

Recovering World Leadership In Salmon

A Review of Legislative Options

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Executive Summary

The Alaska salmon industry is in a state of crisis. This crisis threatens the economic health of thousands of Alaskans who harvest, process, or otherwise derive their livelihood from the salmon industry. It imperils the economic health of Alaska's processing sector, and the economic health of the dozens of Alaska communities which rely upon the industry for revenues and social stability.

The crisis is one of supply and demand on a worldwide scale. Since 1976, the annual worldwide production of salmon has tripled; it has nearly double during the past decade alone. In 1980, the production of farmed salmon was nearly non-existent; it now comprises one-third of the world supply; in fact, world farm production now equals the combined production of all species harvested in Alaska.

The world supply of salmon during 1993 is estimated at 2.9 billion pounds. This compares to a demand of 2 billion pounds.¹ Inventories of salmon held in Japan are now at record levels.

The increase in production is resulting in a decrease in Alaska's share of salmon markets:

- In 1985, Alaskan salmon commanded 88% of the Japanese import market share; in 1992, our market share fell to 57%.
- In 1985, Alaska fresh and frozen salmon occupied 80% of the European market; today, our share has fallen to 10%,² and our products have been replaced with Norwegian, Scottish, and other European farm salmon.
- Even in the United States, Alaska's market share has declined from 87% in 1985 to 59% in 1992.³ This occurs at the same time that U.S. per capita consumption of salmon has increased from 0.5 pounds to 1.2 pounds per person. The increase in per capita consumption has mostly been absorbed by farmed salmon imports, which have tripled from 30 million pounds to 95 million pounds since 1987.⁴

¹Bill Atkinson's News Report, January 5, 1994.

²Recovering World Leadership in Salmon, Seafood Management Corporation, October 7, 1993 (for the Alaska Dept. of Commerce & Economic Development).

³*Ibid*

⁴ASMI, Salmon 2000, (from U.S. Dept. of Commerce).

Ex-vessel and wholesale prices to Alaska salmon harvesters and processors have plummeted:

- The average salmon harvester caught 33% more fish in 1991 as compared to 1988, yet earned 56% less.
- Each 10¢ per pound decline in the ex-vessel price represents an average loss of \$70 million in payments to harvesters, and \$4.5 million in lost tax revenues and assessments to the state and municipalities. Between 1988 and 1993, the average ex-vessel price for all salmon harvested in Alaska dropped by 91¢ per pound.
- The average salmon processor processed 49% more salmon in 1992 as compared to 1988, yet the average value of the products produced declined by 32%.
- Between 1988 and 1992, the average wholesale price for salmon products fell by \$0.98 per pound.

In this atmosphere Alaska salmon harvesters are having increased difficulty staying afloat financially:

- The value of Alaska limited entry permits in the salmon fisheries have decreased substantially. Bristol Bay permits have declined from \$250,000 in November of 1990 to \$173,000 in November of 1993. Prince William Sound seine permits have plummeted from \$360,000 to \$55,000, and Cook Inlet seine permits have dropped from \$220,000 to \$72,000.
- According to the Internal Revenue Service, nearly 3,000 Alaska resident salmon limited entry permit holders (26% of total Alaska resident permit holders) are delinquent in their tax payments.
- Additionally, 4% of the Alaska resident permit holders who have state loans for vessels and/or limited entry permits are delinquent in their payments, and 1,200 Alaska resident permit holders have requested loan extensions.

The impact of the crisis is also felt by state and municipalities:

- In 1988 the salmon harvest generated raw fish tax revenues of approximately \$26.6 million, of which \$13.3 million was distributed to the communities and regions.

- In 1993, despite a 64% increase in the salmon harvest since 1988, the amount of raw fish tax generated by the salmon industry declined to approximately \$14.6 million, of which \$7.3 million was returned to the communities and regions.
- The impact is not restricted to coastal communities: more than 600 salmon permit holders reside in Anchorage alone; in 1988, the annual ex-vessel earnings of Anchorage permit holders totaled \$33 million; by 1991, their earnings had dropped to \$16 million, a 61% decline since 1988.⁵

Legislative Options to Help Restore Alaska Salmon Markets

Dramatic steps must be taken to recover or halt diminishing market share of Alaskan salmon or the industry faces severe economic losses that will seriously impact the economic health of the state. While Alaska cannot control its annual return of salmon, it can pursue actions that will improve its ability to compete in the world marketplace including steps to 1) improve the consistent high quality of Alaska salmon, 2) increase the capacity to produce new value-added salmon products, 3) expand marketing efforts, and 4) reduce the costs of production.

The legislative options proposed by the Alaska Department of Commerce and Economic Development and discussed in this report are designed to accomplish these goals. The following is a brief description of each of the options recommended for consideration. Detailed discussion including costs and benefits to the state and industry are contained in Section 2 of this report.

Quality Assurance Program: Historically, Alaska salmon has been well received in world markets. However, absent an improvement in the consistency of quality and expanded marketing efforts, Alaska salmon will continue to lose market share to farmed salmon, and some products will be unable to meet long shelf-life standards for convenience-style frozen food products. The key to producing a premium quality product is to reduce time and temperature abuse, and to provide an environment where salmon are handled with care from the time of capture through the production process until it reaches the market place.

Raw fish tax credits, as well as marketing and monitoring assistance, would be available as incentives for processors to incur the additional costs required for participation in this program. Salmon meeting the handling requirements of this program would receive a State of Alaska quality seal. The most important elements for handling requirements are that fish

⁵The span of years, 1988 through 1991, is often used throughout this report because 1988 was the peak year for salmon ex-vessel prices before the decline in value began, and 1991 is the last year in which ex-vessel and wholesale values, raw fish tax assessments, and other socioeconomic information, is available in complete form. The ex-vessel price and gross value of the 1991 harvest is also very close to 1993 values.

be chilled at capture, kept at core temperatures that do not exceed 34 degrees F., and are processed within 72 hours of capture. Tax credits would be limited to salmon tax liabilities and to 50% of the capital expenditures to be used to purchase equipment that will improve salmon quality or increase salmon value-added capacity. This program is designed to be feasible for all salmon fisheries in Alaska without compromising quality; however, it is recognized that all salmon harvested annually will not be able to meet this criteria.

This program will not work unless it is adequately monitored in the processing facility and the marketplace to ensure that the quality seal is not abused. The program must also be marketed to major buyers so that they understand the increased value of salmon receiving the state quality seal.

This proposal could move forward as either a pilot program in each region, or as an incentive program available to all participants. Criteria for participation in either the pilot program or a program available to all processors would include the use of ASMI quality standards, standards adopted by the state, or standards developed by participants and approved by the state.

Pilot Program: Participation in the pilot program would be subject to a competitive process. One processor would be selected from each region based upon proposals made to the state. Selection criteria would include: standards to improve quality, promotion of value-added production, benefits to local harvesters and municipality, joint venture arrangements between processors, processors and harvesters, and processors and municipalities, and the ability to leverage state tax credits with other funding sources. Regions to be awarded pilot programs would be Southeast, Southcentral (PWS, Cook Inlet, and Seward), Westward (Kodiak to the Aleutians), Bristol Bay, and A-Y-K. There would be a separate category for participation by floaters operating anywhere in state waters.

Open Access Program: A program available to any who desire to participate. Minimum quality standards would be established by the state and serve as the criteria for participation.

Status quo: The state currently offers a voluntary premium quality seal program developed by ASMI. There is also a plant inspection seal program offered by the Alaska Department of Environmental Conservation (DEC). Neither program is incentive-based, and there is no funding to promote or monitor products using the programs. Processors have not used these programs to date.

Value-Added Processing: Raw fish tax credits could be used by processors who produce "value-added" salmon products in Alaska. The amount of the tax credit would be based upon the extent to which the salmon is additionally processed beyond the traditional headed and gutted fresh or frozen product or traditional canned product. For example, a 2% tax credit could be provided for fillet, steak or block products and a 3% tax credit could

be provided for finished products such as nuggets, patties, entrees, smoked, pickled, spreads or chowder products. Because the raw fish tax is split evenly with the state and the municipalities, landing tax revenues could be used to make "whole" any lost tax revenue to municipalities.

Raw Fish Tax Reduction to Salmon Harvesting Vessels: The state raw fish tax law current requires floating processors to pay a 5% tax on the ex-vessel value of product processed within the three-mile limit. This includes salmon trollers or other harvesting vessels that produce frozen-at-sea or other processed products which they market themselves.

DCED proposes to modify the state raw fish tax law by assessing a tax of 3% (the rate assessed shore-based plants) to harvesting vessels that process and market their own salmon. The modification would apply to individual harvesting vessels and to floaters hired to custom process fish for marketing by harvesters. DCED believes this proposal would serve as an incentive for salmon harvesters to process and market their own fish, thereby helping them to facilitate expansion of domestic markets through the promotion of niche marketing efforts.

Two other alternatives also exist: applying the tax modification only to salmon harvesting vessels that process their own harvest on board their own vessel, and status quo.

Vessel Refrigeration Loan Program: According to a survey completed by ASMI two years ago, approximately 70% of the Alaska salmon harvesting fleet remain *unrefrigerated*. Immediate chilling with ice or the use of refrigeration is one of the most important components to quality assurance. Refrigeration costs range from \$3,000 to \$50,000 per vessel. The Commercial Fishing Revolving Loan Fund managed by the DCED's Division of Investments should be expanded to offer financing options for the investment by fishermen in refrigeration systems or other upgrades, including hold insulation, ice machine or freezing capacity that will enhance quality.

Funding of Seafood Product Development Endowment: This proposal would create an endowment whose interest would fund the development of new Alaska seafood products. The endowment would fund coordinated efforts by the Alaska Fisheries Development Foundation, the Fisheries Industrial Technology Center, the Alaska Seafood Marketing Institute, the Marine Advisory Program and other appropriate state agencies in conducting consumer, food science and processing technology research needed to develop new and more cost-effective product options. This basic research is too expensive for most seafood companies to pursue independently. Without this needed research, the Alaska seafood industry will continue to process fish as it has in the past and its ability to compete effectively in the world market place will continue to diminish.

Mechanical Pin Bone Removal Reward: The development of an efficient, mechanical method of pin bone removal from Pacific salmon is an essential component to

producing competitively priced, convenience-style salmon products. Without the appropriate equipment, manual removal of salmon pin bones is extremely labor intensive. It increases processing time, labor costs and reduces yield and the ability to amortize processing equipment now able to produce 200 deep-skinned pink salmon fillets per minute. The state should authorize the Alaska Science and Technology Foundation to offer a \$250,000 reward to the first company that develops a machine capable of cost-effectively removing the pin bones from 50 to 100 salmon per minute. If such a machine is not developed, no cost will be incurred by the state. However, if the reward serves to highlight the need for this machine and acts as an incentive to speed its construction, the state's investment will substantially increase the marketability of Alaskan salmon.

Seafood Industry Regulatory Task Force: In order to compete effectively in the world marketplace, producers of Alaska seafood need to reduce their costs of production. One of the factors that has increasingly affected the cost of production to Alaskan salmon producers are the costs incurred by regulatory compliance. While most regulations are necessary and appropriate, many in the industry believe that some state and federal agencies have developed regulations that are extremely costly yet do not accomplish their intended goals that affect the wholesomeness of fish, worker health and safety, and environmental standards. The Seafood Industry Task Force, organized by the Department of Environmental Conservation, is comprised of representatives of more than a dozen processing companies. This group should be expanded to include representatives from appropriate state agencies. The Task Force should be assigned by the legislature to identify ineffective, costly, conflicting or other regulations that impede the ability of the Alaska seafood industry to compete effectively in the market place. Recommendations for action would be made to the Governor.

Royalty Fish Tax Credit: Should the royalty fish tax proposed by the Office of Management and Budget be approved by the legislature, a tax equal to a percentage of the annual ex-vessel value of landings will be assessed to the harvesters. Under this proposal, harvesters who add refrigeration or other improvements to their vessel that will enhance quality would receive a royalty tax credit for those investments.

Costs and Benefits of the Proposed Legislative Options

While it is impossible to determine the effect that the proposed legislative options will have on the marketplace, it is fair to assume that if nothing is done to increase quality, expand marketing and product diversification efforts, and reduce the cost of production, Alaska will continue to lose marketshare. This will result in continued downward pressure on ex-vessel and wholesale prices.

Each 1¢ decline in the average ex-vessel price of salmon means a loss of \$7 million to Alaskan harvesters and nearly \$.5 million in lost raw fish tax and other assessments. Despite a 64% increase in the salmon harvested between 1988 and 1993, the average ex-

vessel value has decreased by 67%. Raw fish tax revenues derived from salmon during that time period declined from \$26.6 million in 1988 to \$14.6 million in 1993.

If Alaska is able to reclaim lost marketshare by taking concerted action to address the serious issues now faced by the Alaska salmon industry, the costs described above could be translated into significant gains for Alaska harvesters, processors, and state and municipal governments.

Under the proposed state salmon Quality Seal program, raw fish tax credits would be offered to salmon processors who participate in the program. The program would offer a tax credit for capital expenditures that increase salmon product quality and value-added production capacity. The program would be limited to a processing company's tax liability for salmon, and to 50% of qualified expenditures. Assuming a participation rate of 10% to 30% of total salmon production, this program would leverage between \$3 million and \$8.7 million in new investments.

A state Quality Seal program instituted in Maine resulted in increased prices of \$.15 to \$.20 per pound over prices secured by non-participating components of the industry. In British Columbia, where strict quality export standards were imposed on salmon, the average wholesale price of sockeye and pink salmon in 1992 was approximately 20% to 40% higher than wholesale prices received for Alaskan salmon of the same species. The average ex-vessel price was 60% higher for sockeyes and 113% higher for pinks.

To determine costs to the state, we assumed that 10% to 30% of the 1993 salmon production was processed in accordance with the Quality Seal program. The average ex-vessel value in 1993 was \$0.46 per pound. Assuming a participation level between 10% and 30% of landings, the potential annual raw fish tax credits utilized in the program would be between \$1.5 million and \$4.4 million. If the Quality Seal products increased ex-vessel prices between 10% and 40%, the additional value would generate sufficient raw fish tax to amortize the state's investment within 2.5 to 10 years for each year of participation in the program.

Benefits to the state include potential increases in ex-vessel value to harvesters and increases in wholesale value to processors. If increases between 10% and 40% in ex-vessel value result from the Quality Seal program, harvesters would receive between \$4 million and \$46 million more for their salmon.

The above estimates are restricted to potential ex-vessel price increases for salmon that participate in the Quality Seal program. It should be noted that ex-vessel and wholesale prices are subject to a wide range of factors that include quality, but also include world supply, changes in consumer demand, foreign exchange rates, etc. It is possible that these other factors may offset the increased value resulting from improved quality, and a price decline could still occur; however, it is more than likely that the decline in price, if any, would be less than the decline that would have occurred in the absence of the Quality Seal

program. Even in this scenario, the gains to the industry and the state would be greater than the losses resulting from steeper value and marketshare declines.

Aside from the projected benefits resulting from a Quality Seal program, other aspects of the proposed legislative package offer benefits to harvesters, processors, the state and municipalities. The vessel refrigeration program would provide financial assistance and potential tax credits to harvesters to refrigerate their vessels, and access higher ex-vessel values for their harvest. The mechanical pin bone removal reward, if the machine is developed, would provide alternate markets for pink salmon in particular, and provide some measure of price and market stability to that sector of the industry. The regulatory review process would identify and remove burdensome and unnecessary regulations that add substantial costs to the industry. If these efforts are successful, the potential benefits to Alaskan harvesters, processors, and the state and municipal governments would be far more significant than the potential benefits identified above.

All of the programs in the proposed legislative package are intended, in combination, to increase demand by improving quality, expanding markets and product diversification, and reducing costs of production.

OVERVIEW OF THE SALMON CRISIS

1.1 Importance of the Salmon Industry to Alaska

The importance of the salmon industry to Alaska cannot be understated. The commercial fishing and processing industry is Alaska's largest private sector employer, and the second largest economic contributor to the state's economy. In excess of 35,000 individuals are employed in the harvesting and processing sectors. Over 550 processing facilities of all sizes are located in Alaska, most of which are dedicated to salmon. Contributions from the salmon industry to Alaska include the following (also see Table 1):¹

- Salmon accounted for 40% of the volume of all commercial fisheries that were shore-based² during 1991 (690 million pounds of salmon were harvested);
- Salmon accounted for 47% of the ex-vessel value of all commercial landings that were shorebased during 1991 (\$310 million in ex-vessel payments were made to harvesters);
- \$134 million labor and related costs were paid to process the salmon harvest;
- \$46 million was expended to purchase goods and services directly related to the salmon harvest;
- \$21 million was generated through the state raw fish tax, local taxes, ASMI assessments, and aquaculture assessments; and,
- Within the Alaska shorebased commercial fishing industry, the salmon component comprised nearly one-half of the total direct and indirect economic contributions of the seafood industry to Alaska.

