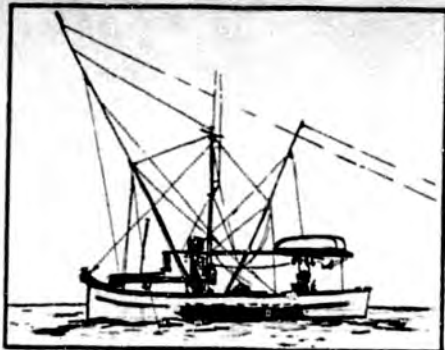


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Alaska Trollers Association

REPRESENTING ALASKA POWER TROLLERS

130 Seward St., No. 213
Juneau, Alaska 99801
(907) 586-9400

TESTIMONY OF THE ALASKA TROLLERS ASSOCIATION

RE HB-108 AND SB-106:

"An Act relating to aquatic farming; and providing for an
effective date."

2/16/87

Earl E. Krygier
Executive Director

CORRECTION

**THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY**

Alaska Mariculture Association

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Alaska Mariculture and Seafood Markets

Development of mariculture in Alaska could strengthen the competitiveness of Alaska seafood in the world marketplace. By broadening the diversity of products and providing year-round supplies of premium quality seafood, sea farming will help Alaska take better advantage of the growing appetites of consumers for fish and shellfish.

Seafood consumption in the U.S. grew by 609 million pounds or 21.5 percent during the past four years for which statistics are available (1982-85), but nearly all of that growth came from increased imports of foreign products. In fact, imports of foreign fish and shellfish increased by 14 percent in 1985 alone. The U.S. fisheries trade deficit amounted to a staggering \$5.6 billion that year.

The growing consumer demand for seafood in the U.S. and throughout the world is being filled by aquatic farm products. Global aquaculture production in 1983 was 22 billion pounds and accounted for about 12.2 percent of the total world supply of edible fish and shellfish. Experts say aquatic farming production will reach 48 billion pounds by 2000.

At the same time, commercial fishing production in the U.S. is declining slowly and world fisheries landings have stabilized. World aquaculture production is expected to grow by 5.5 percent annually over the next 25 years, while fisheries landings are anticipated to increase by .5 percent annually.

Development of oyster, mussel and scallop farms would bolster Alaska's ability to offer a variety of high quality fresh seafood, while salmon farming could allow seafood distributors to offer year-round supplies of fresh Alaska salmon. A long-term strategy of supplementing commercial fisheries landings with supplies of cultured seafood is Alaska's best hope of remaining a major force in world markets.

Another important market consideration for Alaska in mariculture development is the potential impact of farmed salmon production in the state upon commercial fishermen. A close look at the discrete markets for Alaska's diverse salmon industry reveals that farmed salmon competes with a very small segment of our wild salmon production.

(more)

Farmed salmon sales in the United States are directed at buyers willing to pay a premium for year-round supplies of high quality fresh seafood. Canned salmon and lower-value fresh and frozen products (pinks and chums) do not compete with farmed salmon. The deep red flesh and stronger flavor of sockeye salmon provides a secure market niche for Alaska's most valuable salmon species.

The premium quality U.S. markets being penetrated by foreign farmed salmon are important to only a small portion of Alaska's salmon production. Alaska's troll salmon production which supplies the bulk of premium quality salmon marketed in the "white tablecloth" restaurant trade accounted for less than 4 percent of the total value of Alaska's 1985 salmon production.

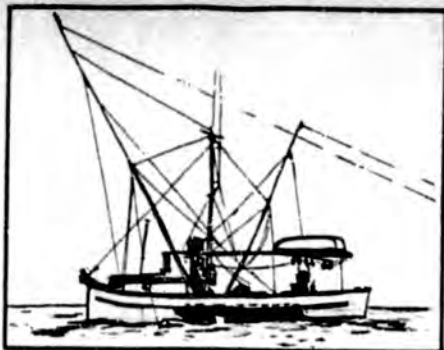
While farmed salmon has had a dramatic impact on European markets for Alaska's premium quality chinook and coho catches, the effect in the United States is very unclear. A 1986 survey of U.S. seafood buyers by the Marine Advisory Program showed that distributors and brokers, by a three-to-one margin, do not regard farmed salmon as a substitute for frozen Pacific salmon. This is significant since the Alaska Seafood Marketing Institute estimates that only three percent of Alaska's salmon production is sold on fresh markets.

