughly the same across the four seasons. In this case we would expect heavier competition between Atlantic and Pacific salmon. Twelve firms plan to increase the proportion of their sales during winter and spring. These firms believe that it is not worthwhile to compete directly with fresh Pacific salmon for the consumer's dollar. Again, in economic terms, these firms believe that the demand for Atlantic salmon in the summer and fall is more price elastic than in the winter and spring. In other words, the same proportional increase in all seasons will depress price more during summer and fall than in the spring and winter.

Only three firms plan to increase the proportion of their sales during summer and fall. These firms are either greatly impressed with the marketability of Atlantic salmon or they do not perceive a direct competition between the two species.

#### Questions 13 and 14

13. What advantages does the fresh, pen-raised Atlantic salmon have over the fresh, wild Pacific salmon?

<u>Advantage</u>	<u>Responses</u>
Year-round availability	28
Freshness	26
Consistency	19
Size	12
Price	11
Longer shelf life	5
None	4

14. What advantages does the fresh, wild Pacific salmon have over the fresh, pen-raised Atlantic salmon?

<u>Advantage</u>	<u>Responses</u>
Price	24
Flesh characteristics (color, firmness, less fat)	19
No advantage	8
Large fish	5
Volume	2
Ease of ordering	1
Never had any fresh Pacific salmon	1

The survey concluded with these two open-ended questions regarding the relative advantages of these two species of salmon. Question 13 solicits the distributors' opinions on the advantages enjoyed by the Atlantics. The advantages most often mentioned were the year-round availability and freshness or quality. Consistency also scored highly with 19 votes. It is not apparent whether they meant consistency of product availability or consistency in quality. Twelve firms enjoyed the ability to order fish of uniform size rather than just taking what they could get. Therefore, a better grading system may improve U.S. processors' business.

As mentioned, Atlantic salmon enjoys a price premium over its Pacific counterpart. Therefore, we were surprised, and do not know how to interpret, that 11 firms indicate a price advantage for Atlantic salmon. Five respondents mentioned the longer shelf-life of Atlantics. This is due to its rapid shipment (often within 24 hours) from producers to retailers. Finally, four respondents did not recognize any superiority of the Atlantic salmon over the Pacific salmon.

Question 14 asked what advantages fresh Pacific salmon possesses over the pen-raised Atlantics. Twenty-seven firms indicate that Pacific salmon has a price advantage. Seventeen firms out of this group listed price as the only advantage. The next most-mentioned advantage was flesh characteristics, including color, firmness and lower fat

content. As U.S. consumers become more health conscious, the Pacific salmon industry may want to use this advantage in sales promotion. Eight respondents did not recognize any advantage enjoyed by the Pacific salmon. Five felt that the ability to obtain large fish (greater than 12 lbs) was an advantage of Pacific salmon. Two felt that the ability to obtain a large volume of wild Pacific salmon was an advantage. One might expect that as worldwide production of pen-raised Atlantic salmon increases, this advantage enjoyed by Pacific salmon will not be sustained.

In summary, the most important point discovered in this survey is that the majority of wholesalers and distributors who handle pen-raised salmon feel that product only competes with fresh, wild Pacifics (Question 4). This may lessen the impact of pen-raised Atlantics on Alaskan fishermen, but may affect the Pacific Northwest and British Columbian salmon fisheries that sell a higher percentage of fish in fresh markets.

It also seems that the number of firms handling pen-raised Atlantics is still increasing but the growth is slowing, with each firm increasing its purchases of Atlantics (Questions 6 and 7). These firms expect to continue increasing these quantities in the near future, but will continue to concentrate at times of the year when wild fresh Pacific salmon is not available (Question 12).

**SECTION II:  
SURVEY RESULTS FROM FIRMS THAT DO NOT HANDLE PEN-RAISED  
SALMON**

The second questionnaire was directed to those who do not handle pen-raised salmon. Fifty-seven firms responded to this part of the survey. Because these firms do not actually handle pen-raised salmon, many of these returned questionnaires are not as complete and thus are less informative.

**Question 1**

1. Does your firm distribute fresh or frozen Pacific salmon?

Yes	27
No	28
No answer	2

This question allows us to separate the respondents according to whether they have engaged in salmon marketing. By asking this question, we hope to detect any differences in answering the Question 2 by these two groups of distributors.

**Question 2**

2A. Has your firm considered or would it consider substituting fresh, pen-raised Atlantic salmon when both are available?

Yes	11
No	16

2B. What if fresh Pacific salmon were not available?

Yes	18
No	6

These questions are designed to find out distributors' readiness to market fresh pen-raised Atlantic salmon and their opinion regarding the substitutability of Atlantic salmon for Pacific salmon. For our purposes, these questions are meaningless for those who do not distribute Pacific salmon. Therefore, we only analyzed the results from distributors of Pacific salmon. Among those firms that distribute Pacific salmon, 11 would consider substituting Atlantic salmon for Pacific salmon when both are available, while 18 firms would do so when fresh Pacific salmon were not available. Of the same group of respondents, 16 would not substitute Atlantic salmon for Pacific salmon when both are available, while only six would not do so when fresh Pacific salmon were not available.