In many coastal communities, economic contributions from the salmon industry constitute the vast majority of income to the community and its residents: in the

¹ A recent report by Pacific Associates for the Pacific Seafood Processors Association, entitled *The Economic Impact of the Shoreside Processing Industry Upon Alaska During 1991*, quantified the economic contributions of the seafood industry to Alaska. Although the report did not generally specify the relative contributions of the salmon component of the industry, a review of the data contained in the report establishes that the direct and indirect economic contributions to Alaska during 1991 from the salmon industry were nearly \$1.3 billion.

² The term "shore-based" refers to all harvesting and processing activity that does not occur on the high seas.

Table 1
Direct and Indirect Economic Impact of the Salmon Industry
Upon Alaska During 1991³

Ex-Vessel Payments ⁴	\$ 310,183,456
Employment ⁵	126,282,862
Transportation ⁶	8,208,204
Goods & Services ⁷	46,440,185
State Raw Fish Tax (including municipal share) ⁸	11,631,880
Local Taxes ⁹	3,932,002
ASMI Assessment ¹⁰	930,550
Aquaculture Assessments ¹¹	4,205,058
Total Direct Expenditures	511,814,196
Indirect Expenditures ¹²	767,721,294
Total Direct/Indirect Expenditures	\$ 1,279,535,490

³ 1991 is used since it is the most recent year for which all the following data has been compiled.

⁴ Data from CFEC.

⁵ See Appendix for breakdown by month; source data from Ak. Dept. of Labor.

⁶ The Economic Impact of the Shoreside Processing Industry Upon Alaska During 1991, Pacific Associates, 1993.

⁷ The Economic Impact of the Shoreside Processing Industry Upon Alaska During 1991, Pacific Associates, 1993.

⁸ Assumes average rate of 3.75% against ex-vessel value (Geron Bruce, ADF&G, for 3.75% assumption).

⁹ Reflects 2% local municipal and borough taxes in appropriate jurisdictions.

¹⁰ ASMI assessment at 0.3% of ex-vessel value.

¹¹ Reflects 3% assessment of ex-vessel value in Southeast, and 2% assessment ex-vessel value in Prince William Sound, Kodiak, and Cook Inlet.

¹² A 1987 report by Matthew Berman and Teresa Hull for the Institute of Social and Economic Research, University of Alaska, Anchorage, entitled The Commercial Fishing Industry in Alaska's Economy, identified a statewide multiplier of 1.73 (for every \$1 spend, an additional 73¢ is generated) for the seafood industry. The authors cautioned that this could be a conservative estimate based upon several variables; additionally, they reasoned that changes in the industry during the near future could generate an increase in the multiplier.

Legislative Options to Address Alaska's Salmon Crisis

Aleutians East Borough, 90% of borough revenues during 1991 were directly generated by the commercial fishing industry; in the region encompassing Kodiak, Bristol Bay, the Alaska Peninsula, and the Aleutian Islands during 1991, seafood industry jobs accounted for 51% of private sector employment.

Although the Pacific Associates report (cited earlier) quantified only 1991 economic contributions, the significant role of the salmon industry relative to other components of the commercial fishing industry during 1992 and 1993 has continued.

The importance of the salmon industry to the state and its communities is sometimes taken for granted. Favorable weather conditions and excellent resource management by ADF&G have resulted in record returns of salmon. The salmon industry has existed as long as commerce has been practiced in Alaska. Salmon is such an integral part of Alaska that we assume it will always be generally healthy, despite cyclical swings in volume and price. Unfortunately, that is not the current situation.

1.2 Industry in Crisis

The Alaska salmon industry competes in a world market, and our salmon products are an international commodity. As a result, actions well beyond the control or influence of Alaska's private or public sector have a profound impact upon our market share, our wholesale values, and our ex-vessel values. These factors include changes in the world supply of salmon, fluctuations in foreign currency exchange rates, modifications in diet and eating habits, government imposed trade regulations, and unethical or unlawful practices, such as dumping of product on the market to secure market share.

The most significant impact upon the salmon industry during the past 20 years has been the increase in world supply. Since 1976, the worldwide production of salmon has tripled; it has nearly doubled during the past 10 years alone. This has resulted from an increase in production from natural runs, enhancement and aquaculture programs, and the production of farmed salmon.

In 1980, the production of farmed salmon was nearly non-existent; today it comprises one-third of the world supply. Salmon farming, initially localized to Europe, has spread to North America, South America, Japan, and New Zealand. Whereas most farm production appears to have stabilized, South American production (primarily from Chile) has doubled over the past three years,¹³ and is approximately equal to the annual sockeye production of Bristol Bay. On a worldwide basis, farm production now equals the combined production of all salmon species harvested in Alaska.

¹³In 1991, South American production was 73 million pounds; by 1993 production had increased to 143 million pounds. Source: *Weekly Fish Report*, (December 27, 1993), Governor's Office of International Trade (from Hokkai Keizai, 10/93).

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1.2.1 South American Production

The South American production is expected to continue to increase. Two other factors make this increase even more worrisome. First, Chile has substantially enhanced the growth rate of its farm salmon, and will soon doubling production by cutting in half the length of time necessary to produce a commercial product. Second, the Chilean producers are vertically integrated; they produce and own nearly everything necessary to grow, process, and market their salmon production. The two factors will allow Chilean salmon farmers to double output while maintaining total control of production costs. This gives them both a production and a competitive edge over the Alaska salmon industry which controls neither its production nor its total costs.

1.2.2 Russian Production

The collapse of the Soviet Union has also impacted Alaska's salmon industry. During the Cold War years, Russian salmon was generally consumed internally, and was unavailable to outside markets. Following the collapse of the USSR, the combination of the need for hard foreign currency and the introduction of eight or more salmon aquaculture and enhancement facilities boosted production and enabled the huge Russian salmon resource to enter the world market. In fact, Russian salmon captured 8.5% of the Japanese import market in 1992.¹⁴

Pink salmon comprise the bulk of Russian production. During the time period 1985 through 1992, 69% of the Russian production consisted of pink salmon.¹⁵ The pink salmon runs operate on a weak year/strong year basis, with the odd years constituting the stronger runs. Great emphasis has been placed on increased production: from 1985 to 1987, odd year production increased by 21%; production further increased by 49% from 1987 to 1989, and by another 48% from 1989 to 1991. Overall, pink salmon harvests have increased by 167% from 1985 through 1991.

The total pink salmon harvest during 1991 (the last odd year for which pink salmon information is available) was 476 million pounds. This compares to the total 1991 Alaska pink salmon harvest of 318 million pounds. While the Russian pink salmon product was generally unavailable to the world market until the last few years, it is now entering the market at grounds prices as low as 4¢ per pound.¹⁶

1.2.3 Japanese Market

The primary market for Alaskan salmon products has been Japan and Europe. Japan, by far, has served as Alaska's dominant salmon market. In 1985, Alaskan salmon

¹⁴Ratnam Solomon Brown, *The Alaska Seafood Harvesting and Processing Industry*, for DCED, 1994 (from U.S. Department of Commerce National Trade Data Bank and NOAA Globefish Statistics Database).

¹⁵*Weekly Fish Report* (December 27, 1993), Governor's Office of International Trade (from Hokkai Keizai, 10/93).

¹⁶ASMI, *Salmon 2000*.

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commanded 88% of the Japanese import market share; in 1992, our market share fell to 57%.¹⁷

The Japanese are the world's greatest consumers of fish. While the loss of Alaska's market share in Japan is worrisome, the average monthly consumption of salmon by Japanese households is also declining. Concurrently, the average purchase price for salmon products in Japan is also declining.

Figure 1 depicts the percentage change in the average household consumption of salmon and the average purchase price of salmon during the period September, 1992 through August, 1993.¹⁸ The comparison is between the month identified and the same month one year earlier. The zero percent line indicates no change in consumption or purchase price from the same month one year earlier; amounts above or below the zero percent line indicate increases or decreases respectively. The data does not distinguish salmon by species, country of origin, or product.

Figure 1: Changes in Household Purchases of Salmon and Purchasing Price in Japan

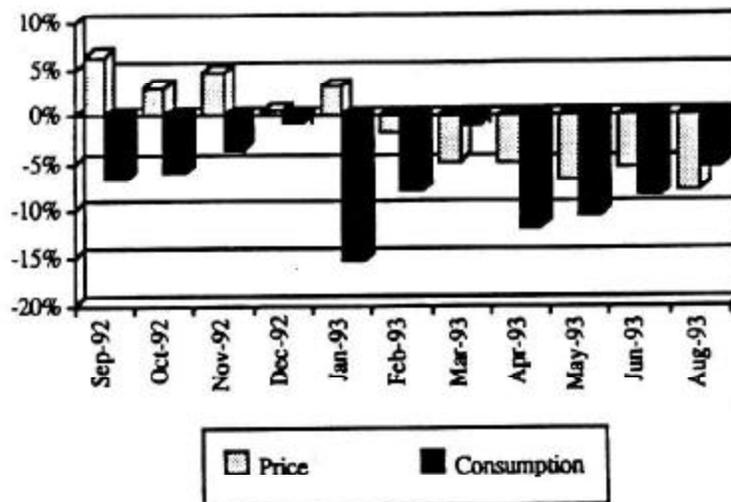


Figure 1 clearly shows a trend of both a decline in household demand and a decline in price. Note the general decline in both consumption and retail price: both are cause for alarm.

¹⁷The Japanese Salmon Market: An introduction to Alaskans, DCED, Feb. 1993.

¹⁸Weekly Fish Report, (December 27, 1993), Governor's Office of International Trade (from Hokkai Keizai, 10/93).

Salmon inventories in Japan have climbed to record levels, now exceeding 138,000 metric tons. Wholesale prices for Bristol Bay sockeye in Japan have declined by 50% during the past 18 months.²⁰ And, at \$2.09 per pound,²¹ those wholesale prices are well below the cost of production (FOB Japan) according to a University of Alaska Marine Advisory Program cost of production analysis.²²

Under normal circumstances, one would expect prices to continue to fall until demand increases. Three variables may impact this scenario in Japan. The first is that worldwide supply is continuing to increase. This implies that prices will continue to fall until demand is stimulated. Second, the Japanese economy is experiencing a sharp downturn which is affecting consumer buying and impacting consumption. Third, Japanese diet trends are changing, particularly with the young, and there is increased consumption of non-seafood products such as meat and poultry. Since Japan is Alaska's largest salmon market, any reduction in consumer purchase trends or purchase prices has a reciprocal impact upon the economic health of our salmon industry.

To place the reduction in consumption into perspective, it is interesting to note that Japanese families ate 22.3 million pounds less of salmon during the time period September, 1992 through August, 1993. This is equal to 12% of the entire 1992 Bristol Bay sockeye run, or nearly equal to the entire harvest of sockeye by all other regions of Alaska during 1992.

1.2.4 European Market

In Europe, as well, Alaska's market share is declining rapidly. In 1985, Alaska fresh and frozen salmon occupied 80% of the European market; today, our share has fallen to 10%, and our products have been replaced with Norwegian, Scottish, and other European farm salmon.²³

1.2.5 United States Market

Even in the United States, Alaska's market share has declined from 87% in 1985 to 59% in 1992. Disturbingly, this decline has occurred while the average per capita consumption of salmon in the United States increased from 0.5 pounds to 1.2 pounds. The increased consumption, ironically, was captured by farmed salmon imports, which

²⁰Bill Atkinson News Report.

²¹Bill Atkinson News Report, December 22, 1993.

²²The University of Alaska Marine Advisory Program cost of production analysis for salmon estimates that the average cost incurred in placing 1993 Bristol Bay sockeye on the Tsukiji Market in Japan was \$2.41 per pound. The formula used consists of the following: the ex-vessel price, plus raw fish and municipal taxes of 5%, plus tendering costs of 15¢, divided by a recovery rate of 75%, plus processing costs of 80¢, resulting in a finished Bristol Bay product cost of \$1.84 per pound. Added to that is 28¢ for shipping to Japan, 5¢ for fees, 16% of total costs to account for interest, and approximately 5¢ for four months of cold storage in Japan.

²³Recovering World Leadership in Salmon, Seafood Management Corporation, October 7, 1993 (for DCED).

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increased from 28 million pounds to 95 million pounds per year during the same time period.²⁴

The clearest threat to Alaska fresh and frozen salmon market share comes from the farmed salmon industry. The farmed salmon producer has several advantages over Alaska producers. Most significantly, the farm producer controls production from incubation to the marketplace. This is a great advantage, and allows the farm producer to guarantee high quality, fresh salmon on a year-round basis. Farmed salmon has earned a reputation for high quality, with a consistent price and supply.

Due to the factors described above, and despite record production levels, Alaskan salmon has declined from 40% of world salmon production to 31% during the past five years. Our market share, and the value of our products, are rapidly declining. Unless arrested, this impact will be felt by all Alaskans, many of whom will be affected catastrophically. Consider the following:

- Chilean farmed salmon production is expected to increase by 30% this year, according to the U.S. Dept. of Agriculture. Nearly all of the product is destined for Japanese and U.S. markets.
- Imports of farmed salmon to the United States have tripled since 1987, from 30 million pounds to 95 million pounds.
- In 1991, Russian salmon production exceeded 550 million pounds. Last year, Russian salmon exports to Japan increased by 150%. Russian dressed sockeye salmon enters the Japanese market at \$0.77 per pound (substantially lower than U.S. sockeye), while the Russian grounds price for pink salmon is only 4¢ per pound.
- Since July of 1992, the wholesale value of Alaska Bristol Bay sockeye salmon in Japan has reduced by more than half from \$4.40 per pound to \$2.09 per pound.²⁵
- Market prices for Alaska limited entry permits in the salmon fisheries have decreased substantially. Bristol Bay permits have declined from \$250,000 in November of 1990 to \$173,000 in November of 1993. Prince William Sound seine permits have plummeted from \$360,000 to \$55,000, and Cook Inlet seine permits have dropped from \$220,000 to \$72,000.

²⁴Ibid.

²⁵Bill Atkinson's News Report, January, 1994.

1.3 Current Impact of Crisis in Alaska

As stated in Section 1.1, the salmon industry impacts virtually all aspects of Alaska. Declines in ex-vessel prices cause reductions in raw fish tax revenues to the state and communities, decreased income to harvesters, increased default rates on state loans to harvesters, and the out migration of limited access permits as harvesters are forced to sell -- or lose -- their permits. These impacts are not restricted to coastal communities. More than 600 salmon permit holders reside in Anchorage alone. In 1988, the annual ex-vessel earnings of the Anchorage permit holders totaled \$33 million; in 1991, their earnings were \$12 million (a 61% decline).²⁶

Additionally, decreased salmon wholesale values results in instability within the processing sector, increased bankruptcies, loss of employment and other economic benefits to communities and Alaska residents, and decreased ex-vessel prices with their attendant economic losses.

Like all industries in Alaska, the salmon industry has historically had up and down cycles. The current down cycle, due to the factors described above, is far more profound and serious than any previously experienced. Unless concerted action is taken to address the issues which have caused farmed salmon to displace Alaska salmon in the global marketplace, continued loss of market share and its negative impact upon Alaska wholesale, ex-vessel, and permit values will continue.

Figures 2, 3, and 4 illustrate the changes experienced by the harvesting sector of the industry during the past few years.

Table 2 reviews the combined statewide salmon harvest for the years 1988 through 1991.²⁷ The table shows total pounds harvested, the gross ex-vessel value, and the average ex-vessel price per pound for each commercial gear type. The table also identifies the percent change from each year to the next. (Appendix 2 contains detailed information for all harvest activity during the time period, by species, region, and gear type.)

Between 1988 and 1991, the total Alaska salmon harvest increased by 33%, the gross value decreased by 56%, and the average price per pound decreased by 67%. *Stated differently, the average harvester caught 33% more fish in 1991 as compared to 1988, yet earned 56% less.* The decrease in ex-vessel value between 1988 and 1991 amounted to \$400 million. It also cost the state \$15 million in raw fish tax revenue, and \$1.2 million

²⁶Extrapolated from CFEC data.