Also important to keep in mind is that demand in the U.S. for seafood is rising so rapidly the market appears to be prepared to handle tremendous new volumes of product. And, foreign production of farmed salmon will be streaming into the U.S. from the 13 other countries now involved in salmon farming, regardless of what happens in Alaska.

A Scottish marketing research report said farmed salmon provided slightly more than six percent of the world salmon supply in 1985 and is expected to increase its total world market share to about 14 percent by 1990. The Alaska House Research Agency in a 1987 report to the legislature said, "By 1990, total farmed (salmon) production is expected to dominate world trading in both fresh and frozen premium products."

The additional amount of farmed salmon an Alaska industry is likely to produce will have an insignificant influence on any market competition between world supplies of pen-reared salmon and Alaska's wild catch. If the premium quality markets for Alaska's commercial fishing salmon production is to be affected, then these impacts will occur whether or not Alaskans are involved.

The House Research report on salmon farming summed up the situation like this: "...the question of whether or not pen rearing of salmon should be allowed in Alaska misses the crux of the issue. Rather, the basic question is whether or not Alaska will use its comparative advantages as a producer of farmed salmon to compete in growing domestic markets."



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EXECUTIVE SUMMARY

The Alaska Trollers Association believes that passage of HB-108 and SB-106, "Act(s) relating to aquatic farming...", in their present form would be detrimental to the Alaska salmon industry and not in the best interest of the State. ATA generally supports of aquaculture, and believes there are many opportunities for Alaskans in various aquaculture developments. However, we specifically oppose those aspects of these companion measures aimed at permitting the pen rearing of salmon in Alaska.

Alaska produces some 43 percent of the world harvest of salmon. The pen rearing industry, spearheaded and dominated by foreign interests and backed by their governments' subsidy programs, is in direct competition with our salmon industry. This applies not just to king and coho salmon, but to all fresh and fresh-frozen product forms. Encouraging those interests to invest in and control pen rearing in Alaska is clearly not in the interest of our industry, and will jeopardize the enormous private and public investments already made in our wild and hatchery stocks. We cannot control the actions of other nations, but we need not actively contribute to the market competition facing our own industry.

We are also extremely concerned about possible biological impacts on our wild stocks. While the spread of an extremely virulent infection from penned to wild stocks may be of a low order of probability, the potential for major damage to wild stocks does exist. With so much at stake, is pen rearing worth the risk? Pen rearing will produce chronic habitat problems local to the rearing sites, will compete for release sites with our existing enhancement programs, and may physically displace existing fishery activity, as has been the case with log dumps.

Proponents assertions notwithstanding, pen rearing will divert increasingly scarce State government resources from existing fishery management programs. Fiscal impacts have not been addressed. ADF&G, DEC, DNR, DCED, and Revenue programs will be effected.

We contend that proponents are exaggerating the potential economic benefits of salmon farming in Alaska. Without the strict controls, which are not contemplated by these Bills, pen rearing operations will not be small, Alaska owned businesses. They will be large corporate operations, utilizing foreign technology, and funded and controlled by foreign interests. The few Alaskan jobs they will provide will be at the lower end of the technical and pay scales of these operations. To the extent that Alaskans are involved, either as investors in foreign dominated ventures or as independents, their position will be precarious. This industry is headed for a major "shake out" worldwide, and small, late entrants will be the most vulnerable.

In sum, salmon pen rearing threatens our existing industry and will not be the bonanza that proponents claim. Alaska's support for aquaculture should be in those areas where we can become the technological and market leaders. Let's not get on a bandwagon which is about to run out of gas!

INTRODUCTION

Proponents of aquaculture say it offers one of the single greatest new opportunities to develop and diversify State and local economies and create new jobs. To hear them talk, you'd think that salmon pen rearing in particular is "the greatest thing since sliced bread." Frankly, your fishermen constituents disagree. They think pen rearing of salmon could well be a disaster for them and a very bad deal for the State of Alaska generally.

It is important to look beyond the enthusiastic statements of proponents about the "great opportunity" represented by aquaculture. We must also look at its' effects on the entire spectrum of the existing seafood and support industries. The past administration's Ad Hoc Committee on Mariculture, including the representatives of the fishing industry, found that aquaculture in general does offer new opportunities - though not without costs. Indeed they found that some forms of aquaculture - pen rearing of salmon to be specific - could, in fact, have detrimental effects on the fishing industry, particularly in Southeast fishing communities.