The results suggest that a substantial number of salmon distributors are considering marketing fresh Atlantic salmon. Therefore, we may expect a continuous growth in the number of distributors of Atlantic salmon in the near future. Since existing distributors of Atlantic salmon have experienced a growth in sales over time, we are likely to see a continuous increase in imports of pen-raised Atlantic salmon. It should be noted, however, that quite a few distributors of Pacific salmon are still committed to marketing their product. This is expected because it takes time for a new product to penetrate a well-established market.

**Question 3**

3A. Has your firm had requests from retailers to purchase pen-raised fresh Atlantic salmon?

Yes	5
No	42
No answer	8

3B. Has your firm had requests from brokers or importers to purchase their pen-raised fresh Atlantic salmon?

Yes	16
No	33
No answer	8

This set of questions is designed to find out whether the supply side or the demand side is more active in marketing pen-raised Atlantic salmon. Clearly, the suppliers are taking the initiative in marketing pen-raised Atlantic salmon. The results indicate that 21 firms have received and declined requests from either the demand or the supply side for marketing pen-raised salmon. From the previous question, we learn that quite a few firms are almost ready to market Atlantic salmon. Therefore, it is interesting to find out the reasons for not handling pen-raised Atlantic salmon. This is the rationale for asking the next set of questions.

#### Question 4

4A. If you answered "no" to both 3A and 3B, why has your firm decided not to purchase pen-raised Atlantic salmon?

<u>Reason</u>	<u>Responses</u>
Don't handle salmon	13
No demand	12
Prefer Pacific salmon	3
Handle only frozen salmon	2
Economically tied to Pacifics	2

Question 4 is an open-ended question and responses were summarized into groups. Because 42 firms have not received requests from the demand side, it is understandable that many perceive no demand for Atlantic salmon. Thirteen firms do not handle salmon and have not received requests for marketing salmon, therefore they have good reasons for not handling Atlantic salmon. Five firms either have a strong preference for or commitment to marketing Pacific salmon. Two firms handle frozen salmon only and one firm did not know much about pen-raised Atlantic salmon.

- 4B. If you answered "yes" to either 3A or 3B, why didn't your firm purchase pen-raised fresh Atlantic salmon?

<u>Reasons</u>	<u>Responses</u>
Prefer Pacific salmon	3
Price is too high	3
No request	3
Too busy	1

Of those respondents that had turned down requests to handle pen-raised Atlantic salmon, three did so because the price of Atlantic salmon is too high, and one is too busy to handle it. Three said that they did not handle Atlantic salmon due to no requests. These three respondents should not have answered this question. Because at least 16 firms have received requests for marketing Atlantic salmon and we only received seven reasonable responses, we therefore believe that information collected in this part is incomplete and less useful.

#### Question 5

5. Under what conditions might your firm consider distributing pen-raised Atlantic salmon?

<u>Condition</u>	<u>Responses</u>
None	8
If receive requests	7
If handle salmon	6
If do not get Pacific salmon	6
If available	3
If consistent supply available	3
If price comes down	1

Question 5 is open-ended and its results were summarized into groups. This question sought to uncover any changes in the market conditions required to induce firms to distribute pen-raised Atlantic salmon.

Eight firms indicate a strong loyalty to Pacific salmon, by stating that they would not handle salmon under any circumstances. The remainder of the firms indicate that if conditions change they would initiate the product in their line, another reason we might expect the number of firms handling pen-raised salmon to increase.

#### Question 6

6. Please place a check by the range of values in which your firm's total sales belong.

<u>Range</u>	<u>Responses</u>
Less than \$10 million	25
\$10 million to \$25 million	6
Greater than \$25 million	12

This question was also asked of firms that handled pen-raised salmon (Section 1). We posted this question here in order to help determine if the size of firm affects responses. Fourteen firms chose not to answer this question. Of those that did, 25 are classified as small, 12 as medium and 6 as large. Compared with the respondents in Section I, the same percentage of small firms, a higher percentage of medium firms and a lower percentage of large firms participated in this part. Given the small number of respondents, these differences may not be significant.

Although not as informative as the other survey, these results indicate that the main reasons for not distributing pen-raised Atlantics are a lack of requests and a lack of knowledge of the pen-raised product. We might expect that as the production increases and the market matures, these reasons might diminish and we can expect to see continued new entrants in the business of distributing pen-raised Atlantic salmon.

#### CONCLUSION

In summary, it is likely that both the number of distributors and imports of pen-raised Atlantic salmon will continue to grow in the U.S. Furthermore, a substantial number of firms do not rule out substituting fresh Atlantic salmon for fresh Pacific salmon. Because about 97 percent of the salmon catch in Alaska is marketed frozen, the continuous growth of a fresh pen-raised Atlantic salmon market in the U.S. may immediately impact only a small portion of the Alaskan salmon industry. However, the Alaskan salmon industry should pay close attention to development of the Atlantic salmon market. The marketing relationship between Atlantic and Pacific salmon can change, especially when there is a glut in the supply of pen-raised Atlantic salmon. Therefore, research in this area should continue.