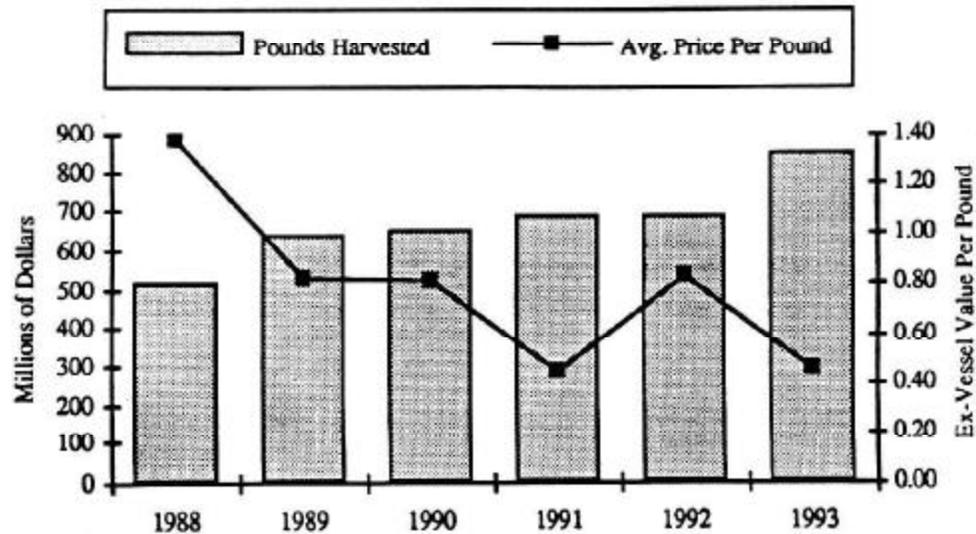
²⁷The span of years, 1988 through 1991, is often used throughout this report because 1988 was the peak year for salmon ex-vessel prices before the decline in value began, and 1991 is the last year in which ex-vessel and wholesale values, raw fish tax assessments, and other socioeconomic information, is available in complete form. The ex-vessel price and gross values of the 1991 harvest is also very close to 1993 values.

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in industry assessments to the Alaska Seafood Marketing Institute. The ex-vessel value decreased by 41% from 1989 to 1991, and by another 41% from 1990 to 1991.

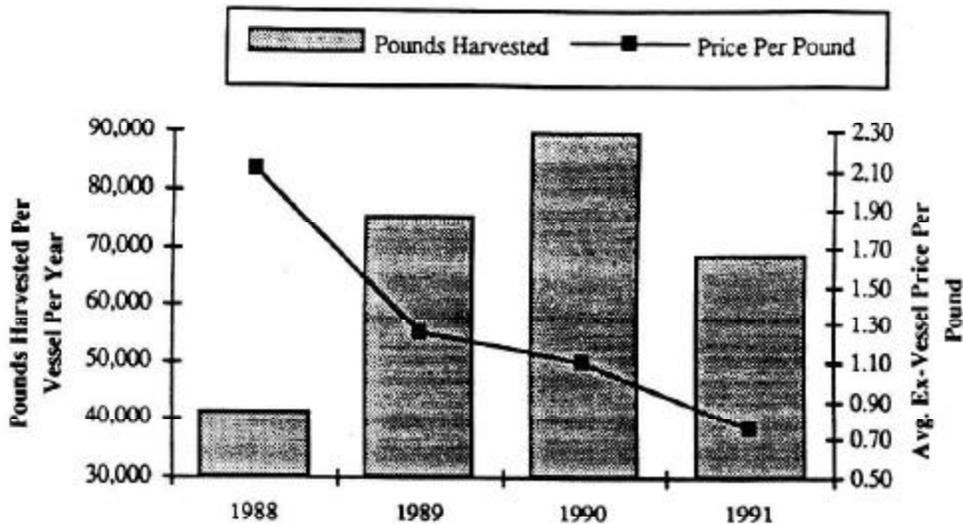
The decrease in ex-vessel values is also having a severe impact upon the ability of many salmon harvesters to comply with IRS regulations. According to a letter from the IRS to CFEC Chairman Bruce Twomley, dated November 3, 1992 (see Appendix 3), as many as 2,284 of Alaska resident salmon limited entry permit holders (26% of total Alaska resident permit holders) are delinquent in their tax payments. The total delinquent amount is estimated at \$13.7 million. The IRS is actively seeking payment from these individuals by various means, including seizure of their permits. Additionally, 4% of the Alaska resident permit holders who have state loans for vessels and/or limited entry permits are delinquent in their payments, and 1,200 Alaska resident permit holders have requested loan extensions.

Figure 2: Comparison of Statewide Salmon Harvest With the Average Ex-Vessel Price of Salmon Per Pound (all species combined)



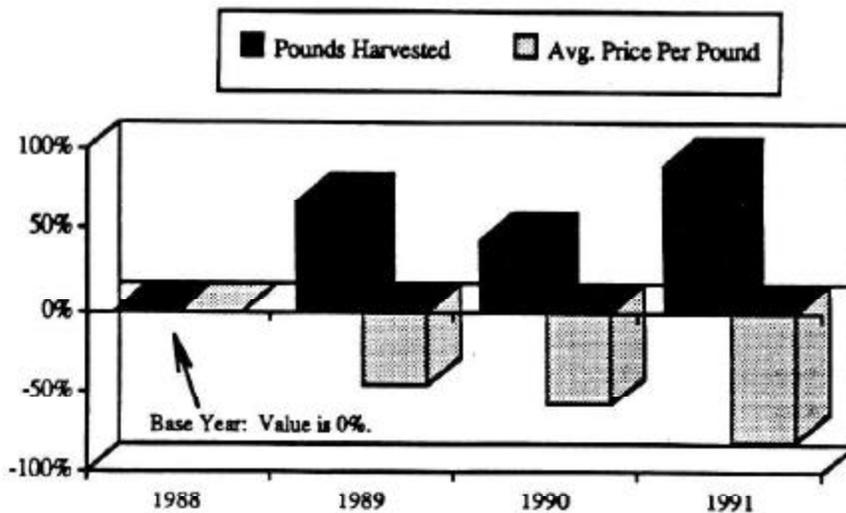
Between 1988 and 1993 the annual harvest increased by 64% while the average price per pound fell by 64%. (Data Source: CFEC)

Figure 3: Comparison of Bristol Bay Average Sockeye Salmon Harvest Per Permit Fished With the Average Ex-Vessel Price of Sockeye Per Pound



During this time period, the average harvest per vessel increased by 66% while the average price per pound decreased by 64%. (Data Source: CFEC)

Figure 4: Percent Change Since 1988 in Statewide Pink Salmon Harvest and Average Ex-Vessel Price of Pink Salmon Per Pound



The average harvest per vessel increased by 90% over 1988 levels, while the average price per pound decreased by 81%. (Data Source: CFEC)

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Table 2

Combined Statewide Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	212,052,796	230,468,060	270,580,822	218,769,105
Seine	229,954,636	305,786,030	298,726,691	394,220,649
Set Gillnet	63,932,061	82,048,501	61,054,633	58,766,516
Troll	9,883,993	20,013,709	19,883,120	16,844,496
Fish Wheel	1,132,168	1,322,789	818,475	761,708
Total	516,955,654	639,639,089	651,063,741	689,362,474
percent change (88-91)		24%	26%	33%
percent change (89-91)			2%	8%
percent change (90-91)				6%
Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	\$ 310,671,862	\$ 233,387,549	\$ 261,265,852	\$ 142,253,924
Seine	249,198,374	154,786,501	164,657,212	98,874,257
Set Gillnet	118,813,141	115,512,778	70,525,729	43,340,198
Troll	29,738,131	23,399,328	31,063,165	25,084,274
Fish Wheel	1,299,539	1,261,813	514,459	630,803
Total	\$ 709,721,047	\$ 528,347,969	\$ 528,026,417	\$ 310,183,456
percent change (88-91)		-26%	-26%	-56%
percent change (89-91)			0%	-41%
percent change (90-91)				-41%
Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	\$ 1.47	\$ 1.01	\$ 0.97	\$ 0.65
Seine	1.08	0.51	0.55	0.25
Set Gillnet	1.86	1.41	1.16	0.74
Troll	3.01	1.17	1.56	1.49
Fish Wheel	1.15	0.95	0.63	0.83
Statewide Average	\$ 1.37	\$ 0.83	\$ 0.81	\$ 0.45
percent change (88-91)		-40%	-41%	-67%
percent change (89-91)			-2%	-46%
percent change (90-91)				-45%

Note the percentage changes from one year to the next. The ex-vessel value between 1988 - 1991 decreased by 56%; between 1989 - 1991, it decreased by 41%; and between 1990 - 1991, it decreased by a further 41%.

Legislative Options to Address Alaska's Salmon Crisis

It is likely that significant losses of permits will occur in rural areas (through voluntary sale or other means). Due to rural Alaska's reliance upon commercial salmon fishing as a means of livelihood, the loss of permits could be devastating. On average, each permit creates three jobs on the harvesting vessel. Typically, these jobs are filled by rural residents closely acquainted with the permit holder. The history of limited entry permit transfers in Alaska is one of permit out-migration from the village or rural setting. According to the IRS letter, the regions with the highest delinquency rates are Bethel, Bristol Bay and Dillingham, Haines Borough & Skagway-Yakutat-Angoon, Kenai Peninsula Borough, Kodiak Island Borough, Lake and Peninsula Borough, and Wade Hampton.

The processing sector has also been affected by the salmon crisis.²⁸ Table 3 compares the wholesale production volume and value for salmon harvested and processed in Alaska between 1988 and 1992. During that time period the production of salmon products increased by 49%, the gross wholesale value increased by 2%, but the average value per pound decreased by 32% (from \$3.11 per pound to \$2.12 per pound).²⁹

This trend continues. During the past 18 months, listed wholesale prices (FOB Japan) for Bristol Bay sockeye salmon have dropped 50% from \$4.50 per pound to \$2.09 per pound.

The reduction in salmon ex-vessel values also impacts state raw fish tax revenues and local tax revenues. Figure 5 compares the changes in harvest levels with raw fish tax generated from the salmon industry during the time period 1988 through 1993.

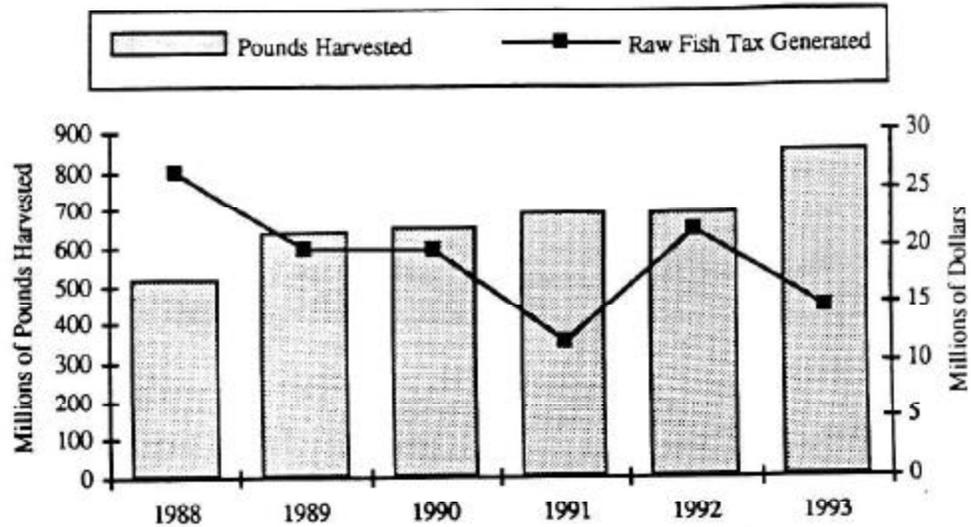
Because 50% of the tax revenue is returned to the communities and the region in which it was generated, the reduction in raw fish tax affects both the state and localities in which the processing activity takes place. In 1988 the salmon harvest generated raw fish tax revenues of approximately \$26.6 million, of which \$13 million was distributed to the communities and regions; in 1993, despite a 64% increase in the salmon harvest, the amount of raw fish tax generated by the salmon industry declined to approximately \$14.6 million, of which \$7.3 million was returned to the communities and regions.

With prices expected to continue to remain at current low levels or deteriorate further, revenues to harvesters, processors, the state and local communities will also suffer. If action is taken to help Alaska salmon reclaim its market share, the corresponding effect will be economically positive.

²⁸ Anecdotal conversations with processing industry members indicate that the industry has suffered major losses. Some bankruptcies have already occurred, and others appear imminent. The problems experienced by the processing sector with salmon are also aggravated by similar market conditions and values in the groundfish industry, where the value of many products have plummeted to all time lows.

²⁹ It is inappropriate to compare percentage declines in wholesale and ex-vessel values: since the two values are not the same numerically (i.e., the wholesale price is different from the ex-vessel price), percentage changes will always be different.

Figure 5: Comparison of Statewide Salmon Harvest and Raw Fish Tax Generated During the Time Period 1988 - 1993 (in pounds and dollars)



The average harvest increased by 64% over 1988 levels, while the amount of state raw fish tax generated decreased by 45%. (Data Source: CFEC and Alaska Dept. of Revenue.)

1.4 Future Impact of Crisis in Alaska

The impact of a continued downward trend in current salmon market conditions will be felt throughout the state. Decreases in tax revenues will severely impact the local budgets of many coastal communities and boroughs. Tax revenues to the state will also fall. It is likely that many Alaska resident salmon limited entry permit holders will be forced to sell or otherwise give up their permits; a substantial portion of those permits may migrate out of the region and the state, further exacerbating the economic impact. Some permit holders and aquaculture associations may also be at risk of defaulting on their state loans which currently total \$130 million.

The decrease in ex-vessel and wholesale prices between 1988 through 1993 has resulted in major losses to both harvesters and processors. In the absence of concerted effort, losses of this magnitude will continue to be experienced.

Legislative Options to Address Alaska's Salmon Crisis

**Table 3: Comparison of Wholesale Production and Value of Salmon Products
Between 1988 and 1992³⁰ (excluding roe)**

Net Weight	1988	1992	Difference (%)
Bristol Bay	60,403,874	135,857,605	125%
Cook Inlet	50,386,237	60,291,474	20%
Prince William Sound	41,349,664	27,627,409	-33%
Southeast	52,164,239	130,490,236	150%
Alaska Peninsula	42,324,437	62,876,051	49%
Chignik	9,925,481	24,306,333	145%
Kodiak	49,085,830	35,079,559	-29%
A-Y-K	17,118,611	5,024,941	-71%
Total	322,758,373	481,553,608	49%

Wholesale Value	1988	1992	Difference (%)
Bristol Bay	222,588,735	343,724,460	54%
Cook Inlet	184,143,388	163,442,381	-11%
Prince William Sound	112,595,821	56,317,538	-50%
Southeast	150,648,099	217,557,021	44%
Alaska Peninsula	117,446,780	115,874,981	-1%
Chignik	30,017,327	25,411,929	-15%
Kodiak	145,621,072	85,102,808	-42%
A-Y-K	40,157,946	15,151,199	-62%
Total	1,003,219,168	1,022,582,317	2%

Avg. Value Per Pound	1988	1992	Difference (%)
Bristol Bay	3.69	2.53	-31%
Cook Inlet	3.65	2.71	-26%
Prince William Sound	2.72	2.04	-25%
Southeast	2.89	1.67	-42%
Alaska Peninsula	2.77	1.84	-34%
Chignik	3.02	1.05	-65%
Kodiak	2.97	2.43	-18%
A-Y-K	2.35	3.02	29%
Total	3.11	2.12	-32%

Note: 1992 data for Chignik includes Dutch Harbor and Bering Sea production. Also, roe is deleted due to incompatible data base. Also note that the \$0.99 per pound difference in the average value of the products produced between 1988 and 1992 results in a net lost wholesale value of \$480 million to the processing sector during that time period.

Source: ADF&G

³⁰1993 numbers were not available at the time of this report.

REVIEW OF PROPOSED OMNIBUS LEGISLATIVE INITIATIVE

2.0 Introduction

This section reviews components of a legislative initiative that has been proposed to address problems and concerns identified in the industry. The proposals have been drawn from the salmon legislative options developed by the Alaska Department of Commerce & Economic Development (DCED). For the most part, these proposals resulted from workshops convened by DCED to carry out the recommendations of the Governor's Salmon Strategy Task Force. In certain instances, alternatives to those proposals have been identified by the authors, the industry, or by DCED representatives.

In numerous meetings with small and large boat fishermen, and small, medium, and large processors about the problems confronting Alaska's salmon industry, there was general agreement that the status quo is untenable. Within the industry, there were various opinions held and solutions offered. But there was unanimous agreement that a crisis faces all sectors of the industry.