We, the fishing community, suggest that pen-rearing of salmon - the "fish farming" which is really the key element driving this Bill - poses three principal threats to Alaska fisherman:

- saturation in the price and quality leading sectors of our markets which will eventually impact the price of all Alaska salmon, not just our "top of the line" fish;
- negative biological impacts on our vital wild stocks and rearing habitat; and
- diversion of increasingly scarce State government fiscal and managerial resources toward management of a new industrial sector dominated by foreign capital and operators, to the detriment of our Alaskan industry.

Additionally, we contend that the developmental and employment benefits of salmon pen rearing to rural communities and to the economy of the State in general are being heavily, even irresponsibly oversold by pen rearing advocates.

MARKET CONSIDERATIONS

The advocates of aquaculture claim that consumption is rising and that there will be no competition between the farmed and the commercial forms of seafood. The reality is, that the bulk of the highly touted "world increase" in seafood consumption will occur in shellfish, and cod and catfish type fish rather than in the more expensive salmon species. This projected increased in world consumption has two main components.

(1.) Fish as a Cheap Source of Protein: Aquaculture in Third World countries has increased exponentially during the past few years - mostly in the form of warm water pond culture of tilapia and carp. Such culture in Third World nations is often run in conjunction with annual irrigation of rice fields, or in areas where the yield of protein per acre is grossly in favor of pond culture (fish such as Grass Carp or other herbivorous species for local consumption, or shellfish for export) where lands have a low plant productivity due to bad soil conditions. In the industrialized countries cheap protein is also important, but here consumption increases are largely in the form of "fast-food" fillets for fish sandwiches and deep fried catfish. Indeed, the largest aquaculture sector in the U.S. is Mississippi Valley catfish farming, and the single largest fish processor in the U.S. is a catfish processing plant.

(2.) The Health Benefits of Seafood: In North America and Western Europe, the increased recognition of the health benefits of seafood mostly spawned by the educational efforts of such institutions as the Heart Association and the National Marine Fishery Service, has led to a greater consumption of fish and shellfish. Consumers who increased their consumption for health reasons, are normally more interested in the expensive product forms, such as fresh or frozen salmon.

Unfortunately for Alaskan fisherman, the increased awareness and consumption occurred coincidentally with the advent of the Norwegian pen reared salmon industry - though not because of it, as some would claim. Through aggressive marketing and government subsidized production and shipping (including heavily underwritten air freight rates on the government owned airline SAS) the Norwegians made heavy inroads in this product niche of the seafood industry. Our Alaskan commercial fisherman, unprotected from this heavily subsidized, government organized marketing blitz into their traditional markets, have not enjoyed the benefits of increased demand through higher prices or expansion of market opportunities for our other salmon species, such as frozen reds and ocean bright pinks. So, Norwegian salmon has not just hurt trollers, it has limited diversification opportunities for gillnet and seine caught fish as well.

There is really only one market for quality salmon. This market is worldwide and must absorb all inventory, both fresh and fresh-frozen. As fresh-farmed salmon output increases, it cuts into the commercial high quality fresh-frozen market where Alaskan fish has been traditionally been dominant. Present worldwide production of wild salmon is 600,000 to 700,000 metric tons, the vast majority of which is pink, chum and sockeye salmon. Only 70,000 to 80,000 metric tons are high quality coho and king salmon, and it is these fish which are facing competition from pen-reared salmon. This competition is increasing yearly. The production of pen-reared salmon worldwide is expected to approach

150,000 metric tons by 1990. Such an increase will nearly triple the present volume of high quality salmon. In the world market, Western Europe, Canada, and the United States represent "the marketplace" for high-quality salmon. The troll industry's fresh and fresh-frozen product has already felt the impact of market competition from pen reared fish. Our king salmon price to fisherman has dropped from \$2.50/ lb in 1985 to \$1.80/lb in 1986. Cohos dropped .50 cents /lb this past winter when a large inventory of Norwegian fish was dumped on the French market.