This survey used an indirect method to gain an understanding of future market growth in the pen-reared salmon market. The econometric study conducted in conjunction with this project should provide direct assessment of consumer and retailer attitudes about these salmon product forms. Again, because of the economic importance of salmon resources in Alaska and the rapid developments in producing and marketing pen-raised Atlantic salmon, future economic analysis of the salmon market is warranted.

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**APPENDIX**

**Alaska Sea Grant College Program**  
**Survey of Seafood Wholesalers Who Do Not Distribute Pen-Raised Salmon**

1. Does your firm distribute fresh or frozen Pacific salmon?  yes  no
- 2.a. Has your firm considered or would it consider substituting fresh, pen-raised Atlantic salmon for fresh Pacific salmon when both are available?  yes  no
- b. What if fresh Pacific salmon were not available?  yes  no
- 3.a. Has your firm had requests from retailers to purchase pen-raised fresh Atlantic salmon?  yes  no
- b. Has your firm had requests from brokers or importers to purchase their pen-raised fresh Atlantic salmon?  yes  no
- 4.a. If you answered "no" to both 3(a) and 3(b), why has your firm decided not to purchase pen-raised Atlantic salmon?
- b. If you answered "yes" to either 3(a) or 3(b), why didn't your firm purchase the pen-raised fresh Atlantic salmon?
5. Under what conditions might your firm consider distributing pen-raised Atlantic salmon?
6. Please place a check by the range of values in which your firm's total sales belong.  
 Less than \$10 million  \$10 million to \$25 million  Greater than \$25 million

**Alaska Sea Grant College Program  
Survey of Seafood Wholesalers Distributing Pen-Raised Salmon**

1. Please designate which type(s) of pen-raised salmon your firm has distributed or currently distributes, by placing a check next to the appropriate product type(s).

Norwegian Atlantic       Scottish Atlantic       Other Atlantic  
 Domestic Atlantic       Pan-sized Coho

2. Please place a check by the range of values in which your firm's total sales belong.

Less than \$10 million       \$10 million to \$25 million       Greater than \$25 million

3. If your firm has bought and sold pan-sized, pen-raised Coho salmon, do you consider it a legitimate substitute for fresh or frozen wild Pacific salmon?

Fresh:     yes                                     no  
Frozen:     yes                                     no

4. If your firm has bought and sold fresh, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?

Fresh:     yes                                     no  
Frozen:     yes                                     no

5. If your firm has bought and sold frozen, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?

Fresh:     yes                                     no  
Frozen:     yes                                     no

6. What year did your firm start buying and selling fresh, pen-raised Atlantic salmon?

\_\_\_\_\_

7. Please estimate your annual percent change (using + for increase, - for decrease) in sales of fresh, pen-raised Atlantic salmon for the following years:

\_\_\_\_ % Change from 1982 to 1983  
\_\_\_\_ % Change from 1983 to 1984  
\_\_\_\_ % Change from 1984 to 1985

8. Was your firm's decision to buy and sell fresh, pen-raised Atlantic salmon based on requests to distribute the product from:

Retailers     Brokers or Importers     Other (specify) \_\_\_\_\_

9. Which of the following best describes your firm's purchases of fresh, pen-raised Atlantic salmon?

- We purchase it only when fresh Pacific salmon is not available.
- Our purchases of fresh, pen-raised Atlantic salmon are independent of the availability of fresh Pacific salmon.
- We purchase it in place of Pacific salmon for all markets.
- We purchase it in place of Pacific salmon for the following markets:
  - Restaurants
  - Retail seafood markets
  - Supermarkets
  - Other wholesalers

10. Please estimate the average composition of your total annual sales of fresh, pen-raised Atlantic salmon by category of retailers as a percent of the total. The total should equal 100%; please leave categories that do not apply blank.

- |   |  |                                       |
|---|--|---------------------------------------|
| <input type="checkbox"/> Restaurants            | <input type="checkbox"/> Other wholesalers     | <input type="checkbox"/> Supermarkets |
| <input type="checkbox"/> Retail seafood markets | <input type="checkbox"/> Other (specify) _____ |                                       |

11. Please estimate the average composition of your total annual sales of fresh, pen-raised Atlantic salmon by seasonal percent of total. Total should equal 100%; please leave seasons that do not apply blank.

- |   |  |
|---|--|
| <input type="checkbox"/> Winter (Dec., Jan., Feb.)  | <input type="checkbox"/> Summer (June, July, Aug.) |
| <input type="checkbox"/> Spring (March, April, May) | <input type="checkbox"/> Fall (Sept., Oct., Nov.)  |

12.a. Does your firm plan to increase its distribution of fresh, pen-raised Atlantic salmon?

- yes                                   no

b. If yes, does your firm plan to (check one):

- maintain current seasonal distribution patterns?
- concentrate more distribution during winter and spring?
- concentrate more distribution during summer and fall?

13. What advantages does the fresh, pen-raised Atlantic salmon have over the fresh, wild Pacific salmon?

14. What advantages does the fresh, wild Pacific salmon have over the fresh, pen-raised Atlantic salmon?