The clearest areas of agreement were: Alaska salmon has lost significant market share; increased world supply also threatens to depress ex-vessel and wholesale prices; and, continued increases in production, particularly from farmed salmon, threaten the future of the Alaska salmon industry unless we can recapture lost markets or develop new markets. The industry is largely in agreement that our ability to recapture market share depends upon the types of products we produce, the quality of those products, the price, the availability of the products, and marketing. Each item is critically important, and failure in one threatens failure in all. To compete effectively, and to develop new markets, Alaska salmon must be able to compete with consumer expectations for farmed salmon.

While many participants at these meetings and conferences disagreed as to how the Alaska salmon industry might reclaim former markets and develop new ones, all agreed that action must be taken now.³¹ Accordingly, legislative options were developed and refined with broad based input from all segments of the industry.

The following options are based upon the premises that Alaska must improve the quality of its salmon products, must diversify the types of salmon products it produces, must reduce production costs wherever possible, and must increase and expand its marketing efforts -- if these steps are not taken, Alaska salmon will increasingly run the risk of losing additional market share.

³¹ Developing a Strategy for the Future of the Alaska Salmon Industry, DCED and Global Business Network, September, 1993

The following sections review each of the initiatives.

2.1 Quality Assurance Program

Historically, Alaska salmon has been well received in world markets. However, absent an improvement in the consistency of quality and expanded marketing efforts, Alaska salmon will continue to lose market share to farmed salmon, and some products will be unable to meet long shelf-life standards for convenience-style frozen food products. A quality assurance program would establish standards designed to enable Alaska wild salmon to expand into new markets and maintain its current market share despite increased production of farmed salmon.

A draft State of Alaska "quality seal" program for salmon has been developed by DCED with input from processors, harvesters and quality control experts (see Appendix 1). The quality assurance standards proposed by DCED are intended to stimulate discussion and focus attention on determining what types of standards best meet the capability of the salmon industry and ensure that Alaska salmon products will be of the highest possible quality. If the legislature approves a quality assurance program, it is anticipated that additional industry input will occur during the regulatory process.

The DCED quality assurance program was designed to produce a product that would increase the value of Alaska salmon by guaranteeing that it would consistently be of the highest possible quality. Participants in the program would ensure that minimum handling, holding, production, and storage standards would be met. A record keeping system to document compliance would be implemented, and periodic inspections by state inspectors would be conducted to ensure compliance. Marketing assistance would also be provided to help educate major buyers about the increased value of Alaska quality seal salmon.

The keys to produce a premium quality product are to reduce time and temperature abuse, and to provide an environment where salmon are handled with care from the time of capture, through the production process, until it reaches the market place. Under the proposed DCED program, salmon meeting the handling requirements of this program would receive a State of Alaska quality seal.

The most important elements for handling requirements are that fish be chilled at capture, kept at core temperatures that do not exceed 34 degrees F., and are processed within 72 hours of capture. This program is intended to be feasible for all salmon fisheries in Alaska without compromising quality; however, it is recognized that all salmon harvested annually will not be able to meet this criteria.

This program will not work unless it is adequately monitored in the processing facility and the marketplace to ensure that the quality seal is not abused. The program must also

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be marketed to major buyers so that they understand the increased value of salmon receiving the state quality seal.

This proposal could move forward as either a pilot program in each region, or as an incentive program available to all participants. Status quo is also an alternative.

Raw fish tax credits would be available as an incentive for processors to incur the additional costs required for participation in this program. As proposed by DCED, tax credits could only be used to purchase equipment that will improve quality or increase value-added capacity.

It is important to note that participation in DCED's proposed program would be voluntary.

The state currently offers a voluntary premium quality seal program developed by ASMI. There is also a plant inspection seal program offered by the Alaska Department of Environmental Conservation (DEC). Neither program is incentive-based, and there is no funding to promote or monitor products using the programs. Processors have not used these programs to date.

Supporters of the DCED program raise the following points:

- The importance of consistent quality cannot be overestimated given the current market and competition. Farmed salmon, in particular, has an excellent reputation for consistent, high quality. As our primary competitor in many markets, Alaska must take every step possible to increase customer confidence in our products.
- The harvesting and processing sectors of the Alaska salmon industry are large and diverse. There is no question that some harvesters and processors have made extraordinary efforts during the past few years to improve the quality of their catch and their product. Similarly, there are those who continue to pay less attention to proper handling and processing techniques. Without a "premium quality seal" program, those who make investments to improve the quality of Alaskan salmon will suffer because their products will be co-mingled with those who do not improve quality.
- The proposed program is voluntary: there is no requirement that anyone participate. Without this, or a similar program, what efforts will be taken to ensure or encourage the consistent delivery of high quality Alaska salmon products?

Legislative Options to Address Alaska's Salmon Crisis

- The Maine program has established that improved quality results in higher prices.
- If nothing is done, the industry will suffer further losses in marketshare, resulting in further ex-vessel price and wholesale value declines.

Opponents of the program raise the following points:

- The market grades are well established. The entrance of a new grade of Alaska salmon through the "premium quality" seal program would largely replace the market slot held by the current number 1 quality Alaska product, causing a number 1 fish to become a number 2 fish -- and receive a number 2 price -- and so on for each of the lower grades. Without significant product participation in the program, there is concern that the increased value generated by the "premium quality" seal salmon will not offset the reduced value of the non-premium quality seal salmon.
- The species, the fishing techniques and capabilities, and the geographic area in which the state's salmon fisheries occur vary considerably. There is concern that a consistent statewide program with consistent standards cannot be developed without causing adverse harm to those regions, sub-regions, or fisheries that are unable to participate and meet the standards for a variety of reasons, including logistics, fleet composition, water quality, distances, etc.
- Although the proposed program would be voluntary, there is fear that the cost of this program may result in cuts to other programs that also have merit. There is also concern that the monitoring and paperwork associated with the program at the processing and harvesting level may prove to be burdensome.

2.1.1 Range of Alternatives and Options

The arguments advanced by both the proponents and opponents to the quality assurance program have merit. Since it is important to find unanimity when addressing an issue of this importance, several options were developed to improve and recognize quality. They include:

- A "premium" quality seal program that identifies number 1 quality salmon that have met minimum handling requirements;

Legislative Options to Address Alaska's Salmon Crisis

- A "quality assurance" seal program that identifies all grades of salmon that have met minimum handling requirements;
- A quality seal program that identifies both "premium" quality and "quality assurance" salmon; or,
- A quality program that uses either statewide standards or regional standards.

These options can be implemented through either a regional pilot program or an incentive-based "quality seal" program available to all interested industry participants.

The following sections review each alternative, including status quo.

2.1.1.2 Alternative 1: Pilot "Quality Seal" Program

The state would institute a pilot quality seal program for salmon to assess market acceptance of the products produced. The pilot program would also help identify the industry and the state costs associated with the program. The state would solicit proposals from processors in various regions of Alaska and select one proposal from each region. Minimum standards would be established by the state. Applicants would assume the primary responsibility for designing a plan of operation that assures the highest and most consistent quality.

On a regional basis, each of the participating companies would determine whether they wish to use a generic "quality assurance" seal for all salmon that is harvested and processed in accordance with the quality standards, or if they wish to use both a "quality assurance" seal and a "premium quality" seal to differentiate between #1 grade salmon and salmon of other grades that meet the quality standards of the program.

This pilot program would function much the way the current state-administered Community Development Quota (CDQ) program operates. An appropriate multi-agency group would consider competitive proposals from those interested in participating in the program. The following criteria would be considered:

- Promotion of value-added production of salmon products;
- Demonstration of benefits to local harvesters and the municipality;
- Demonstration of leveraging of state salmon tax credits with other funding sources;

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- Encouragement of joint venture proposals between processing companies, processing companies and municipalities, and/or processing companies and harvesters;

In return, the state would:

- Grant raw fish tax credits equal to 50% of their expenditure for equipment that will improve quality or increase value-added capacity.
- Fund an effort to develop markets for salmon sold under the state quality seal program. The marketing program would be used to forge new markets and reclaim lost markets. Marketing efforts would be restricted to domestic markets where 1) Alaska salmon has been replaced with farmed salmon, 2) frozen convenience-style food products or other markets where Alaska salmon has lost market share or has not yet had a significant presence, or 3) the development of new fresh and frozen fillet markets.

Monitoring efforts would ensure that use of the seal is not abused at the processing or retail levels.

An annual cost benefit analysis would be conducted to determine program affects on the price of fish that qualified for the program, whether new markets were obtained and/or lost markets reclaimed, and the costs associated with developing, implementing, and complying with the program. The results of the analysis would be shared with the salmon industry and used to determine future quality assurance programs.

The state's Request for Proposal would require that the following items be addressed in a plan of operation submitted to the state: requirements for chilling; fish core temperature; maximum time until processed; handling techniques; training programs; vessel and plant inspection; grade standards; sampling and monitoring program; and, benefits to fishermen.

Milestones for increasing the percentage of salmon harvested and processed under the program would be identified, and continued eligibility for participation in the program would be based on meeting those milestones. The state would reserve the right to negotiate any details of the plan of operation. The state would also reserve the right not to select any plan should the plan be determined to be insufficient to accomplish the goal of increased quality consistency and value-added production. Regions to be awarded a pilot-program each would include Southeast, South Central (PWS, Seward, and Cook Inlet), Westward (Kodiak to the Aleutians), Bristol Bay and AYK. There would be a separate category for participation by floaters operating anywhere in state waters.

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The state should consider using revenues collected from the landing raw fish tax to reimburse municipalities that make their share of the raw fish tax credit available to those companies that participate in the program.

The costs and benefits of this alternative are discussed in Section 2.1.2.

2.1.1.3 Alternative 2: Incentive-Based Statewide Quality Program

The state would offer an incentive-based quality seal program to all plants that meet the necessary criteria. The same raw-fish tax credit program described in Section 2.2.1 above would be made available, as well as the state marketing and monitoring efforts.

To meet the minimum quality requirements necessary to participate in the program, processing plants would have the flexibility to use 1) the Alaska Seafood Marketing Institute (ASMI) premium quality program, 2) the ASMI quality assurance program, 3) a quality program devised by the state, or 4) an alternative quality assurance program developed by a seafood processor(s) that would address minimum handling requirements (which must be approved by the state).

Those fish processed under a state approved quality assurance program would receive a state issued "quality assurance" seal or a state "premium" quality seal that would be used to differentiate the product in the market place.

2.1.1.4 Alternative 3: Status Quo.

The state currently offers a voluntary premium quality seal program developed by ASMI. There is also a plant inspection seal program offered by the Alaska Department of Environmental Conservation (DEC). Neither program is incentive-based, and there is no funding to promote or monitor products using the programs. Processors have not used these programs to date.

2.1.2 Review of Costs and Benefits

It is difficult to measure, in other than a qualitative sense, the costs and benefits associated with a quality assurance program. There are many variables that could impact the assumptions a quantitative analysis would utilize. This is particularly true with Alaska salmon given the changes in the world supply, the reliance upon foreign markets, changes in foreign exchange rates, modifications in national or global economies, and other factors.

Benefits associated with improved quality may result in broader market acceptance and greater demand that result in higher prices. That appears to be the case with farmed salmon, which enjoys an excellent reputation for consistent supply and quality. In fact, Chilean frozen farmed salmon is currently fetching 300 Yen per kilo (1.25/lb) more in

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Japan than Bristol Bay sockeye salmon.³² Additionally, a quality seal program in Maine resulted in increased prices of \$.15 to \$.20 per pound over prices secured by non-participating components of the industry.³³ And in British Columbia, where strict quality export standards were imposed on salmon, the average wholesale price of sockeye and pink salmon in 1992 was approximately 20% to 40% higher than wholesale prices received for Alaskan salmon of the same species. The average ex-vessel price was 60% higher for sockeyes and 113% higher than pinks.³⁴

Markets will be impacted by changes in world supply and demand; however, the ex-vessel and wholesale value of Alaska salmon products should improve or, in the worst case, decline less than they would otherwise. This should result in an increase (or less of a decrease) in economic benefits to harvesters, processors, municipalities, and the state.

To assist in quantifying the benefits associated with a quality assurance program, a "penny per pound" analysis was performed to identify the impact that a 1¢ increase or decrease per pound in the ex-vessel value of salmon harvested during 1991 would have had on harvesters and state raw fish tax revenues.³⁵ The calculations applied the 1¢ increase to the pounds harvested in each region, by each gear type. The state raw fish tax, the ASMI and aquaculture association assessments, and local taxes in appropriate jurisdictions were applied against the ex-vessel increase to determine the total revenue generated or lost. (See Appendix 4 for a complete breakdown by gear type, species, and area).

Table 4 shows the conclusions of the analysis: every increase of 1¢ per pound in 1991 represents an increase of approximately \$7 million in gross ex-vessel earnings and \$450,000 in state and local taxes and assessments. Similarly, a 10¢ increase in the ex-vessel value per pound would have generated approximately \$70 million in additional payments to harvesters and \$4.5 million in state and municipal taxes and assessments.

The impact of the increase varies from fishery to fishery, region to region, and gear type to gear type. Expectedly, the fisheries that are impacted the greatest are those with the highest volume. In the Bristol Bay drift gillnet and set net fisheries, a 10¢ per pound increase would have generated an increase of \$14 million in ex-vessel payments to harvesters (\$7,300 per harvester if distributed evenly), and \$830,000 in state and municipal taxes and assessments.

³²Bill Atkinson's News Report, December 22, 1993. The Chilean price, however, is expected to decline when the major Chilean production reaches the market; according to BANR, Bristol Bay sockeye prices are also expected to decline further.

³³Conversation with Bob Beadoin, Director of the Maine Premium Quality Program, administered and monitored by the Maine Department of Marine Resources.

³⁴In an ISER report recently completed for DCED, author Gunnar Knapp documents causes and comparisons for price differences between British Columbia and Alaska salmon. High Canadian salmon export standards are cited as a contributor to higher prices received for B.C. salmon exports.

³⁵The amount of the increase or decrease will vary from year to year since the base measurement is the volume of the harvest; as the harvest changes, so will the amount of revenue generated by a 1¢ increase or decrease in ex-vessel value. 1991 does reflect, however, the average volume of the salmon harvest for the years 1988 through 1993.

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Table 4: Impact of 1¢ Per Pound Increase in 1991 Ex-Vessel Price for All Alaskan Salmon Fisheries (by species and region)

Ex-Vessel Value Increase Per Fishery (gross dollars)	Species					Total
	Sockeye	Pink	Chinook	Coho	Chum	
Southeast	119,705	1,621,390	50,797	198,209	228,489	2,218,591
Prince William Sound	103,616	685,587	7,970	52,327	30,664	880,165
Cook Inlet	135,248	19,629	3,080	26,733	20,193	204,884
Peninsula	261,759	333,283	2,232	30,076	113,796	741,146
Bristol Bay,	1,492,555	10	5,246	14,828	79,235	1,591,874
Kodiak	291,559	485,475	2,699	23,596	71,844	875,173
Chignik	129,121	33,485	696	11,808	16,742	191,854
Upper Yukon	0	1,793	1,223	361	5,637	9,013
Kuskokwim	14,009	17	7,470	35,853	31,294	88,644
Kotzebue	0	0	7	0	19,464	19,471
Lower Yukon	0	0	19,245	6,730	34,145	60,121
Norton Sound	15	0	1,075	4,692	5,971	11,753
Roe (All Species/Fisheries)						2,728
Total	2,547,589	3,180,669	101,743	405,215	657,474	6,895,417

Raw Fish Tax Increase, Local Tax Increases, ASMI & Aquaculture Assessment Increases (gross dollars)	Species					Total
	Sockeye	Pink	Chinook	Coho	Chum	
Southeast	8,439	114,308	3,581	13,974	16,108	156,411
Prince William Sound	6,269	41,440	482	3,164	1,566	52,920
Cook Inlet	8,183	1,163	5	688	976	11,015
Peninsula	15,836	19,440	101	1,326	6,198	42,900
Bristol Bay	90,300		222	633	4,209	95,363
Kodiak	23,471	39,081	217	1,899	5,783	70,451
Chignik	7,812	2,026	42	714	1,013	11,607
Upper Yukon	0	73	50	15	228	365
Kuskokwim	567	1	303	1,452	1,267	3,590
Kotzebue	0	0	0	0	788	789
Lower Yukon	0	0	779	273	1,383	2,435
Norton Sound	1	0	44	190	242	476
Roe (All Species/Fisheries)						82
Total	160,877	217,530	5,825	24,327	39,763	448,404

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In the Southeast seine fisheries, the 1¢ per pound increase during 1991 would have generated an increase of \$1.8 million in ex-vessel payments to harvesters (\$4,800 per harvester if distributed evenly), and \$129,000 in state and municipal taxes and assessments. A 10¢ increase would have generated an \$18 million in additional ex-vessel payments to harvesters (\$48,000 per harvester), and \$1.3 million in state and municipal taxes and assessments.

