

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE 8672
1870 SCOMM 75: MARICULTURE (FISH FARMING), 1987-1990

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expected beneath any culture facility when less than 15 m exists between the bottom of the structure and the sea floor. Sediment accumulation is possible at even greater depths, but little data are available since few culture operations have been sited in deeper waters.

Benthic macroinvertebrates - The accumulation of organic-rich sediments beneath culture facilities and the consequent depletion of oxygen in the pore waters results in changes in the infaunal invertebrate community. Loss of species intolerant of organic enrichment (typically echinoderms, crustaceans and molluscs) often occurs. A few opportunistic species, most frequently polychaetes, attain numerical dominance in the community. In cases of extreme organic enrichment, there may be a total absence of benthic macroinvertebrates. Benthic community changes have been typically observed to be limited to an area within about 30 m of the culture structure. These changes can be expected to persist for the duration of culture activities and for at least several years following their cessation.

Fish and megafauna - Accumulation of organic material in the vicinity of a mariculture operation may result in the loss of nonmotile megafauna (e.g., geoducks) living in intimate contact with the sediments. However, fish and motile megafauna (e.g., crabs) living on or above the sediment surface are typically found in higher densities around floating mariculture structures than in the surrounding area. The attraction of fish and megafauna to the culture area is probably due to increased availability of food in the form of feed unutilized by the cultured fish, the high abundances of opportunistic macroinvertebrates, and epifaunal organisms living on the culture structure or which fall to the bottom.

Introduction of exotic species - If culture operations require the importation of live material into the state, the potential introduction of exotic species probably represents the greatest environmental threat posed by mariculture. Introduced species may establish self-sustaining wild populations, potentially becoming pests or eliminating native species. While there appears to be little risk of this occurring for those species currently being deliberately introduced for culture in Puget Sound, requests for future introductions should be carefully evaluated in this regard.

Accidental introduction of pests, parasites and diseases associated with imported organisms may also occur. Because of this risk the state has placed many restrictions on the type of organisms which may be imported and the steps which must be taken before live material destined for aquaculture may be placed in state waters. The adequacy of these regulations is currently being evaluated.

Diseases - Some concern has been expressed that the culture environment may serve as a reservoir for those diseases which are present in an environment but demonstrating no clinical symptoms in wild fish. There is a fear that the disease organism may proliferate among the cultured fish, become more virulent, and reinfect the wild stocks. However, there is no evidence to indicate that this scenario has ever occurred. The outbreak of a disease is often associated with some form of stress. In the culture environment, fish may be stressed by overcrowding, undernourishment, poor water quality and physical damage associated with handling and confinement. Thus, while fish held in culture are likely to show more frequent appearance of disease than wild fish, disease does not appear to be transmitted to the wild populations.

The bacterial diseases of salmonids in mariculture are not transmissible to humans. However, some investigators have questioned whether the organic enrichment of bottom sediments caused by mariculture could promote the growth of those species pathogenic to humans. Consumption of shellfish collected in the vicinity could then serve as a route for human infection. This is an issue where available scientific evidence is very meager, but experience to date has failed to show cause for concern. Increased bacterial abundance in sediments beneath a mariculture facility is quite probable, but it has not been demonstrated that this increased abundance is of any significance in terms of human health.

Genetic effects - The issue of the genetic effects of mariculture is largely speculative. Cultured organisms may be at a competitive disadvantage with respect to wild individuals. Thus, if escapes and interbreeding with the wild population occur, there may be some temporary loss of reproductive capacity in the wild population resulting from the production of less fit genotypes. The potential magnitude of this effect is dependent upon the proportion of the breeding population comprised of escaped animals.

The potential consequences of the interbreeding of escaped and wild organisms, if any at all, are unclear. However, for salmonids at least, the potential magnitude of the problem would seem minimal. For decades fisheries management agencies have routinely been transferring hatchery-reared salmonids between river systems to improve commercial and recreational fisheries. The number of fish which might escape from mariculture is negligible in comparison.

Toxicants - Salmon net-pen culture in Puget Sound requires the occasional usage of antibiotics, most frequently oxytetracycline. The potential environmental effects of this usage are minimized by the high water solubility of the compound, rapid dilution with the surrounding water and the infrequency of its use. Although, there is very little information available, the use of oxytetracycline does not appear to be a major problem at the present level of mariculture development in Puget Sound.

Modeling of Environmental Effects

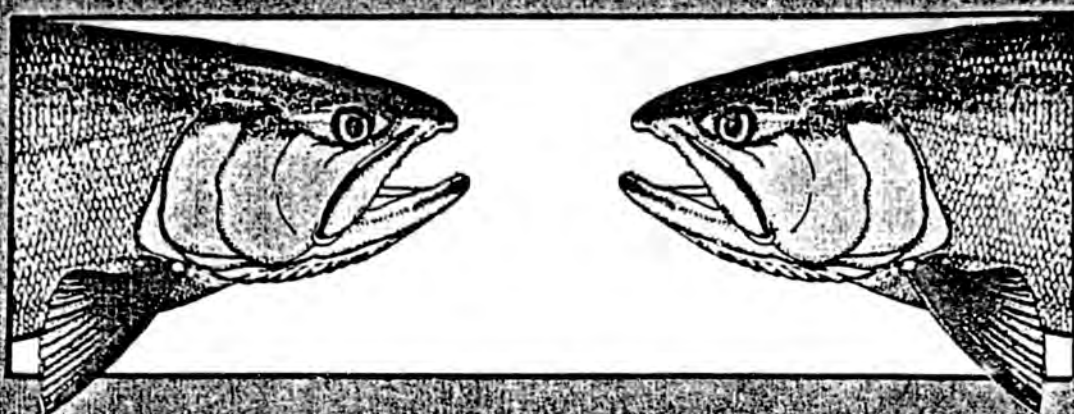
Mathematical models are not yet available which provide reliable a priori estimates of the effect of mariculture on the receiving water body. As a short-term solution, a model is proposed to predict the changes in dissolved oxygen or metabolite concentration only in that parcel of water which passes directly through a culture structure. Since the model neglects the role of dilution by the surrounding water mass, it does not provide a definitive solution to modeling water quality. However, the model may have applications to site evaluation or the determination of maximum allowable culture intensity in a given area.

Sedimentation models would be valuable in predicting the depth and spatial extent of the accumulation of organic-rich sediments around a culture structure. Analytical models which predict this accumulation based entirely on properties of the settling particles and the moving fluid are beyond the current state-of-the-art. Empirical models are limited by site-specificity, but they represent the only modeling approach of immediate utility. A simple empirical model originally developed for net-pen culture of yellowtail in Japan is described. Given field measurements of particle settling velocity and current regime, the model is able to predict the depth of sediment accumulation as a function of distance from the culture structure.

Environmental Regulation of Mariculture

A review of environmental regulations pertaining to mariculture indicates that the policies of Washington State are generally comparable to those of many of the other states and countries surveyed. In general, the potential environmental consequences of mariculture are assessed on a site-specific and case-by-case basis. Applications for mariculture permits are usually subject to a review process which includes an opportunity for the responsible government agencies to evaluate potential environmental effects. There are typically few, if any, formalized criteria with regards to siting and operation.

Importation of eggs or live animals typically requires a permit from the responsible government agency. The permit will carry with it certain conditions which, depending on the particular state or country, may include restrictions on the country of origin, visual and/or pathological inspections, periods of quarantine, or disinfection requirements. Policies governing importation are tending to become more restrictive, and in several countries there is a total ban on the importation of eggs and/or live animals.



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

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Alaska Sea Grant
Report 86-3
September 1986

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ACKNOWLEDGEMENTS

This publication is the result of work sponsored by the Alaska Sea Grant College Program, cooperatively supported by the U. S. Department of Commerce, NOAA Office of Sea Grant and Extra-Mural Programs, under grant number NA86AA-D-SG041, project number R/14-09; and by the University of Alaska with funds appropriated by the state.