Demand for this high quality fish just can't expand as fast as the supply is growing. Studies indicate that every man, woman and child in the United States would need to exchange a meat dinner for a salmon dinner to increase consumption by 25,000 metric tons per year. If pen-reared salmon production does reach 150,000 metric tons by 1990, then a population the size of the United States would have to eat six salmon dinners per year that they are not presently consuming. This is a product which retails for \$6.00 to \$8.00 a lb. Any economist will tell you that it is unreasonable to expect such a demand increase to occur in such a short time. It also means that the enormous amount of high quality salmon on the market will have to sell at reduced prices to compete within its own market niche, with other seafood, and with a more competitive red meat and poultry industry.

This problem was headlined in the December 1986 edition of FISH FARMING INTERNATIONAL which read, "SURPLUS SALMON WARNING - PRODUCTION MAY EXCEED DEMAND BY 23,000 TONS". The article stated that an imbalance of projected supply and demand by 1990 (three years from now) could cause sharp price reductions and upset profit margins. It stated that lower margins would force the least efficient producers out of the industry and preclude small-scale new entrants. It went on to say that farms which produce less than 500 tons per year (this latter type of large facility has a cost of US\$3 million +) would not have the product volume capacity to reach profit margins. They state that such large investment would be very risky, since a stock loss every five years through disease or the effects of unseasonable weather would yield zero net returns. Such losses are not without precedent. Salmon farmers in Norway, on the Sunshine coast of B.C., and at the National Marine Fisheries Service experimental farm at Little Port Walter in Southeast Alaska, have experienced such losses from algal blooms, stress induced by harassment from marine mammals, and from disease.

Commercial fisherman, as users of a wild, common property resource have been striving for years to stabilize natural fluctuations through hatchery enhancement and resource allocation. Pacific coast fisherman, in trying to solve those problems via the U.S./Canada Treaty, will face not only an increase in production from salmon farms, but the need to market the expected great increases in wild and ocean released hatchery

stocks resulting from the U.S./Canada Treaty. Canada and the Pacific States plan to release 2.6 billion enhancement salmon by 1990 - an increase of 245 percent! Add to this the increases from natural stocks rebuilding to maximum sustainable yield. This represents a tremendous investment in management and enhancement dollars, and tremendous sacrifices by our fishermen to achieve wild stock rebuilding. Pen reared salmon compete with these fish and dilute the value of our already massive investment.

It is also frequently asserted that penned salmon won't compete with Alaskan wild stock salmon since most of our production occurs during the summer, whereas penned salmon are sold in the winter. In fact, 10% of all pen reared salmon is sold in the summer. As long as penned salmon production was low, its summer market impact was not too severe. The total Alaska troll king and coho salmon production was about 9,700 MT in 1985. If full projected pen reared salmon production of 150,000 MT is reached by 1990, then a 10% summer market competition will be 15,000 MT in the summer of 1990. That is, they will dump more fresh fish in the summer market alone than the entire Alaskan troll production. As we have said, Alaskans in general will lose from this competition since the development of new product forms of pink/chum/and sockeye, ie. fresh frozen ocean bright quality, will be out-competed by the fresh farmed fish industry which has already developed its market strategy. But, the hardest hit will be the troll fleet. Our product, both fresh and fresh-frozen, competes head to head with pen reared salmon.

Since the volume of pen reared salmon projected by 1990 will triple the product volume available from the current harvest of all king and coho salmon (the two species which compete most directly with pen reared salmon), the issue of product saturation is both real and imminent. Whether or not Alaska becomes involved in the pen rearing of salmon will not change the fact that our wild stock fishing industry will see an increased market competition with pen reared fish, but we don't have to contribute to the problem.

I've spoken about world market impacts and their effects on Alaska fishermen, but if we allowed pen rearing in Alaska we would also have to deal with direct competition in our local markets. Most pen raised fish would be marketed in the winter when local fishermen are supplying local winter markets and getting their best price. When there is such high winter unemployment, winter fishing is both good for mental health and for the pocketbooks. Local pen-reared fish would severely hurt our local winter markets since buyers would not need to wait - as they're presently accustomed to doing - for a winter storm to pass so that local boats can "sneak back out" for a bit of winter fishing.

BIOLOGICAL CONCERNS

Additionally, salmon farming poses threats to our native stocks and our rearing habitat in Southeast. The rapidly growing aquaculture industry faces two big environmental problems; self-inflicted water pollution around the fish farms, and disease epidemics in the pens.