Improvements in quality associated with the proposed quality assurance programs may result in higher ex-vessel and wholesale prices. The extent of the increase, if any, is subject to a variety of external factors that affect prices, including world market conditions.

Alternatives 1 and 2

The relative costs and benefits of each alternative vary. Alternatives 1 and 2 offer very similar programs. The primary difference between the two programs is that Alternative 1 is a pilot program of limited duration and limited participation, while Alternative 2 is open-ended both in duration and participation.

Without strict monitoring in the harvesting and processing sectors, and at the retail level, neither Alternative 1 nor 2 will work. All three alternatives have employment costs for state compliance personnel (this includes record keeping and on-site inspections).

The Alaska Department of Environmental Conservation (DEC) estimates that the costs they would incur to audit seafood processor logs and collect and analyze samples for the pilot program (Alternative 1) would be approximately \$54,200.³⁶ This consists of employment costs of \$44,000³⁷, travel costs of \$7,200, utilities and printing costs of \$2,000, and \$1,000 in laboratory supplies (for 100 samples).

For the open to all program (Alternative 2), DEC estimates they would incur approximately \$422,700 in costs consisting of employment costs of \$291,000³⁸, travel costs of \$120,000, utilities and printing costs of \$6,000, and \$6,000 in laboratory supplies (for 100 samples).

The DEC program would be on a "fee-for-services" basis, paid by the industry, as is the NMFS voluntary inspection; therefore, there would be no cost incurred by the state. Since 6 processing facilities would be participating in Alternative 1, the estimated cost

³⁶Kit Ballentine, ADEC.

³⁷Consisting of: 1 Environmental Health Officer II (Range 16) Anchorage at .5 FTE, or \$25,600; 1 Environmental Microbiologist II (Range 14) Palmer at .25 FTE, or \$11,400; and 1 Environmental Lab Technician II (Range 12) Palmer at .25 FTE, or \$7,000.

³⁸Consisting of: 2 Environmental Health Officer II (Range 16) Anchorage at 2.0 FTE, or \$102,600; 1 Environmental Health Officer II (Range 16) Dutch Harbor at 1.0 FTE, or \$63,800; 1 Environmental Health Officer II (Range 16) Juneau at 1.0 FTE, or \$51,300; 1 Environmental Microbiologist I (Range 14) Palmer at 1.0 FTE, or \$45,400; and 1 Environmental Lab Technician II (Range 12) Palmer at 1.0 FTE, or \$27,900.

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per facility is approximately \$9,000. For Alternative 2, the estimated cost per facility is approximately \$4,300 (if 100 facilities participate).

Three additional employees would be hired to market and monitor products produced in the program. The estimated cost is \$45,000 per employee, plus 40% fringe benefits, and \$40,000 for travel. The estimated cost is \$193,300 for the three employees,³⁹ and \$200,000 for travel and promotion. The total cost would be \$393,300. This cost would be borne by the state.

Alternatives 1 and 2 provide raw fish tax credit for those companies that participate. In the case of Alternative 1, the number of companies that can participate is limited by region. If 6 companies participate (one from each of the five regions, plus one floating processor), and each company purchases 10 million pounds of salmon at an average ex-vessel value of \$0.50 per pound, times the average statewide raw fish tax percentage of 3.75%, the tax credit will total \$1.1 million. The \$2 million figure is used to provide a reasonable upper range in the event that the participating companies purchase a greater amount of salmon than estimated, or pay a higher average ex-vessel price per pound.

It is more difficult to estimate the potential tax credit that might be incurred by those companies that choose to participate under Alternative 2. In the absence of any concrete information, we assumed that 10%, 20%, and 30%, of the 1993 salmon production was processed in accordance with the quality assurance program (see Table 5). The average ex-vessel value of this production was \$0.46 per pound during 1993, which generated between \$1.5 million and \$4.4 million in raw fish tax. This analysis assumes that the entire amount in each scenario would be used by participating companies as a tax credit, and that ex-vessel prices would also increase as a result by either 10%, 20%, 30%, or 40%; in those cases, the additional value would generate sufficient raw fish tax revenue to the state to amortize the state's investment within 2.5 to 10 years.

Other benefits would accrue to harvesters through potential increases in ex-vessel value ranging from \$4 million (if a 10% ex-vessel increase for 10% of the 1993 harvest) to \$45.7 million (if a 40% ex-vessel increase for 30% of the 1993 harvest), and to processors through increased wholesale value.

It is important to note, however, that increases in ex-vessel prices (if any) are also subject to a variety of other factors, including world production.

DCED's Commercial Fishing Revolving Loan program has received more than 1,200 requests for loan extensions from harvesters during the last three years due to declining ex-vessel prices. Increased prices would improve harvesters' ability to repay approximately \$60 million in state loans.

³⁹Two Development Specialists (level 18) at a salary/fringe benefits cost of \$61,700 per year each, and one Development Specialist 2 (level 20) at a salary/fringe benefit cost of \$69,900 per year.

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Table 5: Estimated Participation in and Amortization of Proposed Raw Fish Tax Credit Program for the State

Note: The salmon harvest for 1993 was approximately 846 million pounds; the three scenarios below reflect 10% (84.6 million pounds), 20% (169.2 million pounds), and 30% (253.8 million pounds) of the harvest participating in the program.

	1993	1993 Avg. Plus 10% Increase in Price	1993 Avg. Plus 20% Increase in Price	1993 Avg. Plus 30% Increase in Price	1993 Avg. Plus 40% Increase in Price
10% Thru State Program (lbs)	84,600,000	84,600,000	84,600,000	84,600,000	84,600,000
Avg. Price (\$)	0.46	0.51	0.55	0.60	0.64
Gross Ex-Vessel Value (\$)	38,916,000	42,807,600	46,699,200	50,590,800	54,482,400
Avg. State Raw Fish Tax (\$)	3.75%	3.75%	3.75%	3.75%	3.75%
Raw Fish Tax Generated (\$)	1,459,350	1,605,285	1,751,220	1,897,155	2,043,090
<u>Difference (\$)</u>		145,935	291,870	437,805	583,740
20% Thru State Program (lbs)	169,200,000	169,200,000	169,200,000	169,200,000	169,200,000
Avg. Price (\$)	0.46	0.51	0.55	0.60	0.64
Gross Ex-Vessel Value (\$)	77,832,000	85,615,200	93,398,400	101,181,600	108,964,800
Avg. State Raw Fish Tax (\$)	3.75%	3.75%	3.75%	3.75%	3.75%
Raw Fish Tax Generated (\$)	2,918,700	3,210,570	3,502,440	3,794,310	4,086,180
<u>Difference (\$)</u>		291,870	583,740	875,610	1,167,480
30% Thru State Program (lbs)	253,800,000	253,800,000	253,800,000	253,800,000	253,800,000
Avg. Price (\$)	0.46	0.51	0.55	0.60	0.64
Gross Ex-Vessel Value (\$)	116,748,000	128,422,800	140,097,600	151,772,400	163,447,200
Avg. State Raw Fish Tax (\$)	3.75%	3.75%	3.75%	3.75%	3.75%
Raw Fish Tax Generated (\$)	4,378,050	4,815,855	5,253,660	5,691,465	6,129,270
<u>Difference (\$)</u>		437,805	875,610	1,313,415	1,751,220

This table assumes that 10%, 20%, and 30% of the 1993 salmon production would have been processed in accordance with the quality assurance program. The average ex-vessel value of this production was \$0.46 per pound during 1993, which generated between \$1.5 million and \$4.4 million in raw fish tax, depending upon the volume. The analysis also assumes that the entire amount in each scenario would be used by participating companies as a tax credit, and that ex-vessel prices would increase as a result by either 10%, 20%, 30%, or 40%; in those cases, the additional value would generate sufficient raw fish tax revenue to the state to amortize the state's investment within 2.5 (if 10% of the production goes through the program and results in a 10% ex-vessel price increase) to 10 years (if 30% of the production goes through the program and results in a 40% ex-vessel price increase).

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Increased ex-vessel prices would also generate increased income to aquaculture associations, improving their ability to repay approximately \$70 million in loans to the state, and increased assessments to ASMI, which would help expand marketing efforts.

To fully utilize the raw fish tax credit under these scenarios, processing companies would have to invest an amount equal to the raw fish tax credit since this is a 50/50 match program; this would result in the total expenditure of between \$3 million and \$8.7 million in new equipment.

The "penny per pound" analysis also supports the tax credit program. As shown in the analysis, a 10¢ increase in the ex-vessel price of salmon would generate approximately \$70 million in ex-vessel payments and \$4.5 million in state and local taxes and assessments (of which, \$2.6 million would be state raw fish tax).

The industry will incur costs not cited above, including those associated with record keeping requirements. The industry may also incur unanticipated costs to modify its harvesting, processing, and handling techniques. These costs should be offset by recaptured and expanding market share in Japan for the Bristol Bay scenario, or new marketshare in the domestic U.S. market.

Alternative 3

Alternative 3 is status quo. Costs and benefits associated with the status quo, assuming that no radical change in worldwide market trends occurs, are fairly well known and documented. Quantified trends over the past five years indicate that Alaska should expect to see a continued decline in market share unless it can more effectively compete with farmed salmon. Currently, Alaska suffers from a competitive disadvantage with farmed fish in terms of quality and consistent year-round supply. A market survey by Seafood Management Corporation for DCED found that U.S. retailers and restaurants are demonstrating a clear preference for the year-round supply of fresh, quality salmon from Chile and Norway.⁴⁰

Absent innovative approaches to product development by current and new entrants, Alaskan salmon will remain a commodity product and price follower in new markets.

It is noteworthy that canned consumption in the United States has decreased per capita, while overall per capita salmon consumption has increased more than 50%. This suggests that although traditional users of canned salmon can be expected to continue to use the product, the overall canned market segment will probably decline in the future, absent unforeseen changes. New consumers of salmon will probably be attracted by new product forms and high quality fresh/frozen product.

⁴⁰Recovering World Leadership in Salmon, October 7, 1993.

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In sum, and as identified in Section 1, the status quo is untenable if the market share problems facing the industry are to be overcome.

2.1.3 Quality Assurance Conclusions

There is no doubt that quality plays a critical role in obtaining market share and improved prices. Russian salmon products, for example, have a poor reputation for quality, and the price received reflects that perception. Conversely, fresh and frozen farmed salmon receive very high quality ratings from consumers who are willing to pay a higher price because they perceive it to be the best value for their money. The perception of quality is also transferred to Canadian salmon, which receives higher ex-vessel and wholesale prices due, in part, to strict export standards.

The same can be true of Alaska salmon if it is harvested, processed, handled, and marketed properly. During 1993, Trident Seafoods Corporation conducted a joint seafood merchandising promotion in Minneapolis with several grocery stores. The promotion focused on number 1 grade Bristol Bay sockeye salmon. According to a report submitted by d.a. larson company following the promotion:

... The fastest selling value-added product was the fillet. Once customers witnessed the quality, they chose the most convenient product form (fillets) to prepare at home. Price was not an issue on the fillet. . .

With the competition currently facing Alaska salmon, and the certainty that the competition will increase and become stronger, it is critical for Alaska salmon to continually improve the consistency of its quality so that its market reputation will be elevated to the highest level possible. Additionally, the product needs differentiation if it is to compete effectively.

No program will work without teeth. Products with the premium quality seal or quality assurance seal must be effectively monitored during processing and in the market place. The seal must also be effectively marketed to potential food industry customers so that they will understand the increased value of a product receiving a state quality seal.

2.2 Raw Fish Tax Credit Program

The state assesses a raw fish tax equal to 3% of the ex-vessel value of fish purchased for the production of fresh or frozen seafood, 4.5% of the ex-vessel value of fish purchased for canning, and 5% of the ex-vessel value of fish purchased for processing into any product form on board a floating processing vessel. One half of the raw fish tax is returned to the community in which the product was purchased. The revenue generated from the salmon industry by the raw fish tax has steadily declined during the past several years as ex-vessel prices have fallen.

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The use of the raw fish tax to stimulate investment by the seafood industry is not new. A previous tax credit program, ending in 1991, used \$50 million in tax credits to leverage \$146 million in industry expenditures. Most of these investments were used to increase onshore groundfish processing capacity. Without that program, most of the \$1.5 billion groundfish industry would now be taken by the offshore factory trawl fleet. Instead, more than 90% of all groundfish in the Gulf of Alaska comes ashore, and 35% in the Bering Sea. As a result, Unalaska/Dutch Harbor and Kodiak are the top two producing ports in the nation. Groundfish is now one of the largest contributors of raw fish tax revenues to state and local governments.

The following sections describe some options to use a portion of the raw fish tax to assist the industry in addressing the salmon crisis. These options are in addition to those described in the quality assurance sections of this report.

2.2.1 Credits for Value-Added Processing

In nearly all instances, Alaska currently produces a primary processed product. The salmon product is then secondarily processed elsewhere into a "value-added" form. The final product normally has substantially greater value than the primary product form produced in Alaska.

The value-added processing industry is highly competitive. Cost efficiencies are difficult for Alaska processors to achieve due to transportation, logistics, the cost of production, and the absence of sufficient cold storage holding facilities. Nevertheless, the expansion of Alaska's salmon industry into secondary or value-added production would provide greater stability to the salmon industry as a whole. Employment opportunities would increase and become less seasonal. Processing facilities could allocate overhead to months other than those around the pulse salmon harvests. Harvesters could expect prices to stabilize over the long term as the industry develops new markets for more highly valued products.⁴¹

Credits for raw fish tax could be applied to companies that produce "value-added" or "secondary processed" salmon products. The amount of the tax credit would be based upon the extent to which a salmon is processed. For example, a 2% tax credit could be provided for fillet and block salmon products, while a 3% tax credit could be provided for finished products such as salmon nuggets, patties, entrees, smoked salmon (canned or otherwise), spreads or chowders. Because the raw fish tax is split evenly between the state and municipalities, landing tax revenues could be used to make "whole" any lost tax revenue to municipalities.

⁴¹ See Value-Added Seafood Processing in Alaska: Practical Opportunities, SWAMC, by Pacific Associates, 1992.

2.2.2 Raw Fish Tax Reduction for Salmon Harvesting Vessels

The state raw fish tax law requires floating processors to pay a 5% tax on the ex-vessel value of the product they purchase. This includes salmon trollers and/or other salmon harvesting vessels that produce frozen-at-sea or other processed products (i.e., headed and gutted) which they market and distribute themselves.

DCED proposes that the state raw fish tax be modified to assess a tax of 3% for salmon harvesting vessels less than 58 feet in length that process their product on board. The 3% tax rate is the same levied on the shoreside processing plants that produce fresh/frozen salmon. An incentive for salmon harvesters to process their own fish would facilitate increased quality by reducing handling time until the product is processed and frozen. It would also provide harvesters incentives to expand into niche markets which may be inaccessible or too small for large companies.

The DCED proposal would apply to salmon harvesting vessels that process their own harvest on board their own vessel and to salmon harvesters who hire a floating processors to custom process their harvest. Two other alternatives also exist: applying the tax modification only to salmon harvesting vessels that process their own harvest on board their own vessel, and status quo.

Information on the amount of salmon that is currently processed on board salmon harvesting vessels is not available, although it likely constitutes a negligible amount of the harvest at present. Due to the lack of information, it is difficult to estimate the total impact to the state, or the savings to the salmon harvesters, if this proposal is implemented. Table 6 attempts to estimate the savings to salmon harvesters who utilize the program. The table evaluates the savings generated if 1 million, 5 million, 10 million, and 20 million pounds of product are or will be processed by salmon harvesting vessels. The results show that the proposed raw fish tax decrease would result in savings to harvesters between \$10,000 (if 1 million pounds are processed at an ex-vessel value of \$0.50 per pound) and \$600,000 (if 20 million pounds are processed at an ex-vessel value of \$1.50 per pound).

Anecdotal information indicates that most current at-sea salmon catcher/processor activity occurs on troll vessels which freeze their harvest, and on drift gillnet vessels that head and gut their harvest and directly market their product. The average, ex-vessel values in 1992 for the troll fleet and the Southeast drift gillnet fleet for all species were \$1.28 and \$0.76 respectively; the weighted average value of the two was \$0.95 (see Table 7). If we assume that the weighted average is representative of the ex-vessel value of salmon, then the range of probable raw fish tax saving to these components of the salmon harvesting sector would be \$19,000 (if 1 million pounds are processed) to \$380,000 per year (if 20 million pounds are processed).