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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 ¹
1982	10,266 ¹
1983	17,016 ¹
1984	22,300 ²
1985	28,650 ²
1990 (projected)	80,000

¹ U.S. Department of Commerce, NMFS (1983)

² Michael Gordon, 1986 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.¹ 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.² 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

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

² Ibid. 1985

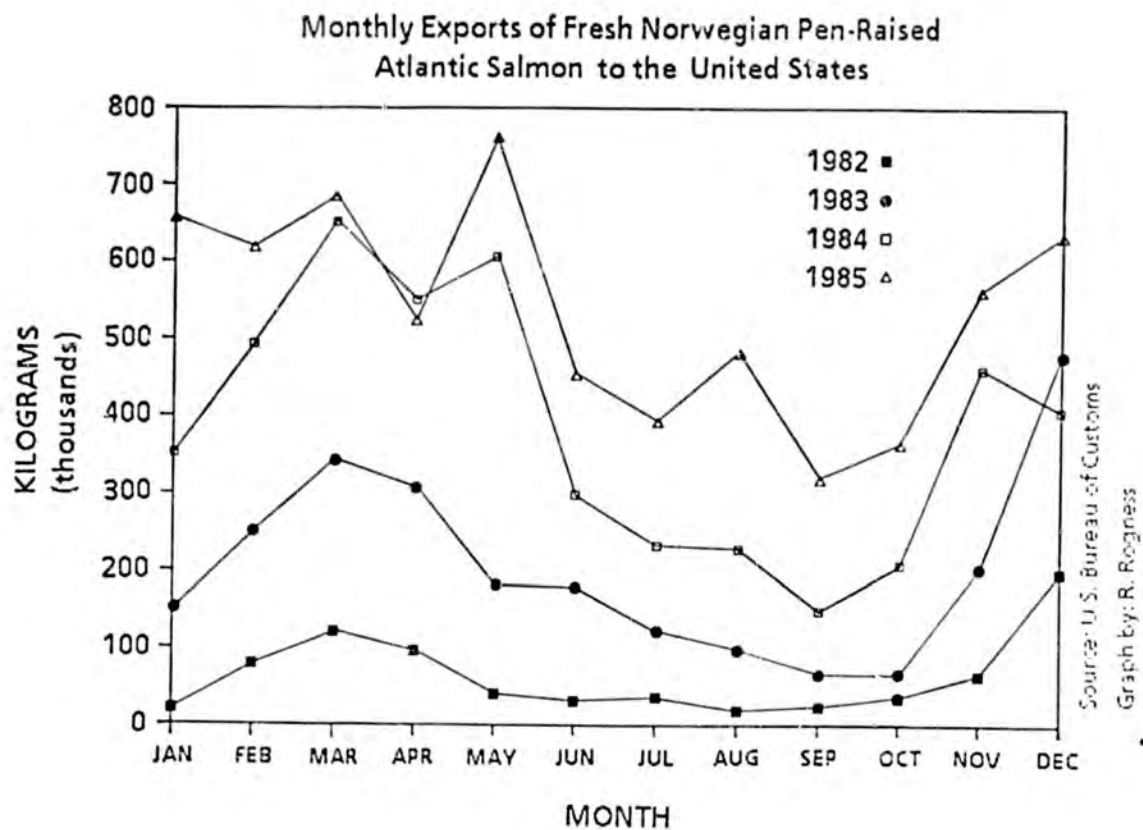


Figure 1.

farmers project they will export 22 million lbs (Atlantics and Pacifics) into the U.S. in 1990.³ 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.⁴ 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

³ Michael Gordon, March 3, 1986 personal communication

⁴ 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 sizes¹

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

¹ 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

Year	Demand initiated	Supply initiated	Self
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 Sales¹</u>
Restaurants	42.3
Other wholesalers	28.8
Retail seafood markets	19.1
Supermarkets	5.5
Others	4.7

¹ 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 percent composition by season. The response is consistent with the general pattern of Norwegian exports to the U.S. Mean responses confirm that the largest quantity is sold in the winter. The sales of pen-raised salmon dropped sharply to about 20 percent in the spring and then dropped 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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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
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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.

☐ Restaurants ☐ Other wholesalers ☐ Supermarkets
☐ Retail seafood markets ☐ 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.

☐ Winter (Dec., Jan., Feb.) ☐ Summer (June, July, Aug.)
☐ Spring (March, April, May) ☐ 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?

RECOMMENDATIONS ON THE ROLE OF STATE GOVERNMENT
IN REGARD TO THE ALASKA SEAFOOD INDUSTRY

by

A. W. "BILL" HALL

January 20, 1987

PREFACE

The primary subject of this paper is not problems and their solutions. Rather it is a paper about goals, policy, structure, process, benefits, and above all, the need for change. Because it is an argument for change, it will be controversial. Some will perceive it as a threat to their self interest. Some will see it as an opportunity for material gain. And some will see it as a criticism of past behavior. However, all will be apprehensive about its potential impact on their lives.

Hopefully this apprehension will provide the stimulus for a long needed reexamination of past practices, their original purposes and their relevancy to today's problems and needs. The Cowper Administration has the opportunity to create a process of change that will draw on the creative talents of the Alaska people. Such a process has the potential to produce new relationships between government and private industry that can

establish the Alaska seafood industry as a major force in the seafood markets of the world.

In presenting this paper for consideration, I offer the following personal comments. To those who view my interest in change as an excessive preoccupation, I answer that change is the proverbial constant in human affairs. Those who are unable or unwilling to become active participants in its development will become victims of its process. To those who would find fault with this paper on the basis of observed deficiencies in the author, I offer the following quotation from the book, "A Study of History" by the noted historian, Arnold Toynbee.

The Demand for a comprehensive study of human affairs is inspired by several motives. Some of these are permanent and some temporary; some are disinterested, some self-regarding. The strongest and most estimable of these is curiosity. This is one of the distinctive traits of human nature. No human being seems to be altogether without it, though the degree of its strength varies enormously as between different individuals. In the field of human affairs, curiosity prompts us to seek a panoramic view in order to gain a vision of reality that will make it as intelligible as is possible for a human mind. 'History certainly justifies a dictum of Einstein, that no great discovery was ever made in science except by one who lifted his nose above the grindstone of details and ventured on a more comprehensive vision.' A panoramic view will at any rate be a less misleading reflection of reality than a partial view. And, while it is true that in the search for knowledge and understanding, as in all human activities, human achievements are never complete, it is one of Man's virtues that he has the intelligence to be aware of this and has the spirit to go on striving, with undiminished zest, to come as near to his goal as his endowment of ability will carry him.

And finally, with my credentials of curiosity established, and in order to prevent any possible misunderstanding, I claim sole authorship (with the exceptions that are noted) for this paper.

Neither my present nor my past employers are in any way responsible for its contents.

ACKNOWLEDGMENTS

I would like to express my appreciation for the input and contributions of Mr. Greg Fisk and Dr. Neal Gilbertsen in the preparation of this paper.

Dr. Gilbertsen has contributed the sections on Taxation and Resource Allocation both of which I consider to be valuable additions not only to the substance, but also to the spirit of this work. He has also provided me with insight regarding alternative definitions of efficiency, which enabled me to improve the section dealing with that subject.

Mr. Fisk also contributed to my understanding of efficiency, and pointed out the problems of policy fragmentation in the Department of Fish and Game. He also pointed out the danger that another government council, such as the proposed Seafood Industry Roundtable, could become dominated by existing fishery interests who would be a force against change. He recommended that the roundtable be informal, small and conducted in private. I concur with his concerns, but have problems with his solution. Still, I have modified my original text to better address the subject.

INTRODUCTION

This paper has been requested by Mr. David Benton, a special assistant to Governor Cowper. Its subject is the role of the state as it is defined by the fishery programs of government, and the relationships that these programs create with the Alaska seafood industry. The word "role" is used here, as one dictionary defines it, to mean "proper or customary function". I believe that what in the past has been customary has not always been proper, and that the functions of government must be redefined so that they may better serve the best interests of the Alaskan people. I have therefore prefaced my recommendations with a discussion on the goals and objectives of state government as it relates to the use of seafood resources. In this discussion I have made a number of assumptions regarding the goals of the Cowper administration. I sincerely hope that these assumptions are not perceived as being presumptuous or erroneous.

It is assumed that a candidate seeks the office of governor because he desires change. It is also assumed that the voters elect a new governor because they desire a change. It is further assumed that a new governor will seek to implement change by redefining the role or function of government. An important purpose of this paper is therefore to address the subject of change, and the need for change, as it relates to the fishery related programs and activities of state government. For, it is

only through a change in government programs and activities that the state can work in concert with the seafood industry to achieve the new goals of the Cowper Administration.

Change cannot happen without leadership. Governor Cowper has provided that leadership with his campaign commitments to a new economic system in Alaska based on small resource based entrepreneurial businesses, and to increasing the value of Alaska's natural resources in the world market place. Implicit in these two goals is the economic mandate contained in the Alaska Constitution that the natural resources of the state shall be used for the "...maximum benefit of its people." The starting place for change has been identified. This statement of new goals must now become the guiding directive of policy which in turn will define the purpose of programs and thereby the functions of government.

For the purpose of this paper and in the interests of logical organization I will assume that the goal of Alaska Fisheries Policy is to maximize the benefits produced for Alaskans through the utilization of fishery resources. The State Constitution also defines conditional factors that relate to this goal such as the need for "sustained yield" of natural resources, "preferences among beneficial users", "maximum use consistent with the public interest" and the reservation of natural resources "to the people for common use." However all of these conditions serve more to clarify the means by which the

goal should be achieved rather than as goals in themselves. They are constraints that serve to define the purpose of resource management. Therefore, the biological imperative that resources should be managed for maximum sustained yield shall not be considered to be the ultimate goal of fisheries management. Rather it shall be considered to be part of the strategy by which the goal of maximum benefit is achieved.

It is important to note that this concept constitutes a fundamental change in state fisheries policy in that it would replace a fishery policy based on biological goals with one based on economic goals that reflect and address the social needs of Alaska's people. This concept was also proposed in Governor Sheffield's Fisheries Policy Task Force Report of June, 1983. That report contained the observation that "... the biological responsibilities and activities of state government are in fact a prerequisite and an important component of its greater economic and social responsibilities." The report also recommended that the state "...must adopt a State fisheries policy that incorporates biological, social and economic goals, and it must reorganize the structure of state fisheries programs so as to facilitate the efficient realization of those goals."