The problem of pollution from feces and unconsumed feed poses a real habitat problem. Most of the choice sites for aquaculture are important as nursery areas for other juvenile fish and shellfish. The problem of bottom habitat degradation is exemplified by the history of log storage facilities. The scientific literature is full of descriptions of the harmful effects to critical environments from hydrogen sulfide pollution - the same pollutant by-product associated with salmon farms.

As for disease, in 1983 epidemics cost the farmed salmon industry approximately \$110 million. Much of this occurred when a bacterial disease in Norway forced 29 out of 40 farms to slaughter their entire stock. Fish farmers, and feed lot farmers in general, respond to diseases with antibiotics which can lead to new virulent forms of disease. Virulency can take the shape of drug resistant disease strains or as new forms of disease to which natural stocks have little or no immunity. The major countries producing farmed salmon have either destroyed their

natural runs or never had them, so they have no natural stocks at risk. However, Alaska produces 90% of all U.S. landings, which equates to 43% of the world landings, from wild, natural runs of salmon. Can we really afford to risk a major disease induced crash of our wild stocks? We think not! Proponents of pen rearing would like to "wish away" the disease problem, but its not a simple thing to deal with and the risks are potentially catastrophic.

MANAGEMENT AND FISCAL CONCERNS

Pen rearing advocates are fond of stating that they aren't seeking State loans and hence won't have a fiscal impact on State government. This is a ruse. Loans aren't the only way of impacting the budget. With revenues getting tighter and tighter State resource managers are faced with doing more and more with less and less. Introducing pen rearing will have an impact on departments charged with regulating the seafood industry and managing the State's tideland resources. DNR, DEC, Revenue and ADF&G will all have to gear up to deal with permitting, regulating and otherwise managing this new industry. You tell me what it will cost! The only certain thing is that it won't be cheap, and that it will negatively impact already shrinking management efforts applied to our existing fisheries.

I think it would be very wise to have a detailed examination of the fiscal impacts of this legislation before proceeding further.

We have previously mentioned the U.S./Canada Treaty. Two additional programs were sold by the State of Alaska to the fishing fleet which promised a long term future and stability, Limited Entry and Salmon Enhancement. Though these programs hold promise, they have put the troll fleet in a precarious make-it or break-it balance. The farming of salmon can upset this balance. It is important to remember that Limited Entry was instituted to control excess effort and give assurances to fisherman that a reasonable livelihood could be obtained. The State also invested heavily in this process by making State loans available and by instituting additional programs which would benefit limited Entry participants and the seafood industry. Such basic assurances encouraged many Alaskans to invest their lives and wealth in this newly stabilized industry. If the State now decides to allow pen rearing of salmon, which competes directly with Limited Entry fisherman, it will have broken its trust with the existing industry. Additionally, salmon enhancement was conceived and developed in Alaska through a legislative process, the main intent of which was to exclude "private-for-profit" salmon farming or ranching. The Alaska Legislature understood at that time the social and economic implications of private salmon culture on a healthy commercial fishing industry. Those legislators understood that salmon culture was capital intensive and would likely be dominated by out-of-State extractive investment unless regulated to ensure that control and benefits remained in Alaska.

OVERSELLING THE ECONOMIC BENEFITS OF SALMON PEN REARING

Proponents of pen rearing salmon like to claim that they will be able to produce 1,900 jobs. Just how many of these will be held by Alaskans? A recent T.V. documentary promoting the salmon farming industry made a sad, unintended joke of this claim, stating that on the large fish farms on the Sunshine Coast in British Columbia you need to speak Norwegian to get by. We strongly contend that this new industry will not create 1,900 new jobs. On the contrary, it may well displace that many and more existing jobs in the seafood industry and its' supporting industries (shipwrights, fuel and food suppliers, etc.).