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The increased value represented by at-sea processed salmon by salmon harvesters is unknown; however, if we assume that the value is 10% greater than the average ex-vessel value, then the gross increased value to salmon harvester who utilize the program ranges from \$95,000 to \$1.9 million.⁴² Similarly, if the increase in value is 20%, then the gross increased value to the harvesting sector is doubled, or tripled if the ex-vessel value increases by 30%.

The total gross economic benefit, including increased value and tax reductions to salmon harvesters who participate, would range from \$115,000 to \$2.3 million.

The savings to the salmon harvesters through this program will produce costs to the state since less raw fish tax revenue will be generated; however, an increase in ex-vessel value would also serve to increase the amount of raw fish tax revenue to the state as compared to the status quo with no change in the tax rate. After accounting for the possible increases in ex-vessel value for the affected harvests, and after comparing the raw fish tax generated at 3% to what would have been generated at 5%, the loss in tax revenue to the state would range from \$10,500 to \$322,000, depending upon the amount of the harvest processed and the amount of increase in the ex-vessel value. (See Table 8.)

This proposal also represents a potential loss to processors who otherwise would have purchased and processed the salmon. The amount of the potential loss depends upon the species and volumes that are processed on board the salmon harvester/processor.

The promotion of increased quality production on board salmon harvesting vessels, coupled with the development or expansion of new market niches, would be beneficial to individual or collective groups of salmon harvesters who wish to deal directly with consumers, wholesalers, and retailers. Modification of the raw fish tax fees as proposed by DCED should encourage expansion of these efforts.

2.3 Vessel Refrigeration Program

This program was designed by DCED to provide vessel owners financing options for investment in refrigeration systems or other similar upgrades (including hold insulation and freezing capacity) that will enhance quality. A 1992 ASMI study estimated that the portion of the salmon harvesting fleet that operates non-refrigerated vessels varies considerably by region and gear type. For *drift gillnet vessels*, the estimates ranged from a low of 6% in Southeast to a high of 92% in Bristol Bay, while the statewide average for those who do not refrigerate was 70%. For *seine vessels*, the estimates ranged from a low of 4% in Prince William Sound to a high of 75% in Cook Inlet and 80% in Chignik, while the statewide average was 33%.

⁴²Calculated as follows: Average price of \$0.95 times 1.10 (to reflect 10% increase in value) times 1 million pounds, minus the average price of \$0.95 per pound times 1 million pounds. The same formula applied to 5 million pounds, 10 million pounds, and 20 million pounds provides the range.

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Table 6: Savings to Salmon Harvesters Resulting from Raw Fish Tax Decrease to 3% for On-Board Processing of Their Harvest (in dollars)

Assume \$0.50 Avg. Ex-Vessel Value	Pounds Harvested Under Program			
	1 million	5 million	10 million	20 million
5% Current Raw Fish Tax	\$ 25,000	\$ 125,000	\$ 250,000	\$ 500,000
3% Proposed Raw Fish Tax	15,000	75,000	150,000	300,000
Difference	\$ 10,000	\$ 50,000	\$ 100,000	\$ 200,000

Assume \$0.75 Avg. Ex-Vessel Value	Pounds Harvested Under Program			
	1 million	5 million	10 million	20 million
5% Current Raw Fish Tax	\$ 37,500	\$ 187,500	\$ 375,000	\$ 750,000
3% Proposed Raw Fish Tax	22,500	112,500	225,000	450,000
Difference	\$ 15,000	\$ 75,000	\$ 150,000	\$ 300,000

Assume \$1.00 Avg. Ex-Vessel Value	Pounds Harvested Under Program			
	1 million	5 million	10 million	20 million
5% Current Raw Fish Tax	\$ 50,000	\$ 250,000	\$ 500,000	\$ 1,000,000
3% Proposed Raw Fish Tax	30,000	150,000	300,000	600,000
Difference	\$ 20,000	\$ 100,000	\$ 200,000	\$ 400,000

Assume \$1.25 Avg. Ex-Vessel Value	Pounds Harvested Under Program			
	1 million	5 million	10 million	20 million
5% Current Raw Fish Tax	\$ 62,500	\$ 312,500	\$ 625,000	\$ 1,250,000
3% Proposed Raw Fish Tax	37,500	187,500	375,000	750,000
Difference	\$ 25,000	\$ 125,000	\$ 250,000	\$ 500,000

Assume \$1.50 Avg. Ex-Vessel Value	Pounds Harvested Under Program			
	1 million	5 million	10 million	20 million
5% Current Raw Fish Tax	\$ 75,000	\$ 375,000	\$ 750,000	\$ 1,500,000
3% Proposed Raw Fish Tax	45,000	225,000	450,000	900,000
Difference	\$ 30,000	\$ 150,000	\$ 300,000	\$ 600,000

Table 6 estimates the savings to salmon harvesters who utilize the program by evaluating the savings generated if 1 million, 5 million, 10 million, and 20 million pounds of product are or will be processed by salmon harvesting vessels. The results show that the proposed raw fish tax decrease would result in savings to harvesters between \$10,000 (if 1 million pounds are processed at an ex-vessel value of \$0.50 per pound) to \$600,000 (if 20 million pounds are processed at an ex-vessel value of \$1.50 per pound).

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Table 7: 1992 Southeast Drift Gillnet and Troll Harvest, Value, and Weighted Value (by species in pounds and dollars)

SE Gillnet	King	Coho	Sockeye	Chum	Pink	Total
Pounds	216,000	9,004,000	8,236,000	8,308,000	7,566,000	33,330,000
Value/Pound	\$ 0.94	\$ 0.85	\$ 1.55	\$ 0.40	0.17	0.76
Gross Value	\$ 203,040	\$ 7,653,400	\$ 12,765,800	\$ 3,323,200	\$ 1,286,220	\$ 25,231,660

SE Trollers	King	Coho	Sockeye	Chum	Pink	Total
Pounds	2,899,000	13,585,000	114,000	548,000	1,906,000	19,052,000
Value/Pound	\$ 2.28	\$ 1.24	\$ 1.52	\$ 0.51	\$ 0.25	\$ 1.28
Gross Value	\$ 6,609,720	\$ 16,845,400	\$ 173,280	\$ 279,480	\$ 476,500	\$ 24,384,380

Weighted Value	\$ 2.19	\$ 1.08	\$ 1.55	\$ 0.41	\$ 0.19	\$ 0.95
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Source: ISER Files; CFEC

Anecdotal information indicates that most current at-sea salmon catcher/processor activity occurs on troll vessels which freeze their harvest, and on drift gillnet vessels that head and gut their harvest and directly market their product. The average, ex-vessel values in 1992 for the troll fleet and the Southeast drift gillnet fleet for all species were \$1.28 and \$0.76 respectively; the weighted average value of the two was \$0.95. If we assume that the weighted average is representative of the ex-vessel value of salmon, then the range of probable raw fish tax saving to these components of the salmon harvesting sector would be \$19,000 (if 1 million pounds are harvested under the program) to \$380,000 (if 20 million pounds are harvested) per year, depending upon the poundage processed under the program.

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Table 8 Difference Between 5% and 3% Tax Rates for Salmon Harvesting/Processing Vessels at Various Harvest Levels (in dollars)

Tax Rate at 5%	Pounds Harvested			
	1 Million	5 Million	10 Million	20 Million
At \$0.95 Per Pound	\$ 47,360	\$ 236,799	\$ 473,598	\$ 947,196
Tax Rate at 3%	1 million	5 million	10 million	20 million
At 10% Ex-Vessel Price Increase	\$ 31,257	\$ 156,287	\$ 312,575	\$ 625,150
At 20% Ex-Vessel Price Increase	\$ 34,099	\$ 170,495	\$ 340,991	\$ 681,981
At 30% Ex-Vessel Price Increase	\$ 36,941	\$ 184,703	\$ 369,407	\$ 738,813
Difference (savings) from 5%	1 million	5 million	10 million	20 million
At 10% Ex-Vessel Price Increase	- \$ 16,102	- \$ 80,512	- \$ 161,023	- \$ 322,047
At 20% Ex-Vessel Price Increase	- \$ 13,261	- \$ 66,304	- \$ 132,607	- \$ 265,215
At 30% Ex-Vessel Price Increase	- \$ 10,419	- \$ 52,096	- \$ 104,192	- \$ 208,383

The savings to the salmon harvesters through this program will produce costs to the state since less raw fish tax revenue will be generated; however, an increase in ex-vessel value would also serve to increase the amount of raw fish tax revenue to the state as compared to the status quo with no change in the tax rate and no change in ex-vessel values. After accounting for the possible increases in ex-vessel value for the affected harvests, and after comparing the raw fish tax generated at 3% to what would have been generated at 5%, the loss in tax revenue to the state would range from \$10,500 to \$322,000, depending upon the amount of the harvest processed and the amount of increase in the ex-vessel value.

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Chilling, with either ice or refrigeration, is important to quality assurance. According to a survey of companies that produce and install refrigeration equipment on fishing vessels, the average cost would range between \$3,000 per vessel to \$50,000 per vessel, depending upon the size and type of the vessel.

In many areas of the state, some processing companies pay a premium price for refrigerated fish. In Bristol Bay, for instance, an additional 7¢ to 8¢ per pound is offered by some companies for fish delivered with a core temperature that does not exceed 34 degrees.

Using Bristol Bay as an example, and assuming a \$20,000 investment is necessary to purchase and install refrigeration capability on a Bristol Bay gillnet vessel, the investment could be amortized once 286,000 pounds of product have been landed by the vessel (if the vessel receives 7¢ per pound above the base price). Since the average Bristol Bay gillnet vessel landed 73,000 pounds of fish during 1991, and assuming that average remains constant (in fact, it has increased), the investment could be amortized in 4.5 years (including interest, but excluding depreciation). If 10% of the Bristol Bay gillnet fleet (187 vessels out of 1,873 permits that are fished) were to install refrigeration equipment and each vessel harvested the average 73,000 pounds per annum and received an extra 7¢ per pound for refrigerated product, a total of \$920,000 in ex-vessel payments would be generated annually under the program.

Despite the relatively short time span, the 4.5 years required to amortize the refrigeration investment may not attract the average Bristol Bay harvester given the substantial decrease in ex-vessel earnings and the other operating obligations of the harvester, and the same is likely to be true in other regions of Alaska. To provide further encouragement to harvesters, the state should consider offering vessel owners financing options, such as a modification of the DCED revolving loan program which would extend eligibility to all state vessel owners unable to secure commercial bank loans for financing of refrigeration systems.

The ability to successfully operate a refrigerated sea water system (RSW) varies by region due to the salinity and sediment conditions of the water. In some areas, notably Bristol Bay, these conditions may make it difficult to operate under RSW conditions on a continuing basis. There are, however, other chilling systems available, including ice, circulated sea water, spray systems, etc., that may meet the refrigeration needs of a region.

2.4 Seafood Product Development Endowment

This proposal would create an endowment whose interest would fund the development of new Alaska seafood products. The endowment would fund coordinated efforts by the Alaska Fisheries Development Foundation, the Fisheries Industrial Technology Center, the Alaska Seafood Marketing Institute, the Marine Advisory Program and other

Legislative Options to Address Alaska's Salmon Crisis

appropriate state agencies in conducting consumer, food science and processing technology research needed to develop new and more cost-effective product options. This basic research is too expensive for most seafood companies to pursue independently. Without this needed research, the Alaska seafood industry will continue to process fish as it has in the past and its ability to compete effectively in the world market place will continue to diminish.

2.5 Mechanical Pin Bone Removal Program

The development of an efficient, mechanical method of pin bone removal is an essential component to producing competitively priced, value-added salmon products. Effectively removing the pin bone is important to the value-added production of all Alaska salmon species, although the biggest impact would be on pink salmon. Pink salmon has the lowest value of all salmon, yet it comprises the bulk of the total statewide salmon harvest. Given the size of the harvest and the value of the fish⁴³, it is of great importance to develop alternate product forms for pink salmon.

The greatest development effort has been on deepskin/boneless fillets (a boneless/skinless product) for the fast food market. The fast food or convenience market is extremely price sensitive: products competing in this market must have high quality and be competitively priced. Deepskin/boneless fillets are a natural for this market.

The major problem with developing the deepskin/boneless pink salmon fillet is removal of the pin bone.⁴⁴ Current fillet mechanical technology is insufficient to remove the pin bone; as a result the bone is left in (which is unacceptable to the market), or the pin bone is manually removed. Manual removal is a very labor intensive, costly procedure. It also results in a decreased recovery rate of about 6%. Both the increased cost of labor and the decreased recovery rate add to the cost of the product.

Table 9 compares the costs and projected returns associated with the production of one pound of pink salmon into canned pink salmon, frozen headed and gutted pink salmon, and deepskin/boneless pink salmon fillets. Three scenarios utilizing differing recovery rates for the deepskin/boneless product are applied, each allocating a progressively greater recovery rate for boneless/skinless production.

The computations show that the production of deepskin/boneless fillets is not cost competitive against canned salmon given current prices, until a recovery rate of at least 26% for the primary fillet product is achieved. At a recovery rate of 33% for the primary fillet product, the margin remaining to the processor after accounting for production costs is approximately \$0.44 per pound. This is significantly higher than the margin remaining for canned pink salmon of \$0.13 per pound.

⁴³Pink salmon prices have virtually collapsed during the past several years from approximately \$0.80 per pound in 1988 to \$0.15 per pound or less in 1993.

⁴⁴Pink Salmon Product Development. DCED, May, 1993.

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Table 10 is a reproduction of Table 9, except that the labor cost for deepskin/boneless production has been cut in half. This table demonstrates the impact upon costs if a fillet machine is developed that can remove the pin bone and increase the yield. Under these scenarios, the margin per pound remaining after production costs increases by the same amount as the reduction in labor costs and results in a high end margin of \$0.69 per pound.

If labor costs are reduced with a mechanical pin bone removal device, margins would increase even at lower recovery rates. This would allow pink and chum value-added salmon products to more effectively meet price points currently set by poultry and whitefish in the frozen convenience-style product market place.

Although the estimated net operating return resulting from the new equipment would not necessarily generate increased ex-vessel values to harvesters, it is reasonable to assume that harvesters would see increased price stability, if not an increase in the price itself, as a result of expanded markets and greater demand for the product.

If 10% of the 1994 projected Southeast pink salmon harvest (164.5 million pounds projected) were processed into deepskin/boneless fillets at a recovery rate of 33%, the margin remaining after the deduction of production costs would be \$7.2 million.⁴⁵ This is \$5.1 million greater than the \$2.1 million in value for an equivalent amount of pink salmon produced into a canned product. If the labor costs associated with this production were reduced from \$0.50 per hour to \$0.25 per hour, the value of the production would be \$11.4 million, or \$9.2 million greater in value than an equivalent amount of pink salmon produced into a canned product.

Even if a primary recovery rate of only 26% is achievable, the cost of production for deepskin/boneless fillets is comparable to that of canned salmon. Given the untapped market demand for convenience foods, it seems likely that competitively priced pink fillets could develop a very large and expandable market.

Many companies are making an effort to develop a fillet machine that can remove the pin bone from a pink salmon. Given the harvest volume of pink salmon in Alaska, and the economic benefits projected from the production of deepskin/boneless pink salmon fillets, the state should consider authorizing the Alaska Science & Technology Foundation (ASTF) to offer a \$250,000 reward to the first company that develops a machine capable of cost-effectively removing pin bones from at least 100 to 200 fillets per minute.

Without the appropriate equipment, the salmon industry is unable to cost-effectively produce the deepskin/boneless pink salmon products required by the food manufacturing

⁴⁵164.5 million pounds times 10%, times a recovery rate of 33%, times \$0.44 (see Table 9)

Legislative Options to Address Alaska's Salmon Crisis

industry to produce convenience-style frozen food products. The reward offered could include provisions that would give Alaskan processors preferred use of the machine before it is available for use elsewhere or some other benefit. If a qualifying machine is not developed during the period the reward is available, no cost will have been incurred. Conversely, if the reward serves to increase the time period in which a machine is developed, the state's investment will substantially increase the marketability of Alaskan salmon and allow the industry to more rapidly enter the field of value-added production.

2.6 Seafood Industry Regulatory Task Force

In order to compete effectively in the world market place, producers of Alaska seafood need to reduce their costs of production. One of the factors that has increasingly affected the cost of production to Alaskan salmon producers are the costs incurred by regulatory compliance. While most regulations are necessary and appropriate, many in the industry believe that some state and federal agencies have developed regulations that are extremely costly yet do not accomplish their intended goals that affect the wholesomeness of fish, worker health and safety, and environmental standards.