The Sheffield Administration basically ignored the majority of recommendations contained in that report (which may be one of the contributing reasons why they were replaced with the Cowper Administration). Having served as the Executive Director of the

twenty member task force that produced the report, I believe that the failure of the Sheffield Administration to seriously consider its recommendations caused many of the industry people who served on it to lose confidence in the new administration's commitment to change. This constituted a disillusionment that in some people manifested itself in political activities directed at changing the people who failed to change the system. For example, throughout the report recommendations were made (by unanimous acclamation) that the Department of Fish & Game needed to be reorganized. These recommendations were ignored. I believe that there is still value and relevance in many of those recommendations, and I would commend that report to you for your consideration.

ASSUMPTIONS

This paper is based on the following assumptions.

1. The Cowper Administration is committed to developing a new definition for the role of state government in the state's seafood industry.

2. Governor Cowper is committed to the creation of a comprehensive fishery policy for the state which will require a change in the structure and purpose of Alaska's fishery programs.

3. The goal of that fishery policy as defined by the State Constitution, and as reaffirmed by Governor Cowper, is to maximize the benefits produced for Alaskans through the utilization of fishery resources.

4. The means by which this goal is to be achieved is by (a.) creating a new economic system in Alaska based on small resource based entrepreneurial (seafood) businesses, and (b.) increasing the value of Alaska's natural resources (seafood) in the world marketplace.

5. Governor Cowper is committed to the creation of a Fisheries Advisory Group (FAG?) to assist him in the development of policy.

6. Governor Cowper is committed to the appointment of a Special Assistant on Fisheries in his office.

THE ROLE OF GOVERNMENT

Given a fisheries policy based on the goal of increasing economic benefits to Alaskans from the utilization of fishery resources, it is necessary to define the fisheries role of government not only in terms of its responsibility to the resource, but also in terms of its responsibility to the Alaskan people. Within this last context, it is necessary to analyze resource development in terms of the relationship between

government and private industry. Alaska is like a third world country. We have natural resources that have no intrinsic economic value. They only acquire such value after they have been converted into products for which there are markets, and have been made available to those markets. This requires an access to the capital necessary to finance the harvesting, processing and marketing of the seafood products as well as an access to the markets that give the products value. Because neither of these exist within Alaska, they must be obtained from out of state.

Out of state interests are therefore a necessary and desirable part of the Alaska seafood industry. However it is important that the manner in which they conduct their business activities not only serves their legitimate profit interests, but also the ownership interests of the Alaska people. Determining what constitutes a legitimate profit or ownership interest is of course a task that requires the resolution of conflicting needs and goals. Businesses attempt to maximize profit by keeping costs low; while the state, as the owner of the resource, seeks to maximize the return to its residents by keeping resource income high. The nature of the relationship between government and private industry is therefore critical to the manner in which benefits generated by resource utilization are allocated.

In the past, Alaskans were limited in their ability to participate in the fishery allocation process, and to share in the benefits produced by their utilization. They were victims of abuses by the federal government that permitted the exploitation of salmon resources to the point of extinction. The profits generated by that exploitation were not equitably shared with the Alaskan people. This history is important because it serves to illustrate that in the absence of governmental action to promote equity, private industry will seek to maximize its interest at the expense of the public interest. The Alaska seafood industry is largely owned by out of state investors, and it's managers' responsibilities is to maximize profits to those investors. To the extent that the state of Alaska chooses to adopt a role that serves only to complement and support the interests of this industry, it will continue to abrogate its economic and social responsibilities to the people of the state.

There is another reason that the state should take a leadership role in relationship to the seafood industry. That reason is the fragmented and adversarial nature of the industry including both private sector fishing and processing businesses as well as certain government agencies. Because of this fragmentation the industry unnecessarily wastes its resources on disputes and disagreements over resource allocations and government regulation. This problem was most recently described in the December issue of The Fish Boat magazine which quoted a study by the General Accounting Office of Congress as follows.

"The GAO report says better marketing will require two things traditionally missing in an industry as fragmented and independent as fishing: strong leadership and cooperation among fishermen, processors and retailers." The GAO report was describing a national problem that is particularly acute in Alaska. Leadership is needed, but who can provide it? In Alaska, I believe that only state government has the ability to create a cooperative working relationship among the various industry segments for the purpose of addressing the important issues facing the Alaska seafood industry.

In conclusion I would like to summarize the foregoing arguments by saying that the role of state government in relationship to the Alaska seafood industry has three purposes. They are: 1.) biological management of the seafood resources, 2.) advocacy of the resource ownership interests of the Alaskan people, and 3.) industry leadership to promote cooperation and efficiency in the utilization of resources to ensure that maximum benefits are produced and distributed in an equitable manner.

There is another dimension to the subject of resource allocation which addresses problems inherent in the governmental regulatory process as it is manifest in the actions of the Board of Fish and the Department of Fish & Game. I am indebted to Dr. Neal Gilbertsen for his contribution of the following section which deals with that subject.

Allocation Policy:

The state is experiencing a crises regarding its fisheries allocation policies (or lack thereof) and the management activities of the Board of Fish and the Department of Fish and Game. Since statehood, board members have been selected on the basis of their knowledge and participation in the fisheries. In short, we have appointed prominent members of particular interest lobbies, and placed them in a position where they are called upon to make disinterested allocating decisions. This is not only unrealistic, but it perpetuates the political struggles between various fisheries groups. For example, seiners benefit at the expense of gillnetters in SE or sportsmen at the expense of set netters in Cook Inlet, while disadvantaged groups try to reverse the procedure through the political or legal process.

The ultimate result of this zero-sum process is a highly fragmented and contentious harvesting sector. This is ironic, for it is the one area of the fisheries economy in which Alaskan residents are in a majority and have the most to gain. While the nonresident interests speak with a relatively unified voice through the out of state processors, Alaskan harvesters spend their political capital in disputes over resource allocation.

Many of these allocation struggles can be avoided, and a spirit of unity introduced into the fisheries if the Governor's Office provides the leadership necessary for the adoption of a set of allocation criteria that would provide a definition of resource rights. The need for this is particularly acute because of conflicts between state and federal statutes and between the implied property rights principle of limited entry and the allocation practices of the Board of Fish and the Department of Fish & Game.

The purpose of Limited Entry was primarily social and economic. The legislative intent is contained in the statute itself where the numbers of permits are established as being the number which will lead to "a reasonable rate of return to the fishermen considering necessary investments in vessels and gear and considering time fished". In short, the intent seems to be based on curtailing participation in the various fisheries in such a way that those participating can reasonably expect to earn a living from the fisheries. In this respect, limited entry was Benthamite in origin, attempting to provide "the greatest good to the greatest number".

Where groups predicate their existence upon a shared resource, this implies that each group will harvest a fixed percentage of that resource over time. As the resource increases, all groups will benefit. As it declines, all will suffer...but the percentage of total harvest taken by each group will remain constant.

This has not been the case. In point of fact, through the board process, and through the de facto allocation decisions made by the department, one group often benefits at the expense of another. All groups therefore, approach the board process as a means of gaining an increase in their percentage of the total harvest at the expense of other groups.

Again, the Governor's Office can provide leadership in establishing criteria for allocation decisions: one of which must be fair fixed percentages in the case of shared resources managed under the limited entry system.

In the case of many non-salmon stocks, the possibility of quotas should be explored. Again, limited entry implies some vestment in property rights to the resource, but because these property rights are not clearly spelled out, fisheries remain a highly competitive and political industry. This in turn results in a fragmentation which is easily exploited by non-Alaskan interests.

In conclusion, Alaska requires a fisheries policy that will establish a process of resource allocation that serves to minimize conflict and dispute. Such a system should also provide an equitable process for resolution of allocation disputes when they do occur. This will require innovative and courageous leadership, but will result in the unification of the Alaskan

segment of the seafood industry. If this can be accomplished, then these unified interests will serve as a powerful lever in implementing policies designed to capture and to integrate the other sectors of the fisheries industry into an "Alaskanized" economy.

THE MARKETPLACE

A recurring theme in Gubernatorial Candidate Cowper's campaign addressed the need to increase the value of Alaska resources in the marketplace and the need for a new resource based economy of small entrepreneurial businesses. These appear to be desirable goals, but what are the opportunities for and the implications of their application to the seafood industry? Because the satisfaction of these needs are dependent on the requirements of international and national seafood markets, it is important to identify what some of those requirements are.

Elsewhere in this paper I quoted material from a GAO study on the U.S. Seafood Industry. That material was contained in the December 1986 issue of the Fish Boat magazine in a section entitled "The Marketplace". Because of its relevance to the future of Alaska's seafood industry and the requirements of the market place, the news article is quoted in its entirety below.

The U.S. Seafood Industry could do a better job promoting its products by taking some hints from chicken and beef producers, according to a study by the General Accounting Office, the investigative arm of Congress. The GAO report says better marketing will require two things traditionally missing in an industry as fragmented and independent as fishing: strong leadership and cooperation among fishermen, processors and retailers. The study says the industry also

must improve seafood quality and boost consumers' confidence in American-caught fish.

This quote identifies two key requirements for a strong and competitive seafood industry, and by implication hints at a third. These are: 1.) leadership, 2.) quality, and 3.) efficiency. It does not address the need for a consistency of supply which I believe is a fourth requirement. I have already addressed the need for leadership, so I will now confine my remarks to the three remaining subjects.

Quality.