The Southeast troll fishery has the highest residency rate of any fishery in the state. Fully 85 percent of our fishermen live here in Alaska. Last year this represented nearly 3,500 fisherman and crew members. Using a standard 2.2 employment multiplier for Southeast indicates that the troll fishery alone may generate a total employment of 7,700 fishing, processing and support industry jobs, all of which are in some degree of jeopardy from pen rearing. Many trollers are barely making it now. Further, price slumps will place even more fishermen in the marginal category, forcing many to seek scarce winter employment on shore, and others to quit entirely. To the extent that Alaska based pen rearing hurts Alaskan fishermen, and it will, we are talking about displacing existing investment with new investment and new

people. As residents of Alaska, we want to see more jobs and more economic stability in our communities for the people that live here now. The following analogy exemplifies our dilemma. The Chamber of Commerce is always a strong local proponent of development. That is, until a Fred Meyers, Safeway, or McDonalds' wants to come to town. We all know that this is because the Chamber is made up of locally-owned small restaurant, grocery and shop owners who want some development, but not "that kind" of development. They know from painful experience that such new development often simply displaces existing industry owned and run by local people. That is the threat our fishermen - your neighbors - see and feel.

Pen-rearing is the latest economic "buzz word". Its logical conclusion is market saturation and an economic shake-out. Alaska's late leap onto the bandwagon - which will run out of gas about the time our production reaches market size - means more economic instability in communities which have suffered enough from the boom/bust economy which has characterized Alaska. The hype over salmon farms reminds me of a similar, though not so global, "new opportunity" in the early 1970's. Remember "worm farms"? Sportsfishermen surely wanted worms and the worm casts made a wonderful plant mix. The only problem was market saturation. Toward the end of that little boom, the only real money in worms was in selling the technology and equipment to "new farmers"! Isn't it interesting that Norway has curtailed developing new salmon farms, but is very hot on exporting its

technology, fry and pens to "new farmers" worldwide? They see the shake-out coming. We'd best have our eyes open too! This isn't just my opinion and advice, as I'm repeating sentiments which are increasingly being expressed in the international aquaculture industry press, most notably FISH FARMING INTERNATIONAL.

Salmon farming is capital intensive rather than labor intensive. Multi-national companies and foreign banks will put up the bulk of the start up dollars, and they will expect the earnings to flow back to them, as do out-of-State companies such as Fred Meyers or Safeway. Those profits won't be retained in the local community. Multi-national corporations are known to come in for the quick initial profits and sell out or just quit business for tax losses which offset other corporate gains. This is not just hype.

Certainly, wise foreign investment in Alaska is needed. We need the inflow of capital. However, such investment should be in the form of joint ventures with Alaskans, not just a license to steal from our resource base. Unfortunately, this bill does not address the issue of controlling the form and rate of growth of this proposed new industry to ensure that Alaskans are the primary beneficiaries (nor has the Alaska Mariculture Association put forth any proposals in this regard). Because of the start-up and operating costs involved, "Ma & Pa" type Alaskan operations will have a difficult time even "getting their foot in the door", and it is even more doubtful that any who did get started could stay

afloat if hit with a disease outbreak or a down turn in the market which all experts project within the next 3-5 years. Advocates of pen rearing like to sell the idyllic view of rural coastal Alaska sprinkled with hundreds of small scale, family run salmon farming operations. We see pictures of the old world charm of Norway with a neat, trim little salmon farm in the foreground. What you, as Legislators, aren't being told is that the Norwegians were only able to accomplish that through strict controls on the size of farms, establishment of quasi-public marketing agencies to ensure sales stability and fair treatment of individual small producers, absolute limits on the total number of entrants, etc. - in sum, strong central control over the magnitude, location and conduct of development. Nobody is even talking about those kinds of controls here. So, what will our development really look like?. Odds are it will take the form of large corporate farms with minimal labor inputs. Wherever possible these will be located outside existing cities or villages to avoid local taxes. Managerial personnel will largely non-Alaskan. This is hardly a view to gladden the heart of those who see salmon farming as a means to alleviate rural poverty in Alaska, but it is accurate. Just look at what has happened in B.C.

It would be interesting to know if Sealaska, one of the main promoters of this new industry, plans to invest it's own capital, or is it looking for foreign investment capital?

SUMMARY

It's true that many of the aforementioned impacts will occur whether or not Alaska allows the farming of salmon. We can do little more than prepare for the glut of high priced fish by assuring our quality standards and strongly promoting the market virtues of "Wild Alaskan Fresh And Fresh-Frozen Salmon."