The Seafood Industry Task Force organized by the Department of Environmental Conservation is comprised of representatives of more than a dozen processing companies. This group should be expanded to include representative from appropriate state agencies. The Task Force should be assigned by the legislature to identify ineffective, costly, conflicting or other regulations that impede the ability of the Alaska seafood industry to compete effectively in the market place. Recommendations for action would be made to the Governor.

2.7 Royalty Fish Tax Credit

Should the royalty fish tax program proposed by the Office of Management & Budget be approved, a tax on the ex-vessel value of the harvest will be assessed to the harvesters. Under this proposal, harvesters who add refrigeration capability to their vessels would receive a royalty tax credit equal to the cost of making that improvement to their vessel. As discussed in Section 2.3, this would amount to between \$3,000 and \$50,000 per vessel. All vessels wanting to upgrade would be eligible, regardless of whether or not they are participating in a quality assurance program.

Table 9: Comparison of Margins Remaining After Deduction of Processing Costs for Canned Pink Salmon, Headed & Gutted Frozen Pink Salmon, and Boneless/Skinless Pink Salmon Fillets at Varying Recovery Rates

Production Costs and Assumptions:	H&G		Boneless/Skinless			
	Canned	Frozen				
Ex-Vessel Price (per round lb)	0.15	0.15	0.15	0.15	0.15	0.15
Raw fish tax	\$0.007	\$0.005	\$0.005	\$0.005	\$0.005	\$0.005
Tender cost/lb	0.15	0.15	0.15	0.15	0.15	0.15
Assumed recovery rate for primary	65%	74%	18%	20%	26%	33%
Assumed recovery rate for secondary	0%	0%	4%	7%	10%	6%
Raw material cost (per processed lb)	\$0.47	\$0.41	\$1.68	\$1.50	\$1.14	\$0.90
Labor and packaging costs	\$0.42	\$0.46	\$0.50	\$0.50	\$0.50	\$0.50
Other variable costs	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20
Total production cost	\$1.09	\$1.07	\$2.38	\$2.20	\$1.84	\$1.60
Wholesale Values:						
Wholesale price primary	\$1.14	\$0.76	\$2.25	\$2.25	\$2.25	\$2.25
Wholesale price secondary	\$0.00	\$0.00	\$0.85	\$0.85	\$0.85	\$0.85
Margin Per Pound After Deducting Production Costs						
	\$0.13	-\$0.24	-\$0.20	-\$0.05	\$0.25	\$0.44

The computations show that the production of deepskin/boneless fillets is not cost competitive against canned salmon given current prices, until a recovery rate of at least 26% for the primary fillet product is achieved. At a recovery rate of 33% for the primary fillet product, the margin remaining to the processor after accounting for production costs is approximately \$0.44 per pound. This is significantly higher than the margin remaining for canned pink salmon of \$0.13 per pound.

If 10% of the 1994 projected Southeast pink salmon harvest (164.5 million pounds projected) were processed into deepskin/boneless fillets at a recovery rate of 33%, the margin remaining after the deduction of production costs would be \$7.2 million.⁴⁶ This is \$5.1 million greater than the \$2.1 million in value for an equivalent amount of pink salmon produced into a canned product. If the labor costs associated with this production were reduced from \$0.50 per hour to \$0.25 per hour, the value of the production would be \$11.4 million, or \$9.2 million greater in value than an equivalent amount of pink salmon produced into a canned product.

⁴⁶164.5 million pounds times 10%, times a recovery rate of 33%, times \$0.44 (see Table 9)

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Table 10: Comparison of Margins Remaining After Deduction of Processing Costs for Canned Pink Salmon, Headed & Gutted Frozen Pink Salmon, and Boneless/Skinless Pink Salmon Fillets at Varying Recovery Rates and a Reduced Labor Rate

	H&G		Boneless/Skinless			
	Canned	Frozen				
Production Costs and Assumptions:						
Ex-Vessel Price (per round lb)	0.15	0.15	0.15	0.15	0.15	0.15
Raw fish tax	\$0.007	\$0.005	\$0.005	\$0.005	\$0.005	\$0.005
Tender cost/lb	0.10	0.10	0.10	0.10	0.10	0.10
Assumed recovery rate for primary	65%	74%	18%	20%	26%	33%
Assumed recovery rate for secondary	0%	0%	4%	7%	10%	6%
Raw material cost (per processed lb)	\$0.40	\$0.34	\$1.40	\$1.25	\$0.95	\$0.76
Labor and packaging costs	\$0.42	\$0.46	\$0.25	\$0.25	\$0.25	\$0.25
Other variable costs	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20
Total production cost	\$1.02	\$1.00	\$1.85	\$1.70	\$1.40	\$1.21
Wholesale Values:						
Wholesale price primary	\$1.14	\$0.76	\$2.25	\$2.25	\$2.25	\$2.25
Wholesale price secondary	\$0.00	\$0.00	\$0.85	\$0.85	\$0.85	\$0.85
Margin Per Pound After						
Deducting Production Costs	\$0.13	(\$0.24)	\$0.05	\$0.20	\$0.50	\$0.69

Table 10 is a reproduction of Table 9, except that the labor cost for deepskin/boneless production has been cut in half. This table demonstrates the impact upon costs if a fillet machine is developed that can remove the pin bone and increase the yield. Under these scenarios, the margin per pound remaining after production costs increases by the same amount as the reduction in labor costs and results in a high end margin of \$0.69 per pound.

If labor costs are reduced with a mechanical pin bone removal device, margins would increase even at lower recovery rates. This would allow pink and chum value-added salmon products to more effectively meet price points currently set by poultry and whitefish in the frozen convenience-style product market place.

APPENDIX 1

Appendix 1

Alaska Department of Commerce and Economic Development

PROPOSED Premium Quality Assurance Program for Alaskan Wild Salmon

The quality of Alaskan Salmon is often very high. However, without an improvement in the consistency of quality, Alaskan salmon is ill-suited to compete with farmed salmon in traditional markets and unable to meet the consistency standards required for long shelf as convenience-style food products. This Premium Quality Assurance Program is designed to enable Alaska wild salmon to expand into new markets and maintain its current market share despite increased production of farmed salmon.

The keys to producing a premium quality product are to reduce time and temperature abuse, and to provide an environment where salmon are handled with care from the time of capture through the production process until it reaches the wholesale and retail market.

The purpose of this Premium Quality Assurance Program is to guide the harvester and processor through a system of time and temperature monitoring designed to reduce product variability. By minimizing the accumulated affects of handling and temperature abuse, the customer will be guaranteed a consistently high quality Alaska salmon product.

This program is designed to be feasible for all salmon fisheries in the State of Alaska.; however, it is not expected that all salmon harvested annually will be able to meet this criteria. This program is also designed to be as cost-effective and non-intrusive as possible without compromising the goal of consistent high quality.

Criteria for Participation

All vessels participating in the program must be inspected prior to participation. They will be required to meet standards that ensure the proper cooling and handling of the fish, including hold construction, totes, brailer, and pumps.

All processing facilities participating in the program must meet Alaska Department of Environmental Conservation (ADEC) guidelines. They will be required to meet standards that insure the proper cooling and handling of fish, including adequate freezing and storage facilities, totes, brailers and pumps.

Appendix 1, Premium Quality Assurance Program

All harvesters and processing workers must attend a training session on the care and handling of salmon.

Salmon that meet the handling and grade requirements of this program would receive a State of Alaska premium grade seal for #1 grade. Fish of standard or utility grade that meet the handling requirements would receive a State of Alaska quality assurance seal that would be used to further differentiate the products in the market place.

Alaska Salmon Quality Program

- Fish must be chilled immediately after catching. They must be iced or refrigerated within two hours of capture.
- Net caught fish must be processed within 72 hours of capture and within 24 hours of delivery to the processing plant.
- Bled and dressed troll-caught fish must be processed within 6 days of capture and with 24 hours following each delivery.
- Fishing vessel and tender holds, fish holding tanks, totes, etc. must be cleaned and sanitized following each delivery or use.
- Only wet pumps can be used for unloading and must have at least 10 inch diameter hose.
- Brailers must be made of knotless, fine mesh web and must not be loaded in excess of 800 lbs.
- Core temperatures must be taken at delivery to a tender and processing plant.

Vessel Handling Guidelines

<u>Delivery Schedules</u>	<u>Maximum Until Delivery</u>
Well-insulated hold using RSW, CSW, or ice	24 hours
Medium-insulated hold using RSW, CSW, or ice	18 hours
Poorly insulated hold using RSW, CSW, or ice	12 hours
Uninsulated hold using RSW, CSW, or ice	6 hours
Hold with no refrigeration	2 hours
<i>Seinet sites using CSW or ice</i>	<i>6 hours</i>

Processing Plant Guidelines

Physical Plant and Equipment Standards

- Fish awaiting processing shall be held in ice or in RSW/CSW systems capable of holding core temperatures between 29 and 35 degrees F.

Production Quality Controls

- Core temperatures shall be taken at the dock and immediately before, after processing and packaging or freezing.
- Fish that demonstrate signs of bruising, contusions, broken backbones, scars, water marks, belly-burn or flesh does not rebound to touch shall be sorted from fish processed as premium grade quality.
- Fish temperature should not rise more than 10 degrees F during processing and holding for packaging or freezing.
- Fish shall be eviscerated as soon as possible, and frozen within 72 hours from capture or 24 hours from delivery to the dock. Bled and dressed troll-caught fish must be otherwise processed within 6 days.
- Kidneys shall be scraped out carefully without puncturing the cavity lining.
- Fish shall be graded before freezing using ASMI Premium Quality Grading Criteria. ASMI's Premium Quality Sampling Program will be used to verify premium grade lots.
- Information collected in the Premium Quality Program monitoring forms will be passed along with each lot of fish. The processor will retain a copy of the complete set of monitor logs or demonstrate in some other way that the fish receiving the seal have been handled as specified.

Frozen Product Standards

- Fish shall be frozen to a core temperature of -5 degrees F within 5 hours freezer time.

Appendix 1, Premium Quality Assurance Program

- Fish shall be vacuum packed or glazed in a polybag inside a master carton.
- Refrigerated freezer containers or fish held in cold storage must be maintained at a temperature of -10 F or colder.

Fresh Fish Standards

- Net caught fish shall be shipped to fresh markets within 72 hours of capture.
- Bled and dressed troll-caught fish shall be shipped to fresh markets within 6 days of capture.
- Shipping cartons shall be date stamped with potential remaining shelf life of fish held at 32 degrees F, noted on label.
- Fish temperatures shall not exceed 35 degrees F at time fish are packed for shipping.
- Fish must be shipped so that the core temperature at delivery does not rise above 45 degrees F.
- Six jell packs per 100 lbs. of fish should be used.

APPENDIX 2

Combined Statewide Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	212,052,796	230,468,060	270,580,822	218,769,105
Seine	229,954,636	305,786,030	298,726,691	394,220,649
Set Gillnet	63,932,061	82,048,501	61,054,633	58,766,516
Troll	9,883,993	20,013,709	19,883,120	16,844,496
Fishwheel	1,132,168	1,322,789	818,475	761,708
Total	516,955,654	639,639,089	651,063,741	689,362,474
percent change (88-91)		24%	26%	33%
percent change (89-91)			2%	8%
percent change (90-91)				6%

Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	310,671,862	233,387,549	261,265,852	142,253,924
Seine	249,198,374	154,786,501	164,657,212	98,874,257
Set Gillnet	118,813,141	115,512,778	70,525,729	43,340,198
Troll	29,738,131	23,399,328	31,063,165	25,084,274
Fishwheel	1,299,539	1,261,813	514,459	630,803
Total	709,721,047	528,347,969	528,026,417	310,183,456
percent change (88-91)		-26%	-26%	-56%
percent change (89-91)			0%	-41%
percent change (90-91)				-41%

Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	1.47	1.01	0.97	0.65
Seine	1.08	0.51	0.55	0.25
Set Gillnet	1.86	1.41	1.16	0.74
Troll	3.01	1.17	1.56	1.49
Fishwheel	1.15	0.95	0.63	0.83
Statewide Average	1.37	0.83	0.81	0.45
percent change (88-91)		-40%	-41%	-67%
percent change (89-91)			-2%	-46%
percent change (90-91)				-45%

Statewide Pink Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	12,989,926	14,539,908	13,940,155	4,044,180
Seine	140,060,846	255,994,354	217,115,460	307,496,295
Set Gillnet	12,775,188	2,646,912	4,942,753	5,299,668
Troll	1,525,916	5,475,612	2,174,330	1,047,474
Fishwheel	0	0	0	0
Total	167,351,876	278,656,786	238,172,698	317,887,617
percent change (88-91)		67%	42%	90%
percent change (89-91)			-15%	14%
percent change (90-91)				33%
Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	2,289,450	5,005,071	1,544,840	507,367
Seine	112,725,401	105,096,483	70,753,104	43,795,035
Set Gillnet	9,331,940	924,683	1,585,905	731,364
Troll	1,506,152	2,594,136	911,109	259,741
Fishwheel	0	0	0	0
Total	125,852,943	113,620,373	74,794,958	45,293,507
percent change (88-91)		-10%	-41%	-64%
percent change (89-91)			-34%	-60%
percent change (90-91)				-39%
Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	0.18	0.34	0.11	0.13
Seine	0.80	0.41	0.33	0.14
Set Gillnet	0.73	0.35	0.32	0.14
Troll	0.99	0.47	0.42	0.25
Fishwheel	0.00	0.00	0.00	0.00
Statewide Average	0.75	0.41	0.31	0.14
percent change (88-91)		-46%	-58%	-81%
percent change (89-91)			-23%	-65%
percent change (90-91)				-55%

Statewide Sockeye Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	123,080,884	166,729,775	209,015,589	164,099,972
Seine	26,709,963	22,962,313	48,807,888	46,761,664
Set Gillnet	38,114,869	69,941,649	47,316,653	43,847,357
Troll	50,299	108,454	52,066	49,876
Fishwheel	0	0	0	0
Total	187,956,015	259,742,191	305,192,196	254,758,869
percent change (88-91)		38%	62%	36%
percent change (89-91)			17%	-2%
percent change (90-91)				-17%

Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	280,358,924	223,196,192	253,221,906	134,809,151
Seine	69,252,647	36,463,066	75,794,502	41,273,265
Set Gillnet	91,970,120	108,606,766	62,790,415	37,923,217
Troll	174,818	210,488	100,241	75,637
Fishwheel	0	0	0	0
Total	441,756,509	368,476,512	391,907,064	214,081,270
percent change (88-91)		-17%	-11%	-52%
percent change (89-91)			6%	-42%
percent change (90-91)				-45%

Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	2.28	1.34	1.21	0.82
Seine	2.59	1.59	1.55	0.88
Set Gillnet	2.41	1.55	1.33	0.86
Troll	3.48	1.94	1.93	1.52
Fishwheel	0.00	0.00	0.00	0.00
Statewide Average	2.35	1.42	1.28	0.84
percent change (88-91)		-40%	-45%	-64%
percent change (89-91)			-9%	-41%
percent change (90-91)				-35%

Statewide Chinook Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	4,904,043	4,734,036	4,539,025	4,360,702
Seine	809,644	483,764	747,684	648,794
Set Gillnet	1,160,768	987,086	651,463	557,683
Troll	3,774,624	4,533,827	4,884,947	4,526,867
Fishwheel	50,698	85,325	99,390	80,242
Total	10,699,777	10,824,038	10,922,509	10,174,288
percent change (88-91)		1%	2%	-5%
percent change (89-91)			1%	-6%
percent change (90-91)				-7%
Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	11,021,361	151,460	211,119	313,865
Seine	1,586,450	508,039	796,824	480,788
Set Gillnet	1,765,593	1,185,313	718,800	552,560
Troll	14,798,087	9,671,914	11,524,173	10,844,520
Fishwheel	48,974	69,113	71,263	51,114
Total	29,220,465	11,585,839	13,322,179	12,242,847
percent change (88-91)		-60%	-54%	-58%
percent change (89-91)			15%	6%
percent change (90-91)				-8%
Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	2.25	0.03	0.05	0.07
Seine	1.96	1.05	1.07	0.74
Set Gillnet	1.52	1.20	1.10	0.99
Troll	3.92	2.13	2.36	2.40
Fishwheel	0.97	0.81	0.72	0.64
Statewide Average	2.73	1.07	1.22	1.20
percent change (88-91)		-61%	-55%	-56%
percent change (89-91)			14%	12%
percent change (90-91)				-1%