Contrary to the claims of the National Fisheries Institute and the Pacific Seafood Processors Assn., American-caught fish do not have a reputation for quality. The Alaska portion of the U.S. catch is no exception, and in some cases is significantly worse. However all attempts by either the state or federal governments to institute quality control requirements have been met with industry resistance in the form of both political opposition and delaying tactics in the form of compromise programs intended to promote the appearance of quality without the reality. The marketplace has not been deceived, and will continue to place a value on our products based largely on its perception of their quality. We cannot expect to increase the value of our resources, if we continue to permit their transformation into products that the marketplace considers to be of inferior quality and therefore value.

All other major seafood producing nations of the world have had to address the problem of quality. All of the successful solutions have involved the applications of government mandated quality standards, quality programs and quality inspections. Voluntary standards and programs do not work. If Alaska is serious about increasing the value of its fishery resources, then government must work with private industry to develop a program of seafood quality assurance that is mandatory, enforceable, and affordable to the industry.

Efficiency.

In addition to quality, Alaska seafood products must be attractively priced if they are to enjoy a competitive advantage with the consumer. Because the price of a product includes the cost of producing it, the efficiency of Alaska fishing and fish processing businesses must be promoted.

Both Dr. Gilbertsen and Mr. Fisk have reminded me that different economists define efficiency in different ways. To Milton Friedman, labor is a cost to be eliminated. While economists such as Bentham and John Stuart Mill write about maximum employment at reasonable income levels. Obviously, the goal of maximizing benefits for Alaskans will require that efficiency be promoted in a manner that includes "reasonable" returns to labor as well as to capital.

Government can make a substantial contribution to this need in two ways. One is by conducting a thorough and comprehensive evaluation of its own regulations and laws that serve to institutionalize inefficiencies for possible elimination. Such an evaluation will reveal many government regulations and laws that are based on the principal of regulated inefficiency as a requirement of biological management. Some examples of this are:

1. Area registration requirements for fishermen and fishing vessels.
2. Prohibition against drum seining.
3. Limitations on vessel length in salmon purse seining and Bristol Bay gillnetting.
4. Some provisions in limited entry law that restrict the freedom of a permit holder to use his (sometimes considerable) permit investment to his best advantage such as the prohibitions against leasing and the encumbrance of permits.
5. Management of fishing seasons that does not take into consideration the processing capacity of the industry.
6. Failure to operate state owned fish hatcheries at designed capacity.
7. Prohibition against the use of monofilament gillnet.
8. Exclusive fishing areas that prohibit the option of moving fishermen to the fish rather than managing other fishermen for the purpose of moving the fish to the fishermen as a means of achieving management goals.

There are reasons why all of the above examples exist, and there may be reasons why some should continue to exist. Many of them are manifestations of an attempt by government to protect the interests of resident Alaskans against the competitive forces of nonresident fishermen and processors, and in some case they may still be desirable. However, to the extent that this protection insulates the Alaska seafood industry from the effects of competition, it will prevent Alaskans from developing the capacity to respond to the demands of the marketplace. Fences not only keep people out, they also keep people in. We would be better served by working to enhance the competitive skills of Alaskans through education, research and the application of technology. We cannot expect to increase the benefits produced by the Alaska seafood industry, if we do not have the courage to accept the change required by the world market place. Alaskans must be informed, competitive and productive participants in that market place.

The other way in which government can contribute to the efficiency of the Alaska seafood industry is by working to ensure that government regulations and requirements are implemented in a manner that serves to minimize the cost of compliance to private industry. Examples of this are: 1. Permit requirements for seafood processing by both small boat catcher-processors and larger floating and shore based companies that require involvement with at least four state agencies, 2.

Commercial fishing and enhancement loan programs containing restrictions that do not adequately address the needs of borrowers, and restrict their ability to respond to problems that develop in the conduct of their businesses, and 3. reporting requirements that do not take into consideration the needs or the capability of industry.

Consistency of Supply.

Consistency of supply is a need that markets place on their suppliers in all businesses. However in the seafood business it poses unique problems because of the seasonality of many fishery resources. To some degree this problem has been solved through substitution, but this does not always address either the needs or the opportunities of the market place. Other seafood producing nations of the world are now investigating the potential of aquaculture to solve this problem. Iceland, for instance has recently initiated a major salmon pen rearing program that is designed to produce 5,000 tons of Atlantic salmon each year. Benefits anticipated from this project include increased diversification and stability for an economy largely based on fish

There are two areas in which government can work with private industry to address the need for consistency of supply. One is in the management of fishing seasons and the other is in the application of aquaculture technology.

There are biological limitations and requirements in the management of fish that limit the ability to manage for the market. However, such a concept should be introduced to fishery biologists as at least one desirable objective of their activities.

The potential value of aquaculture and particularly pen rearing of salmon is controversial at best. This is partly because the issue of aquaculture is most often expressed in terms of its threat to the status quo. However as a result of the remarkably successful salmon pen rearing programs of other countries, aquaculture like robotics and computers in other industries, is a technology that will have an impact on the Alaska seafood industry even if we choose to ignore it. In the past Alaska was the OPEC of salmon, and the markets reacted to its production. Today producers of Alaska salmon products find that the markets have changed and now they are forced to react to a market that is driven by new forces. Still, Alaska continues as a major producer of salmon products for the world market from both wild stock resources and aquaculture, and we cannot ignore the potential impacts or opportunities presented by aquaculture activities throughout the world.

The only important issue that Alaskans should consider about aquaculture is how can we use it to strengthen and benefit our seafood industry and the people of the state without creating unacceptable consequences.

The resolution of this issue will require cooperation among fishermen, seafood processors, potential aquaculturists and government officials. This will not happen without leadership from the administration. In the absence of a reasoned consideration of the subject, within the context of a state fishery policy, it will become an issue within the legislative process the outcome of which will be a product of political compromise that may very well not serve the best interests of the state.

STRUCTURE

The structure of all state fishery related programs should reflect and incorporate the purpose of the state's fishery policy. Therefore a change in policy, will necessarily require a change both in program content and in the manner that one program relates to another. Some old activities may be eliminated. Some new activities may be created. While it is beyond the abilities of this writer to identify all of the changes that might be required, there are certain capabilities that appear to be essential to the management of any system of government responsible for resource management and development. The remaining portions of this section will discuss some of these capabilities and suggest some structural relationships that might be suitable to their implementation. It will also identify tasks essential to the implementation of a new policy and suggest some structural relationships that might be suitable to their implementation.

Information.

In the area of resource management the importance of information can not be overestimated. In the pursuit of social and economic goals it is essential. In the past, the information gathering system of the Department of Fish & Game was designed to provide biological information for resource managers. As that system evolved it was modified to include some data of an economic nature, but its primary purpose remained biological. Unfortunately, the managers of the ADF&G have never attached a high priority to their Computer Services Section or the economic data it was capable of producing. This problem was addressed in the Sheffield Fisheries Policy Task Force Report with the following statement and recommendations.

Fisheries-related data is currently either non-existent or located in various and sundry places, rendering it virtually unusable to both the public and the Administration. This dirth (sic) of coordinated, cohesive information has impeded the development and stabilization of the fishing industry. Data needs range from biological information on the status of the resource through economic and social impact information with respect to the fishing industry. ... A comprehensive data bank program should be designed Such a program can be developed utilizing the knowledge and expertise of staff from the Alaska Department of Fish & Game, the Commercial Fisheries Entry Commission, and the Alaska Seafood Marketing Institute in conjunction with a team of representatives from industry, National Marine Fisheries and the University of Alaska.

Unfortunately with the recent and contemplated budget cuts much of the aforementioned capability, as limited as it was, has been seriously eroded. The CFEC computer was eliminated and

their data processing needs assigned to the Department of Administration. There is also the expectation that charge backs from that department for data processing services will further erode their capabilities as well as those of Computer Services Section in ADF&G. Now with the need to cut budgets even further, this program is facing the possibility that it will not even be capable of maintaining its present data base.

Again Sheffield's Fisheries Task Force Report states, "... in order to quantify the benefits flowing to the State of Alaska from fishing activities, it is necessary to examine the structure of the industry in terms of employment, investment and income." But the report continues, "... it is not presently possible to identify those fisheries-produced benefits that remain in the State, ..." It concludes that, "... it is impossible to define, implement, or monitor a state fisheries policy aimed at maximizing benefits to the State when a condition of such fundamental economic ignorance exists." Unfortunately, this situation is getting worse and left uncorrected it will leave the Cowper Administration without the information that is necessary for the achievement of its goals.

It is important to point out that a good information system requires two ingredients. One is the collection of timely and accurate data, and the other is a system for storing, organizing and analyzing that data. In both of these areas the state has taken action to curtail activities. For example, in some of the

salmon fisheries the amount of escapement and stream productivity data collected has been significantly decreased or eliminated. It has also been reported that computer services will stop entering price information from fish tickets into their data base and that they will also stop processing annual seafood processor reports. If these trends continue, Cowper Administration officials responsible for resource utilization will be left "flying blind" in the conduct of their responsibilities.

Education.

An industry delivers benefits to people through the creation of investment opportunities and jobs. Alaskans can be given a competitive edge in obtaining the best paying jobs both within an existing and a developing seafood industry through an educational program specifically directed at delivering the technical and academic skills required by that industry. Both the University of Alaska and our secondary schools have (with minor exceptions) failed to serve this need.