The only real justification for permitting the pen rearing of salmon in Alaska is to produce benefits for residents of the State. We need to know in what manner and under what conditions pen rearing of salmon can produce benefits to Alaskans which outweigh the social and economic costs of introducing the new industry. The only answer which make sense to us, is one which compliments the existing industry rather than bringing in new people to compete with the existing seafood industry. Unfortunately, the advocates of pen rearing have not provided us with such a solution, and failing that, we don't see any good reason why the State of Alaska should actively contribute to aggravating difficulties for its own industry by permitting and promoting a rearing of salmon here.

If entrepreneurs want to develop new aquaculture opportunities which do not negatively impact our existing industrial base, that's great. Indeed, we think there are many opportunities for Alaska to get ahead of the competition in new aquaculture technologies. There is already interesting work going on with scallops and oysters, and there is available technology for

lobster culture which might well be adaptable to high value Alaska crab species. These, and a host of other opportunities are what you should be encouraging. However, we ask you to say no to pen rearing of salmon, and urge you to beware of placing the State in a position of having to cope with the economic instability of a new industry which is nearing a major shake-out worldwide.

I would like to close my testimony with these thoughts from an article in the January, 1987 issue (pg. 5) of SEAFOOD INTERNATIONAL headlined "Salmon Prices Fall As Supply Forecasts Rise":

"Salmon prices are falling, and the Irish Sea Fisheries Board (BIM) is predicting they will continue to do so over the next five years. BIM commissioned a study to examine the potential supply and demand situation for farmed Atlantic salmon in the next decade, and the effects of increased production levels on prices. Using information based on the Norwegian, Scottish and Irish salmon farming industries, BIM concludes that adherence to strict quality standards and efficiency in production, marketing and distribution will become of crucial importance; but prices will still fall. (S)ome experts were forecasting...salmon prices...on a par with cod. The last two months of 1986 certainly saw a drop in price levels (in Europe). In the USA plentiful supplies also pushed prices down, and this is expected to continue. Meanwhile,

in all countries, production forecasts are up for this year. Future emphasis is likely to be on frozen fillets, portions, blocks and prepared items, with merchandising aimed at convincing the consumer that each country's salmon is the best."

CONSTANTINE - ALASKA IVORY TRADERS

GARRI R. CONSTANTINE

BOX 207

DOUGLAS, ALASKA

99824

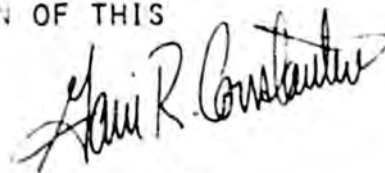
CAPITOL 101

DEAR SEN. KELLY

CONCERNING SB 106 ADDRESSED BY YOUR BODY RELATING TO SEA FARMING, I, AND MY FELLOW FISHERMEN WHO ARE DISCOURAGED BY A STATE GOVERNMENT THEY FEEL IS PUTTING THEM OUT OF BUSINESS, STRONGLY URGE YOU LOOK VERY CLOSELY AT ANY LEGISLATION DESIGNED TO ENCOURAGE THE PRIVATE FARMING OF FISH, ESPECIALLY SALMON, ANYWHERE IN ALASKA.

IT IS NOT ALARMIST AT ALL FOR MYSELF, AS A POWER TROLL FISHERMAN, TO BE CONCERNED BY AN INDUSTRY WHICH UNDERS SELLS MY MARKETS WITH A CHEAPER, IF EVEN IN SOME OPINIONS, SUPERIOR PRODUCT, FLOODING AN ALREADY SEASONALLLY SATURATED MARKET IN FRESH FISH. I DO NOT PROPOSE WE IGNORE THE SEA FARMING INDUSTRY ALTOGETHER, BUT THAT IT WOULD BE EXTREMELY UNWISE FOR THE STATE TO SANCTION A PRIVATE FOR PROFIT SALMON FARMING INDUSTRY WHICH WOULD UNDERCUT THE ALREADY DISTRESSED INCOMES OF A LARGE NUMBER OF ALASKA'S SALMON FISHERMEN.

TO CLOSE, I SUPPORT ALL PRIVATE NON-PROFIT HATCHERIES, AND ANY EFFORTS TO FARM SALMON FOR BROOD STOCK OR EGGS FOR THEM. I CANNOT SUPPORT ANY LEGISLATION DESIGNED TO COMPETE WITH ALASKA'S FISHERMEN OF FRESH, WILD FISH, AND HOPE IN YOUR DELIBERATIONS YOU WILL CONCUR. THANK YOU FOR YOUR CONSIDERATION OF THIS OPINION.