Statewide Coho Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	15,458,731	12,075,677	13,636,186	17,499,589
Seine	9,468,724	5,496,174	7,784,120	7,216,768
Set Gillnet	6,316,372	5,567,596	4,761,902	4,831,851
Troll	3,828,553	9,131,874	12,151,333	10,939,717
Fishwheel	81,561	89,750	69,128	33,537
Total	35,153,941	32,361,071	38,402,669	40,521,462
percent change (88-91)		-8%	9%	15%
percent change (89-91)			19%	25%
percent change (90-91)				6%

Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	3,745,387	1,573,423	2,854,157	4,145,616
Seine	13,230,884	3,818,392	5,883,267	3,932,510
Set Gillnet	10,690,186	3,865,889	3,758,641	2,833,801
Troll	12,021,148	10,478,164	18,145,247	13,750,145
Fishwheel	39,639	31,682	18,941	9,189
Total	39,727,244	19,767,550	30,660,253	24,671,261
percent change (88-91)		-50%	-23%	-38%
percent change (89-91)			55%	25%
percent change (90-91)				-20%

Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	0.24	0.13	0.21	0.24
Seine	1.40	0.69	0.76	0.54
Set Gillnet	1.69	0.69	0.79	0.59
Troll	3.14	1.15	1.49	1.26
Fishwheel	0.49	0.35	0.27	0.27
Statewide Average	1.13	0.61	0.80	0.61
percent change (88-91)		-46%	-29%	-46%
percent change (89-91)			31%	0%
percent change (90-91)				-24%

Statewide Chum Salmon Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	55,567,122	32,330,787	29,419,616	28,732,376
Seine	52,905,459	20,849,425	24,271,539	32,097,128
Set Gillnet	5,564,864	2,905,258	3,381,862	4,229,957
Troll	617,132	512,296	491,752	179,693
Fishwheel	787,646	895,594	552,565	508,289
Total	115,442,223	57,493,360	58,117,334	65,747,443
percent change (88-91)		-50%	-50%	-43%
percent change (89-91)			1%	14%
percent change (90-91)				13%
Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	13,068,879	3,213,571	3,295,377	2,358,468
Seine	52,402,992	8,900,521	11,429,515	9,392,659
Set Gillnet	5,055,302	930,127	1,671,968	1,299,256
Troll	1,193,271	327,705	318,898	107,116
Fishwheel	289,067	0	0	0
Total	72,009,511	13,371,924	16,715,758	13,157,499
percent change (88-91)		-81%	-77%	-82%
percent change (89-91)			25%	-2%
percent change (90-91)				-21%
Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	0.24	0.10	0.11	0.08
Seine	0.99	0.43	0.47	0.29
Set Gillnet	0.91	0.32	0.49	0.31
Troll	1.93	0.64	0.65	0.60
Fishwheel	0.37	0.00	0.00	0.00
Statewide Average	0.62	0.23	0.29	0.20
percent change (88-91)		-63%	-54%	-68%
percent change (89-91)			24%	-14%
percent change (90-91)				-30%

Statewide Salmon Roe Harvest Volume and Value

Pounds Harvested	1988	1989	1990	1991
Drift Gillnet	52,090	57,877	30,251	32,286
Seine	0	0	0	0
Set Gillnet	0	0	0	0
Troll	87,469	251,646	128,692	100,869
Fishwheel	212,263	252,120	97,392	139,640
Total	351,822	561,643	256,335	272,795
percent change (88-91)		60%	-27%	-22%
percent change (89-91)			-54%	-51%
percent change (90-91)				6%
Ex-Vessel Value	1988	1989	1990	1991
Drift Gillnet	187,861	247,832	138,453	119,457
Seine	0	0	0	0
Set Gillnet	0	0	0	0
Troll	44,655	116,921	63,497	47,115
Fishwheel	921,859	1,161,018	424,255	570,500
Total	1,154,375	1,525,771	626,205	737,072
percent change (88-91)		32%	-46%	-36%
percent change (89-91)			-59%	-52%
percent change (90-91)				18%
Avg. Price Per Pound	1988	1989	1990	1991
Drift Gillnet	3.61	4.28	4.58	3.70
Seine	0.00	0.00	0.00	0.00
Set Gillnet	0.00	0.00	0.00	0.00
Troll	0.51	0.46	0.49	0.47
Fishwheel	4.34	4.61	4.36	4.09
Statewide Average	3.28	2.72	2.44	2.70
percent change (88-91)		-17%	-26%	-18%
percent change (89-91)			-10%	-1%
percent change (90-91)				11%

APPENDIX 3

Internal Revenue Service

Department of the Treasury

District
Director

P.O. Box 101500, Anchorage, Alaska 99510

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Bruce Twomley, Commissioner
State of Alaska
Commercial Fisheries Entry Commission
8800 Glacier Highway, #109
Juneau, AK 99801

Dear Mr. Twomley:

This letter is in response to your request of September 20, 1993, that the Internal Revenue Service provide your agency with data detailing the scope of tax delinquencies among limited entry permit (LEP) holders.

As you know from our ongoing discussions, a dilemma is posed for the Service by your request. We are actively pursuing ways to reduce the incidence to tax delinquencies through improvements to our own education and assistance efforts, and by encouraging involvement of interested third parties. For this reason we would like to meet your request for detailed information. The dilemma results from the extremely restrictive language and intent of IRC 6103 which prohibits disclosure of tax information without specific authorization. In fact, the Internal Revenue Code imposes criminal penalties for breaches of confidentiality.

We have reviewed the data and have determined that in most locales the incidence of tax delinquencies exceeds our disclosure threshold. That is, the specific data is of such magnitude that the confidentiality of individual taxpayers would be breached by disclosure. By definition the locales of the greatest magnitude are the ones in which we have the greatest common interest. Even taxpayers in full compliance could by unfortunate inference have their reputations tarnished.

What we can provide is summary data for both Alaska resident and non Alaska resident limited entry permit holders. In addition, we can list the regions of Alaska with the highest incidence of non filing and non payment problems.

Be assured that all regions share in the overall high volume of tax delinquencies. The IRS will continue to provide service to all Alaskans. We invite the ideas and assistance of all

ATTACHMENT A
(3 of 5)

Bruce Twombly

interested parties. We would welcome joint sponsorship of outreach activities, particularly in the seven regions identified. Please contact me at (907) 271-6353 to discuss our plan of action.

Sincerely,



Dave Tucker
Chief, Collection Division

Enclosure

ATTACHMENT A
(4 of 5)

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Summary of Tax Delinquencies Among LEP Holders

	IRS Non Filers (Actual)	IRS Balance Due* (Actual)	IRS Total (Actual)	LEP Holders 8,802	Percent 26	Amount Due \$13.7M (Actual)
Alaska Resident	1,173	1,111	2,284			
Non Alaska Resident	333 (Estimate)	315 (Estimate)	648 (Estimate)	2,504	26	\$3.9M (Estimate)
Total	1,506 (Estimate)	1,426 (Estimate)	2,932 (Estimate)	11,306	26	\$17.6M** (Estimate)

** Estimate Including Non-Filers = \$30M+

***Breakdown of Alaska Resident Balance Due Taxpayers by Amount Owed**

50-10,000	\$10,001-20,000	\$20,001-50,000	\$50,001-100,000	\$100,000+	Total	Balance Due
827	130	101	32	21	1111	\$13.7

Regions with the Greatest Incidence of Tax Delinquencies Among LEP Holders

Region	Greatest Problem(s)
Bethel	Non Filing/Non Payment
Bristol Bay and Dillingham	Non Filing/Non Payment
Haines Borough & Skagway-Yakutat-Angoon	Non Filing/Non Payment
Kenai Peninsula Borough	Non Payment
Kodiak Island Borough	Non Payment
Lake and Peninsula Borough	Non Payment
Wade Hampton	Non Filing

APPENDIX 4

**Impact of 1¢ Per Pound Increase in 1991 Ex-Vessel Prices
for Drift Gillnet Harvests (by species and region)**

Ex-Vessel Value Increase Per Fishery (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast	45,762	30,466	2,934	46,772	64,246	190,181
Prince William Sound	92,322	8,689	7,941	51,198	23,203	183,354
Cook Inlet	66,563	187	41	10,930	14,433	92,155
Peninsula	138,245	1,078	803	8,338	24,442	172,907
Bristol Bay	1,284,083	3	3,669	10,456	69,571	1,367,782
Upper Yukon	0	0	421	25	554	1,000
Kuskokwim	14,009	17	7,470	35,853	31,294	88,644
Kotzebue	0	0	7	0	19,464	19,471
Lower Yukon	0	0	19,245	6,730	34,145	60,121
Norton Sound	15	0	1,075	4,692	5,971	11,753
Total	1,641,000	40,442	43,607	174,996	287,324	2,187,368

Amount of Increased Value Per Permit Fished (# of permits)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast (466)	98	65	6	100	138	408
Prince William Sound (517)	179	17	15	99	45	355
Cook Inlet (578)	115	0	0	19	25	159
Peninsula (162)	853	7	5	51	151	1,067
Bristol Bay (1,873)	686	0	2	6	37	730
Upper Yukon (36)	0	0	12	1	15	28
Kuskokwim (814)	17	0	9	44	38	109
Kotzebue (137)	0	0	0	0	142	142
Lower Yukon (680)	0	0	28	10	50	88
Norton Sound (125)	0	0	9	38	48	94

Increase in Taxes and Assessments (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast	3,226	2,148	207	3,297	4,529	13,408
Prince William Sound	5,585	526	480	3,097	1,404	11,093
Cook Inlet	4,027	11	2	661	873	5,575
Peninsula	8,364	65	49	504	1,479	10,461
Bristol Bay	77,687	0	222	633	4,209	82,751
Upper Yukon	0	0	17	1	22	41
Kuskokwim	567	1	303	1,452	1,267	3,590
Kotzebue	0	0	0	0	788	789
Lower Yukon	0	0	779	273	1,383	2,435
Norton Sound	1	0	44	190	242	476
Total	99,458	2,751	2,103	10,109	16,197	130,618

NOTE: Assume an average raw fish tax rate of 3.5% applied to ex-vessel value.

**Impact of 1¢ Per Pound Increase in 1991 Ex-Vessel Prices
for Seine Harvests (by species and region)**

Ex-Vessel Value Increase Per Fishery (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast	59,656	1,580,343	2,328	27,090	162,217	1,831,634
Prince William Sound	1,135	676,265	17	1,093	2,680	681,190
Cook Inlet	11,644	19,033	38	446	1,706	32,867
Peninsula	71,200	320,236	858	13,574	78,008	483,877
Kodiak	194,628	441,355	2,546	18,153	59,273	715,955
Chignik	129,121	33,485	696	11,808	16,742	191,854
Kodiak Beach Seine	232	4,245	4	4	346	4,831
Total	467,617	3,074,963	6,488	72,168	320,971	3,942,206

Amount of Increased Value Per Permit Fished (# of permits)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast (383)	156	4,126	6	71	424	4,782
Prince William Sound (253)	4	2,673	0	4	11	2,692
Cook Inlet (68)	171	280	1	7	25	483
Peninsula (120)	593	2,669	7	113	650	4,032
Kodiak (348)	559	1,268	7	52	170	2,057
Chignik (101)	1,278	332	7	117	166	1,900
Kodiak Beach Seine (17)	14	250	0	0	20	284

Increase in Taxes and Assessments (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast	4,206	111,414	164	1,910	11,436	129,130
Prince William Sound	69	40,914	1	66	162	41,212
Cook Inlet	704	1,151	2	27	103	1,988
Peninsula	4,308	19,374	52	821	4,720	29,275
Kodiak	15,668	35,529	205	1,461	4,771	57,634
Chignik	7,812	2,026	42	714	1,013	11,607
Kodiak Beach Seine	19	342	0	0	28	389
Total	32,785	210,751	467	5,000	22,233	271,236

Note: Assume an average raw fish tax rate of 3.5% applied to ex-vessel value.

**Impact of 1¢ Per Pound Increase in 1991 Ex-Vessel Prices
for Set Gillnet Harvests (by species and region)**

Ex-Vessel Value Increase Per Fishery (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Yakutat	13,788	105	268	14,950	229	29,340
Prince William Sound	10,159	632	12	36	4,782	15,621
Cook Inlet	57,041	408	3,001	15,357	4,054	79,862
Peninsula	52,314	11,968	571	8,164	11,346	84,363
Bristol Bay	208,471	7	1,577	4,372	9,664	224,092
Kodiak	96,699	39,875	149	5,439	12,225	154,388
Total	438,474	52,997	5,577	48,319	42,300	587,665

Amount of Increased Value Per Permit Fished (# of permits)	Sockeye	Pink	Chinook	Coho	Chum	Total
Yakutat (159)	87	1	2	94	1	185
Prince William Sound (28)	363	23	0	1	171	558
Cook Inlet (655)	87	1	5	23	6	122
Peninsula (106)	494	113	5	77	107	796
Bristol Bay (922)	226	0	2	5	10	243
Kodiak (179)	540	223	1	30	68	863

Increase in Taxes and Assessments (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Yakutat	972	7	19	1,054	16	2,068
Prince William Sound	615	38	1	2	289	945
Cook Inlet	3,451	25	182	929	245	4,832
Peninsula	3,165	724	35	494	686	5,104
Bristol Bay	12,613	0	95	265	585	13,558
Kodiak	7,784	3,210	12	438	984	12,428
Total	28,600	4,005	343	3,182	2,806	38,935

Note: Assume an average raw fish tax rate of 3.5% applied to ex-vessel value.

**Impact of 1¢ Per Pound Increase in 1991 Ex-Vessel Prices
for Troll & Fishwheel Harvests (by species and region)**

Ex-Vessel Value Increase Per Fishery (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast Power Troll	443	8,682	38,599	94,210	1,552	143,486
Southeast Hand Troll	55	1,793	6,669	15,187	245	23,950
Upper Yukon Fishwheel	0	1,793	802	335	5,083	8,013
Total	499	12,267	46,071	109,733	6,880	175,450

Amount of Increased Value Per Permit Fished (# of permits)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast Power Troll (828)	1	10	44	107	2	163
Southeast Hand Troll (777)	0	2	9	20	0	31
Upper Yukon Fishwheel (124)	0	14	6	3	41	65

Increase in Taxes and Assessments (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast Power Troll	31	612	2,721	6,642	109	10,116
Southeast Hand Troll	4	126	470	1,071	17	1,688
Upper Yukon Fishwheel	0	73	32	14	206	325
Total	35	811	3,224	7,726	333	12,129

Note: Assume an average raw fish tax rate of 3.5% applied to ex-vessel value.

Table ____

**Impact of 1¢ Per Pound Increase in 1991 Ex-Vessel Prices
for All Alaskan Salmon Fisheries (by species and region)**

Ex-Vessel Value Increase Per Fishery (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast	119,705	1,621,390	50,797	198,209	228,489	2,218,591
Prince William Sound	103,616	685,587	7,970	52,327	30,664	880,165
Cook Inlet	135,248	19,629	3,080	26,733	20,193	204,884
Peninsula	261,759	333,283	2,232	30,076	113,796	741,146
Bristol Bay	1,492,555	10	5,246	14,828	79,235	1,591,874
Kodiak	291,559	485,475	2,699	23,596	71,844	875,173
Chignik	129,121	33,485	696	11,808	16,742	191,854
Upper Yukon	0	1,793	1,223	361	5,637	9,013
Kuskokwim	14,009	17	7,470	35,853	31,294	88,644
Kotzebue	0	0	7	0	19,464	19,471
Lower Yukon	0	0	19,245	6,730	34,145	60,121
Norton Sound	15	0	1,075	4,692	5,971	11,753
Roe (All Species/Fisheries)						2,728
Total	2,547,589	3,180,669	101,743	405,215	657,474	6,895,417

Increase in Taxes and Assessments (gross dollars)	Sockeye	Pink	Chinook	Coho	Chum	Total
Southeast	8,439	114,308	3,581	13,974	16,108	156,411
Prince William Sound	6,269	41,440	482	3,164	1,566	52,920
Cook Inlet	8,183	1,163	5	688	976	11,015
Peninsula	15,836	19,440	101	1,326	6,198	42,900
Bristol Bay	90,300	0	222	633	4,209	95,363
Kodiak	23,471	39,081	217	1,899	5,783	70,451
Chignik	7,812	2,026	42	714	1,013	11,607
Upper Yukon	0	73	50	15	228	365
Kuskokwim	567	1	303	1,452	1,267	3,590
Kotzebue	0	0	0	0	788	789
Lower Yukon	0	0	779	273	1,383	2,435
Norton Sound	1	0	44	190	242	476
Roe (All Species/Fisheries)						82
Total	160,877	217,530	5,825	24,327	39,763	448,404

Note: Assume an average raw fish tax rate of 3.75% applied to ex-vessel value.