Government should work with private industry in developing a comprehensive compilation of job skills that the seafood industry requires as well as on going educational needs. This information should then be used in the development of a cooperative program between the University of Alaska (including the Community Colleges, the Fisheries Industrial Technology

Center in Kodiak, and the Marine Technology Center in Juneau), and the Alaska Vocational Technical Education Center in Seward that serves those needs. There is also need for a survey course that could be made available to the secondary schools around the state that would teach Alaskans about the seafood industry as an international activity of which the Alaska industry is a part. Fishing is seafood, and seafood is business, and business is industry. It is time that we trained our people to be seafood industrialists with the ability to profitably market Alaskan products.

Finance & Taxation.

As previously stated in this paper, natural resources require capital to finance their conversion into marketable products. Also, benefits from the utilization of natural resources are created in the form of wages for labor and return on investments. If Alaskans are to receive their fair share of profits from their industry, they must be given the opportunity to share in the ownership of the means of production. In other words, they must be given investment opportunities.

It is therefore important for state government to develop an investment strategy that will both attract needed capital into the state and create investment opportunities for Alaskans. Such a strategy should be developed in cooperation with Alaska banks including The Alaska Commercial Fishing & Agriculture Bank with

input from other banking and investment institutions both in the U.S. and foreign nations such as Canada, Japan and Norway.

As stated in the preface, I am indebted to Dr. Neal Gilbertsen for the following section on Tax Policy.

Tax Policy.

When Alaska achieved statehood, it was heavily dependent upon fisheries, both as a source of employment and as a source of revenue. As a result, the processors were in a position to influence tax legislation in such a way as to receive favorable treatment. After the Kenai and Prudhoe Bay oil developments, fisheries were largely overlooked. the tax policies which remain in force, are largely a relic of the territorial era; and Alaska remains a fisheries resource colony.

A new tax policy should be adopted, wherein residence is rewarded and nonresidence is discouraged. Such a policy should be designed to capture a larger share of the processing, distributional and support industries associated with fisheries development. Moreover, it should be designed to retain a higher percentage of ex-vessel earnings within the economy of the state.

The tax policy should be engineered to tax the raw resource at a relatively high rate, but to reduce tax liability as fish pass through the value added and distributional phases within the state. Current tax policy in the case of salmon is the reverse of this. In the case of underdeveloped species, it promotes development and exploitation by non-Alaskan interests. In point of fact, the interests of the state would be better served by leaving the fisheries undeveloped (with the resource intact and in the bank) than by encouraging a system of absentee exploitation.

Finally, a tax policy which encourages Alaska based harvesting, processing, distributional and support industries (and penalizes out of state control of these functions) would go a long way towards ending the "WE-They" dichotomy. By locating the value added segments of the seafood industry in Alaska, the adversarial roles of outsiders versus Alaskans would be altered to a situation wherein all segments of the Alaska based fisheries economy could be balanced in such a way as to serve the self interests of private industry (resident and nonresident alike) and the equitable interests of the Alaska people.

Management.

There are three important management tasks in state fisheries that have at one time or another manifest themselves in positions of responsibility and authority. They are: 1.)

management of the Department of Fish & Game, 2.) international and interstate negotiations regarding allocation of fisheries resources, and 3.) fisheries development.

In the early years of statehood under the Egan Administrations there was one position responsible for all of these activities, the Commissioner of Fish & Game. The last Egan Administration created the new position of Director of International Fisheries (Harold Hansen was the first Director) in the Governor's Office. This position was continued in the Hammond Administration (with Chuck Meachum), and discontinued in the Sheffield Administration. (Hickel is remembered as the first Governor who attempted to institute limited entry. However his attempt was deemed unconstitutional by the courts.) The Hammond Administration also created the Office of Bottomfish Development Coordinator (Jim Edenso originally held this position) which eventually became the Office of Commercial Fisheries Development (to which former Senator Kay Poland was appointed Director to be followed by Greg Baker and Paul Peyton under Sheffield). In addition to this office Hammond also had the Special Projects Office (directed by former Senator Bob Palmer) which was very involved in the development of the state's salmon aquaculture program. This brief history has been included here to illustrate the fact that the fisheries activities and responsibilities of state government have grown since statehood. And, given the goals of the Cowper Administration, I assume that most of these activities will continue, albeit with new purpose.

Past experience and discussions with knowledgeable people have caused me to conclude that the tasks involved in managing the Department of Fish & Game constitute a full time job that requires all of the time available to any one individual. This is apart from any time spent on international activities. And likewise, the tasks involved in international negotiations including the allocation activities of the North Pacific Management Council appear to constitute a full time job for any one individual. The responsibilities associated with fisheries development as they have been defined in the past have also required the attention of one individual. And, given the Cowper Administration's emphasis on resource value in the market place, I would assume that fisheries development will take on a new meaning with even greater responsibilities.

I therefore recommend that the Cowper Administration create a new position equivalent to the former Director of International Fisheries so that the Commissioner of Fish & Game can redirect his activities to the management of his department. I believe that this is extremely critical at a time when major changes in the programs and structure of the department are being mandated by reduced state revenues. I also recommend that the fishery development responsibilities of state government be transferred to the Department of Fish & Game to be administered by one of two or three deputy commissioners (ie. Deputy Commissioner for Commercial Fish, Deputy Commissioner for

Fisheries Utilization, and Deputy Commissioner for Sport Fish and Game) on an equal footing with the biological responsibilities of that department. This would be permitted by AS 16.05.020(2) which defines the Commissioner of Fish and Game's responsibilities to include "...the interest of the economy and general well-being of the state;". It would also constitute the beginning of a program realignment that would serve to implement the new social and economic goals of the Cowper Administration. Two organizational benefits would be produced by this restructuring. One would be the permanent elevation of fisheries development responsibilities to a deputy commissioner status. The second benefit would be a function of increased cooperation and understanding between the biological managers and the fisheries developers. Such a realignment is necessary to ensure that the fisheries activities of state government become driven by (or are responsive to) economic rather than by biological goals.

Mr. Fisk has expressed his disagreement with these recommendations on the basis that they contribute to policy fragmentation. He proposes a Department of Commercial Fisheries. I also believe in this concept. But, I do not believe that it is politically achievable. I would therefore rather see a consolidation of fisheries related programs into the existing department, than a continuation of the status quo. A Director of International Fisheries could be retained within the department except for the need of the position to possess the

appearance of policy making authority. This cannot be achieved by demoting the position within the department. It can be achieved by giving it cabinet level status.

Special Advisor on Fisheries.

There is one additional task that is essential to the success of the Cowper Administration's fishery initiatives. It is the task of managing the change that will constitute the Cowper Reformation of Alaska Fishery Policy. This task should be assigned to the Special Advisor in Fisheries working in concert with the Fisheries Advisory Group (FAG again?) whose principal purpose should be the development of strategies for the implementation of the new policy. Rational and constructive change cannot occur without the power of the Governor and his office being brought to bear on the situation. Again, other fishery officials simply do not have the time. They are too involved with the on going activities of government to be concerned about changing the system in which they operate. This task will require a person knowledgeable in fisheries, and skilled in working with people. The position must have sufficient governmental status and authority to overcome the natural resistance that all people (bureaucrats, fishermen and seafood processors included) have to change.

Fisheries Advisory Group.

The Fisheries Advisory Group as a concept means different things to different people. To some it represents the opportunity for industry to have direct access to the Governor, and serves somewhat of an ombudsman function. In this manifestation it would constitute another forum in which industry would use government to arbitrate their disputes. Sheffield's Fishery Policy Task Force called the group a Fisheries Policy Council and described its purpose as follows.

It is ... imperative that a Fisheries Policy Advisory council be created to provide a forum for government-industry interaction and cooperation with the responsibility for providing a source of feedback on program performance and for assisting in the formulation and evaluation on fisheries policy. It is important to understand that the activities of the Fisheries Policy Advisory Council are intended to complement, not duplicate, the activities of the Board of Fish. In fact, the Board's activities are focused on short-term problems of allocation, with no time left to analyze or consider long-term impacts. It is expected that the Council could assist the Board and the Department, in some cases, by identifying problems with long-term ramifications and recommending policies that can produce satisfactory solutions. The Council should be appointed to advise the Governor and to assist him in the development of a state fisheries policy.

I believe that there is merit in many of the ideas expressed above, but that they all fail to capture the true purpose and potential of such a group. We do not need another government group whose purpose it is to review, revise or reverse the actions or decisions of other government groups. We do not need a court of last resort that is responsible for prolonging the disputes of a contentious and adversarial industry. We can not

afford to increase the demands on a system that is already overburdened.

The purpose of the Fisheries Advisory Group (FAG) should be a reevaluation of the system itself in terms of the new goals of the Cowper Administration. On completion of the reevaluation, and with the institution by the administration of recommended changes, the group's purpose would shift to an implementation oversight function. This responsibility would include the government-industry interaction necessary to facilitate change and to ensure program realignment and compliance with the new goals.

If these recommendations are adopted, the success of the FAG (Doesn't Seafood Industry Roundtable (SIR) sound better?) will be determined by the experience and qualifications of its members, and the composition and size of the group. I recommend a group of no more than seven members composed of persons who have demonstrated the following qualities and abilities: 1.) knowledge of the composition and dynamics of the international seafood industry, 2.) knowledge of the composition and dynamics of the Alaska seafood industry and its relationship within the international scene, 3.) long term vision, 4.) objectivity, 5.) creative ability, 6.) commitment to public goals, and 7.) sensitivity to the needs and problems of private industry. This list probably does not included all attributes that are appropriate to the purposes of SIR, however they do serve to

describe the type of person that would have the most to offer. I also believe that some of these people should not be state residents. By way of further definition I would add that the type of person who would not serve the purposes of this group is a special interest advocate whose past activities have been to preserve the status quo or a facsimile thereof, and whose principal focus has been one of resource allocation.

Both Mr. Fisk and Dr. Gilbertsen have expressed the fear that the Seafood Industry Roundtable could become a force against change. This is certainly a serious possibility that can only be avoided by a careful definition of the group's responsibilities and by an extremely judicious choice of appointees by the Governor.

PACIFIC SEAFOOD PROCESSORS ASSOCIATION

P.O. BOX 1625 • JUNEAU, ALASKA 99802 • (907) 586-6366

February 1, 1987

Mr. W. A. "Bill" Hall
Commercial Fisheries and
Agriculture Bank
6726 Marguerite
Juneau, Alaska

Dear Bill:

"Alaska requires a fishery policy that will establish a process of resource allocation that serves to minimize conflict and dispute...an equitable process for resolution of allocation disputes...this will require innovative and courageous leadership." Bullshit! Absolute Bullshit! If the Governor even starts to read your "Recommendations on the Role of State Government in Regard to the Alaska Seafood Industry", he will soon find out that you make that declaration without a recommended solution. You give only a preamble while leaving others with the impossible task of giving it a constitution.

I had hopes of more from you.

When you do get into other areas you do make some observations with recommendations for change but often the recommendations are vague. When they are specific the credit (or blame) for the suggestion is often given to others. I don't know if you do that to give the ideas more credibility or to escape blame.

A couple of things really touched my button. One is Marketplace and the other Quality. In both of these subjects you start out with a Federal study of the United States seafood industry. Not a study of the Alaskan seafood industry. The GAO study actually recommends to the nation much of what Alaska is already doing. We are years ahead of other states in both market promotion and quality. The Alaska Seafood Marketing Institute was used as the model when congress created a national institute to promote American seafood. Only a fool would assert perfection but only the grossly uninformed would not admit that Alaska leads the nation in promotion of its seafood.

Alaska also leads the nation in the quality of it's seafood. That's why your "cheap shot" about quality is so irritating. I realize that you said, "...reputation for quality" and that is a difficult standard to define or refute. However, the fact is that our seafood is not only of good quality but most of it is "premium" quality. It sells at the highest prices, which is the ultimate test of

quality. The standards of the U.S. Food and Drug are far higher than our neighbor and competitor, Canada. It is a fact that when a product is marginal for sale in the U.S. it is shipped to Canada because their standards are lower. Is Canada one of the "mandatory inspection" nations that you cite as an example for Alaska to follow? The quality of Alaskan product, as regulated by the Alaska Department of Environmental Conservation, has made giant strides in recent years - Bill you know that. Then why didn't you recommend that we put more money in ASMI so that the uninformed will know about our high quality seafood.

Your paper doesn't say what should be done, just that, "...all successful solutions have involved the application of government mandated quality standards". Do you want mandatory grade and classification? Do you want continuous inspection? Do you want this done by the State of Alaska or should it be done by the Federal Government? Should we grade for the U.S. market or should we grade for Japan, the EEC? They all want something different.

Since you do not define "quality" maybe I have jumped the gun on you and that is not what you are talking about. Maybe it is wholesomeness that you are concerned about. I thought that everybody that knows anything about the Alaskan industry had put that issue to rest. That is almost a non-issue today, at least when the product leaves the processor.

Maybe I have really missed the mark and you are talking about low quality (grade) product created by current ADF&G management practices. That might be something to take a look at. In a fairly recent study to establish standards for Premium Quality Seal product ASMI found that 90% of the canned salmon would merit a Premium Quality Seal. Of the remaining 10% of the product almost all of it failed to meet the premium standard due to water marking, something the fisherman and processor have absolutely no control over. In that test none of the product failed because of decomposition and almost none of it had man made defects.

I would suggest to you that if there is a remaining question of the quality of Alaskan product it is due to "reputation" perpetuated by irresponsible statements similar to those made by you. Everything can be improved and our product is no exception. There are, in fact, small areas where we need to concentrate some effort but we do not deserve a blanket condemnation such as you have given this industry, its fishermen and the product that reaches the market.

Maybe I should not be so quick to judge you. For years I had heard of the "reputation" for quality of Japanese product. They may still have that reputation with the uninformed but they don't have it with any of us that have ever

seen one of there plants in operation. I have a strong stomach but a Japanese surimi plant is enough to test that of an autopsy surgeon. The "government mandated" quality standards of Japan are so much lower than the voluntary standards supported by regulation of DEC and Food and Drug that it leaves no question which is the better system. It does, however, give the Japanese a competitive advantage over the Alaskan produced product. Adding additional controls that will increase the cost without an increase in price in the world market would only add another impediment to the expansion of our industry.

If you want to give us a hand why don't you join those of us that want the foreign processors to be required to live upto the same standards with which Alaskan processors must comply. Their product is often packed under conditions that would give an Alaskan DEC inspector a heart attack. Yet they can ship that product to the U.S. in direct competition to our product packed under higher standards. I haven't even mentioned the difference in standards and practice aboard foreign fishing vessels - those will really raise your hair.

Let's talk a little bit about your statements on tax policy. You indicated that at statehood the "processors were in a position to influence tax legislation in such a way as to receive favorable treatment". If they were they sure screwed up. Canned salmon, for many years, paid an effective rate of 6% on raw product purchased. In addition they paid a corporate income tax and often provided the only tax base for local government. (by the way, how in the hell did you ever think up a statement like, "...largely a relic of the territorial era; and Alaska remains a fisheries resource colony?)

I hope you will allow me to decline your well intentioned effort to help by suggesting a "relatively high rate" of tax on raw product with a reduction in tax liability for value added and distribution phases. In the first place, we are already paying a "relatively high rate" thanks to the efforts of Clem Tillion, et al. I would assume that canned salmon could expect a substantial reduction since almost all of the value added is done in Alaska - fat chance. Troll caught salmon I would expect could have the benefit of an increase since it is usually marketed only cleaned and frozen. Halibut could expect a similar jump in tax liability. Your neat little idea does only one thing. It increases the likelihood that the legislature will consider an tax increase. Thanks buddy! You are not going to get any more Alaskan participation out of your plan because if you make the tax so high as to force much of the value added to be done in Alaska the legislation will not pass the test to the U.S. Constitution. If you don't make it that high all you will have succeeded in doing is to reduce the price the

processors can pay to the fishermen. You know and I know that an increase in taxes is shared by the fisherman. I guess I can't blame you for the original idea of this tax policy change, Neal Gilbertsen, was the originator but I can blame you for giving it wider distribution. Gilbertsen doesn't know any better but you should.

Bill, just one little correction. I don't think the first Director of International Fisheries was Harold Hansen. I really don't know if Stan Patty was the first one but he is the first one I remember. Stan was appointed by Hickel. He was followed, after a year or so by Chuck Meacham who was also appointed by Hickel. I can't remember who followed Chuck (that would have been during Keith Millers administration) and then Harold Zane Hansen was appointed by Egan. (I was in Harold's room in the Imperial Hotel in Tokyo when Clem Tillion called him to tell him he was fired. That was a couple of days after Hammond was elected.) Meacham was then reappointed by Hammond.

Some of the things you mentioned in your recommendations probably have merit but, in my mind, they will be suspect because of the errors contained in much of the rest of the paper. However, it is not worthless. I suggest you save it and submit it piece by piece to "letters to the editor" of some weekly newspaper, I have often read similar material in such places.

Sincerely,



Richard B. Lauber
Vice President and
Alaska Manager

6726 Marguerite St.
Juneau, Alaska 99801
February 3, 1987

Mr. Richard B. Lauber, Vice President and Alaska Manager
Pacific Seafood Processors Association
P.O. Box 1625
Juneau, Alaska 99802

Dear Rick:

I received your letter of February 1 in which you provided me with the benefit of your opinions regarding my paper on fisheries recommendations to Governor Cowper. I do appreciate the obvious time and effort that you devoted to the subject, and I believe that I understand your message.

I apologize for any deleterious impact that my recommendations may have had on your health, and I hope that our newly discovered differences of opinion will not prevent our continued association in the future.

Sincerely yours,

A. W. "Bill" Hall

Alaska State Legislature

Advisory Council Members
Senator Bennett, Chairman
Senator Abood
Senator Kerttula
Senator Sackell



PO. Box V
State Capitol
Juneau, Alaska 99811
Phone: (907) 465-3114

Senate Advisory Council

MEMORANDUM

TO: Senators Eliason, Zharoff, Kerttula and Sturgulewski
Alaska State Legislature

FROM: Bill Hall, *WH*
Senior Advisor

DATE: April 18, 1986

RE: Budget considerations in regard to the State's fishery related programs.

I am writing this memo to each of you because I know of your interest in the State's Commercial Fishing industry. At this time of reduced State oil revenues many people are looking for alternative sources of funding as well as potential sources of savings through reductions in State spending. I understand that each of you must make difficult decisions relating to both of these needs, so I am writing you this memo to offer some ideas and suggestions that you might wish to consider in your deliberations.

SUGGESTIONS FOR INCREASING REVENUE

We have the opportunity to significantly increase the economic benefits that Alaska receives from the utilization of its fishery resources if we are willing to consider a new approach to fisheries management. In the past we have managed fisheries for the purpose of making more fish available for harvest, a biological activity. In recent years we have begun some programs the purpose of which were to increase the value of the resource, an economic activity. Now with the need to cut budgets we must make a choice as to how we will manage for the future. Will we go back to biological management, and eliminate programs in fisheries development and marketing? Or, will we continue to pursue opportunities for increasing the value of our fisheries products in the world market place. The market demand for new forms of seafood products has never been greater. The opportunity for Alaska to become a leader in the production of high quality seafood products has never been greater. However, if we continue to manage fish for fish and not for profit and benefits, then the entrepreneurs from Seattle, Tokyo and Norway will continue to be the leaders and primary beneficiaries of the world's expanding seafood markets. These markets are the target of national strategies working in concert with foreign owned business for the purpose of control and profit. Alaskan businessmen are not even players in this high stakes game because we have allowed our

Senators Eliason, Zharoff, Kerttula and Sturgulewski
April 18, 1986

fisheries resources to be marketed by foreign (meaning non-Alaskan) businessmen.

If you find any merit in this argument for change, then I offer the following suggestions for your consideration.

Consider consolidation of programs and activities as an alternative to total elimination. The Alaska Seafood Marketing Institute (ASMI), the Office of Commercial Fisheries Development (OCFD), and the Fisheries Industrial Technology Center (FITC) are all involved in activities that serve to increase the value of Alaska's fishery products. The advertising activities of ASMI have proven to be effective at increasing the demand for Alaska seafood products. The pink salmon utilization at OCFD has particular merit in its attempt to develop and demonstrate the potential for new product forms for pink salmon. The existing and planned programs of the FITC in seafood processing technology are essential in the development of new fishery product forms and improvements in the quality of existing seafood products. If these activities are continued, they will produce increases in future revenues for the State.

The performance of ASMI has generally been praised, and it deserves praise for what it has done. But, it also deserves criticism for what it has not done. The focus of ASMI has been too narrow. It has not functioned as a marketing institute as marketing is defined by the business profession. It has functioned as a funding source for advertising the products produced by companies generally owned by non-Alaskans. While this may be a legitimate function, it should not be the only function. ASMI should take a much more active role in market research for the purpose of evaluating opportunities for new product development as well as new marketing opportunities for existing products. ASMI should take a much more active role in providing Alaskan businessmen with market information. ASMI should be encouraging the major food companies of the world to consider investments in modern seafood processing and distribution facilities within the State as a means to create new markets for fishermen, new investment opportunities for all Alaskans, and new jobs.

The performance of the FITC cannot be adequately evaluated at this time because the program is still in a developmental stage. However, its purpose is consistent with the need to increase the value of our fishery resources, and it is a program that is essential and complementary to the purposes of both OCFD and ASMI. Unfortunately, the university has not treated the FITC as a priority program in the past, and in a time of tight budgets I would assume that its value and importance will not be recognized.

There has been legitimate criticism regarding the success of some OCFD activities. However, poor performance by an agency should be considered as a failure of execution, and not as a failure of purpose. The potential increases in State revenues from the development of new fishing opportunities and new fishery products cannot be ignored as a part of the solution to the State's revenue problems.

To summarize the foregoing, I repeat my earlier suggestion that combining the activities of the Alaska Seafood Marketing Institute, the Office of Commercial Fisheries Development and the Fisheries Industrial Technology Center is a preferable alternative to their elimination. Also, by consolidating the programs, efficiencies of coordination and administration might be achieved that would result in a more effective use of the State's resources.

TAX CONSIDERATIONS

At the present time the raw fish tax paid by seafood buyers is based on the ex-vessel value of salmon. This gives the buyers an incentive to keep the price paid to fishermen for their catch low. The tax on salmon is also greater for processed fish than for unprocessed fish. There is therefore an incentive for fish buyers not to process fish in the State. Mr. Neal Gilbertsen, a long time Alaskan fisherman, has suggested that it might be in the best interests of the State to consider a more progressive tax structure that would provide an incentive to process the fish in State. Such a tax, he suggests, should not be tied to the ex-vessel price, but should be structured so as to reduce the tax liability as fish move through the value added stages in the Alaskan economy. This concept has considerable merit both as an incentive to attract investment in new seafood processing facilities, and as a means to increase the earnings of fishermen. (There are many more Alaskans with investments in fishing than in processing.)

It is also important to recognize the drain on the Alaskan economy from the many non-resident fishermen who operate within the State. For salmon alone the Commercial Fisheries Entry Commission estimates that non-resident fishermen harvested \$102,960,458 worth of the State's resources in 1982. This amounted to 34.1% of the total value of that year's salmon harvest. No tax was paid to the State on the income those fishermen earned from their harvests from these States resources.

THE IMPORTANCE OF INFORMATION

If increasing the returns from the utilization of the State's fishery resources is a desirable goal, then access to information on the dynamics of the seafood harvesting and processing industry is essential to informed decision making. This type of information is currently provided by the Commercial Fisheries Entry Commission (CFEC) and the Computer Services Section of the Alaska Department of Fish and Game. These two agencies have developed programs of data collection and analysis that cannot be diminished without a definite loss in decision making capabilities. As a time when decisions have vital economic significance such a loss would be self defeating.

I have been informed that CFEC has been facing the possible loss of their computer, and that ADF&G Computer Services is threatened with the loss of some key personnel. Such proposed actions would result in a decrease or loss of our research and analytical capabilities as well as the data base of processor related information. We cannot afford a reduction

Senators Eliason, Zharoff, Kerttula and Sturgulewski
April 18, 1986

in the services that these two agencies provide. I strongly recommend that these programs be maintained at present levels. If some reduction in costs is unavoidable, then consolidation of the two programs should be considered before elimination or serious reduction of activities. Also, additional revenues could be generated by the Computer Services Section by giving them program receipt authority so that they can charge for the information that they provide to the public.

SUGGESTIONS FOR DECREASING COSTS

Across the board cuts in fishery related programs, particularly those of the Department of Fish and Game and Commerce & Economic Development should be made only after the relative importance of the many programs are evaluated in terms of their contribution to the needs of the State. In this regard I offer for your consideration the suggestion that we must maintain our ability to fulfill our resource management responsibilities, and to promote the most beneficial utilization of those resources. We need to continue to manage for biological goals as well as economic goals. However, one area of activity that could provide opportunities for budget reductions is the State hatchery program.

Significant reductions in State expenditures could be achieved through the transfer of production hatchery facilities to Qualified Regional Aquaculture Associations the operations of which are largely funded by the commercial fishing industry. The programs would continue to provide benefits to the State with no attendant costs of operation.

In conclusion, I realize that these suggestions may be coming to you too late in this legislative session to be of great value to you. However, I am certain that we will be faced with similar problems during the next legislative session, and I trust that they be of interest to you then. If I can be of any assistance to you, please do not hesitate to call me.

AWH:er

Alaska State Legislature

Advisory Council Members
Senator Bennett, Chairman
Senator Kerttula
Senator Abood
Senator Sackett



Pouch V
State Capitol
Juneau, Alaska 99811
Phone: (907) 465-3114

SENATE ADVISORY COUNCIL

MEMORANDUM

TO: Senator Sturgulewski

FROM: Bill Hall *WH*
Senior Advisor

DATE: February 6, 1985

RE: Proposal from Mr. Kellus Sewell of Nordic Alaska Regarding Meeting with Swedish Engineers and Aquacultrist to Discuss Salmon Farming in Alaska

Mr. Sewell has proposed that you meet with two gentlemen from Sweden to discuss the potential for salmon farming in Alaska, and he has submitted for your information a form letter that he has written entitled, "The Need to Evaluate Impact of World Trends on Alaskan Salmon Industry and Benefits to Alaskans From Salmon Farming". Your aide, McKai Campbell, has requested that I review Mr. Sewell's proposals for your benefit.

Mr. Sewell's letters contain two important assertions. One is that the production of salmon by the aquaculture industries of foreign nations is increasing dramatically and will surely have an impact on the traditional markets for Alaskan salmon. The other assertion is that salmon farming offers Alaska the opportunity to develop a new industry that could serve to stabilize the economies of coastal Alaskan communities.

Both assertions are valid and additional efforts should be expended to analyze them more fully within the context of the Alaska salmon industry as it exists today.

If it is decided that salmon farming shall not be permitted to develop as an industry in Alaska, then the important questions that should be answered are those that relate to the impacts of the production of salmon produced by the aquaculture industries of foreign nations. These impacts could not only result in a lower price for Alaskan salmon, they could also produce a change in consumer preferences as they relate to quality, product form, and availability.

Senator Sturgulewski
February 6, 1985
Page 2

If it is decided that salmon farming should be permitted to develop as an industry in Alaska, then both the positive and negative impacts should be considered in regard to the biological factors, the economic viability of such an industry in Alaska, the economic consequences of such an industry on the existing salmon industry, and the sociological consequences of the new industry on the rural communities and cultures of the State.

I agree with Mr. Sewell's statement that, "We in Alaska cannot afford to ignore the potential impacts that this new, European aquaculture industry will have on the salmon dependent economies of rural Alaska. And we most certainly would be negligent not to consider the potential benefits Alaskans could receive from a profit salmon farming industry of our own". However, we should move cautiously so as to avoid damage to the existing Alaska salmon industry.

It is my impression that State officials within the FRED division of the ADF&G and within the Office of Commercial Fisheries Development at DCED have conducted some background research on the potential of mariculture in Alaska and are prepared to proceed with further feasibility studies. However, because of the fear of opposition from the Alaska seafood industry, they have not been directed or authorized to proceed. Both salmon fishermen and processors who represent the status quo see salmon farming as an instrument of change, and they therefore consider it to be a threat to their best interests.

I have not attempted to evaluate the knowledge or experience offered by Mr. Sewell and his Swedish associates. I do know for a fact that Mr. Sewell has experience in Alaska as a crab fisherman, a salmon troller, and a state employee. He has also spent time in Europe in an effort to develop markets for Alaska seafood products.

I have attached to this memo several items that will give you more information on the issue if you are interested. Please contact me if you have any further questions.

BH;crb
Attachments:

SENATE ADVISORY COUNCIL
POUCH V
JUNEAU, ALASKA 99811
465-3114

TO: Senator Sturgulewski

FROM: Senate Advisory Council Staff

DATE: February 6, 1985

RE: Informational Request # 002380

Thank you for your recent request for assistance. Attached is the material you requested.

This information will remain confidential until we receive your approval for release.

If you approve the release of this information, please sign and return this form.

If we can be of further service, please do not hesitate to contact us.

PJ;lal

DATE

SENATOR

In comparison, the Norwegian fishing industry presently earns about 484 million dollars and employs 25,000 people.

reasoned, useful testimony unless the issues it plans to discuss are accurately and fully presented to the public.

Time and again fishermen, especially those involved in the groundfish fisheries, have shown that they can come up with their own solutions and voluntary agreements, if given a chance. Last minute shifts in direction by the Council don't give the fleets a chance to find them.

More than one fisherman left the December Council meeting saying, "There's a leadership vacuum."

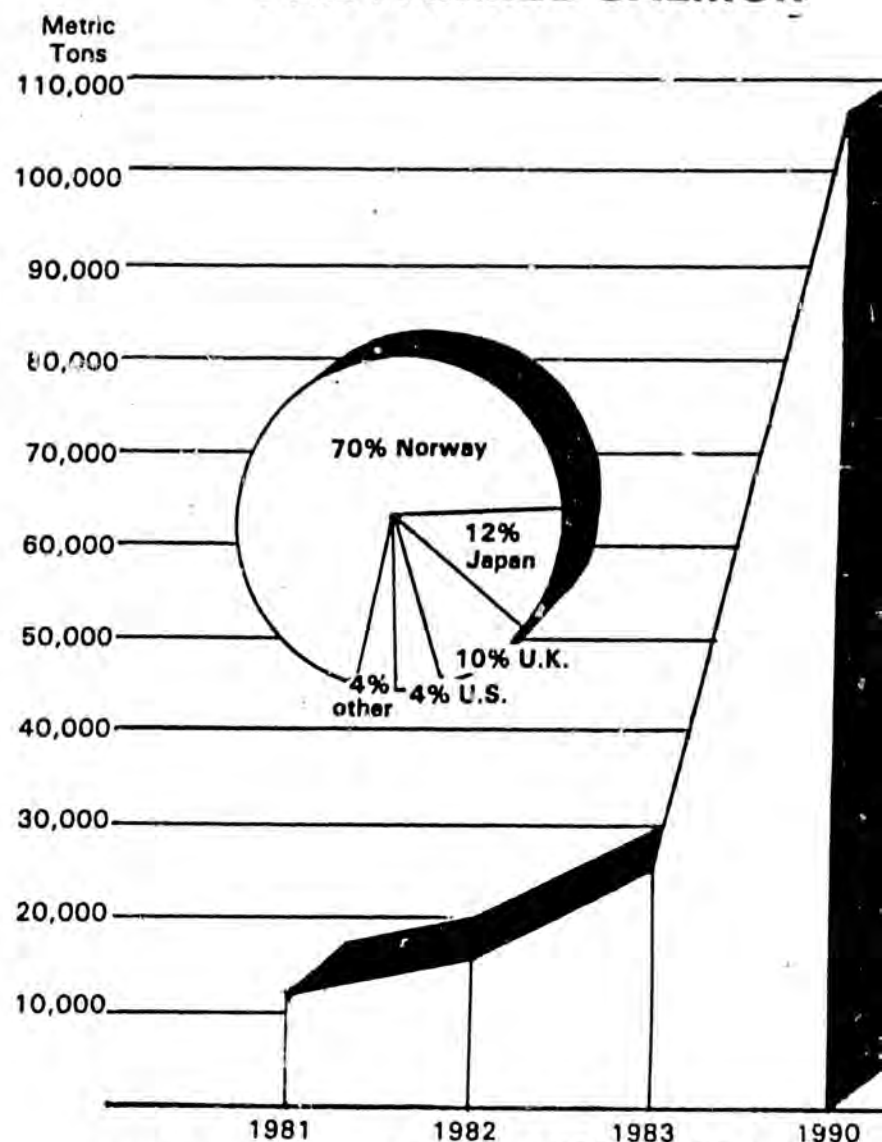
There is a leadership vacuum and an unwillingness to spend the time

needed to solve problems. The Council manages far more fish than the State Board of Fisheries manages. That Board will spend about 100 days meeting this year.

If the fishermen harvesting Alaska's fish learned in December that they must provide their own leadership and work together to find their own consensus rather than appealing to the Council, the December meeting served a positive purpose.

If the Council learned it is facing issues which can't be conquered in a four-day meeting without extensive prior work, the December meeting served a positive purpose.

WORLD PRODUCTION OF PEN-FARMED SALMON



Source: Branch of Foreign Fisheries Analysis, N.M.F.S., NOAA, U.S. Dept. of Com.

Dramatic Growth Projected for Pen-raised Salmon

Norway is the world's most important farmed salmon producing country. The Norwegian production of Atlantic salmon in ocean cages has increased dramatically during the past decade, from only 170 t in 1973 to 17,000 t in 1983. During January-May 1984, Norwegian fish farmers produced almost 10,000 t of salmon, or 44 percent more than during the same period in 1983. If production continues to increase at the same rate, Norway will produce an estimated 24,500 t of farmed salmon in 1984. Future production is also projected to increase to an estimated 50,000 t in 1986 and 80,000 t in 1990. Norwegian production, however, will depend on several factors including the supply of smolts and competition from other countries which produce farmed salmon. Ironically, Norwegian companies have assisted many of these countries in establishing salmon farms because Norwegian government regulations limit the size of salmon farms. Since the regulations do not allow the companies to expand operations in their own country, several Norwegian companies have exported their salmon farming technology to other countries where favorable environmental conditions or potential markets exist.

III

MEMORANDUM ~~RECEIVED~~ State of Alaska

TO: Dick Lyon, Commissioner OCT 5 1984 DATE: October 5, 1984
Department of Commerce and
Economic Development

GOVERNOR'S.

FILE NO:

Richard A. Neve, Commissioner TELEPHONE NO: 465-4100
Department of Environmental

FROM:

Conservation

SUBJECT: Mariculture

Don W. Collinsworth *DWC*
Commissioner
Department of Fish and Game

I believe it would be timely for us to discuss the state's responsibility and role in the potential development of fish farming in Alaska and particularly pen rearing. I think the Mini-Cabinet is the appropriate forum to chart a course of action. Much discussion on pen rearing has recently been generated by contact with out-of-state promoters and by people within our agencies. The legislature is interested and has requested information on the regulatory/administrative structure for fish farming. Fishermen's groups are reacting to either a perception of opportunity or threat.

I think we need to address some specific questions:

1. How do we insure that Alaska and Alaskans receive the primary benefits should such an industry develop?
 - a. What guidelines are utilized in other states - nations?
 - b. Is some form of limited entry appropriate?
 - c. Should the size of individual operations be limited?
 - d. Should an individual be able to acquire only a certain number of sites?
2. What type of legislation/regulations would be needed to implement the desired program?
 - a. What current statutes and regulations govern fish farming?
 - b. What new legislation would be required to implement a program if desired?

October 5, 1984

- c. How should fish farming legislation/regulations relate to existing hatchery - aquaculture programs such as PNP?
3. What roles should the various agencies plan in a coordinated state program?
 - a. Would Commerce have a special loan program for such endeavors?
 - b. Should Fish and Game be funded to do developmental research - regulate disease, genetic problems?
 - c. How would DEC/DNR relate to problems with tidelands discharge?
4. How can we best work with fishermen and the industry to develop a state plan to deal with fish farming?

I have asked that this issue be on our next Mini-Cabinet agenda.

cc: Pennoyer
Baker
Hutton
Boston

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