PUBLIC OPINION MESSAGE

DEAR: SENATOR ELIASON

NAME: PETE ESQUIRO, DIRECTOR
 TITLE: NO.SE REGION.AQUACULTURE
 ADDRESS: 103 MONASTERY
 CITY: SITKA, AK
 PHONE: 747-6850

ZIP: 99835

BILL NO: SB 106
 SUBJECT: AQUATIC FARMING

MESSAGE: NORTHERN SOUTHEAST REGIONAL AQUACULTURE ASSOCIATION REMAINS OPPOSED TO THE ABOVE CAPTIONED BILL. BEFORE FURTHER CONSIDERATION, THE IMPACT ON CURRENT PROGRAMS, BOTH ENHANCEMENT AND COMMERCIAL FISHING, NEEDS TO BE ASSESSED. STATE MUST ALSO BE VERY CAREFUL THAT RESOURCES ARE AVAILABLE FOR PROTECTING WILD STOCKS OF SALMON. (INSPECTIONS, PATHOLOGY, & GENETICS MARKETS.)

POMID: 12142707
 DATE: 03/12/87
 TIME: 14:27:07
 LIONAME: SITKA LIO

COPIES: SENATORS

FAHRENKAMP
 KELLY
 SZYMANSKI
 UEHLING

PUBLIC OPINION MESSAGE

DEAR: SENATOR ELIASON

NAME: GORDEN JONES
 TITLE:
 ADDRESS: 12221 RAINBOW
 CITY: ANCHORAGE
 PHONE: 345-5821

ZIP: 99516

BILL NO:
 SUBJECT: SB 132 AND HB 115

MESSAGE: I OPPOSED HB 115 AND SB 132 WHICH WOULD OPEN THE NORTH SLOPE HAUL ROAD TO INCREASED TRAFFIC. OPENING THE HAUL ROAD WILL NO DOUBT INCREASE VIOLATION OF THE STATES HUNTING LAWS. IN ADDITION MORE ROAD TRAFFIC ON THE HAUL ROADS WILL INCREASE THE NEED FOR ROAD MAINTENANCE AT A TIME WHEN OTHER STATE ROADS COULD USE THE MAINTENANCE. PLEASE OPPOSE THESE BILLS.

POMID: 03142810
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TAYLOR	ULMER	ZHAROFF
WALLIS	ZAWACKI	



KODIAK AREA NATIVE ASSOCIATION

402 Center Ave. - Kodiak, Alaska 99615 - Phone (907) 486-5725

February 5, 1987

M

Sen. Tim Kelly
Alaska State Legislature
P. O. Box V
Juneau, AK 99811

Dear Sen. Kelly:

I am pleased to hear that the Senate Bill 106 creating new permitting procedures for mariculture has been introduced in the Senate and is now in your committee. Mariculture is a new enterprise in Alaska with great potential for economic development in Alaska's coastal communities. As limited entry permits continue to pass out of village ownership, traditional fishing opportunities are becoming less available to village residents, adding to already heavy unemployment. Mariculture poses a small boat, near shore, low cost development option for Alaska's villages that can add to rather than extract from our state's resources.

The Kodiak Area Native Association is cooperating with the Alaska Department of Fish and Game and the Japanese Overseas Fisheries Cooperation Foundation to develop a scallop mariculture demonstration project in communities around Kodiak Island. Experts will soon be arriving in Kodiak from Japan to help KANA and Fish and Game staff as well as residents in six village sites begin the scallop project. Unfortunately, the existing permit system in the state does not allow individuals to take and possess shellfish seed for mariculture purposes. The SB 106 creates new permits to allow shellfish culture to begin. No additional funding will be asked of the state.

I hope you can see the importance of this legislation and its urgency to assure the timely start of this spring's project. Please give this bill your earliest attention and help encourage a new industry for Alaska.

Sincerely,

KODIAK AREA NATIVE ASSOCIATION
GORDON L. PULLAR, PRESIDENT

William P. Osborne
Mariculture Program Coordinator

cc: Sen Fred Zharoff, Rep. Cliff Davidson

CONSTANTINE - ALASKA IVORY TRADERS

GARRI R. CONSTANTINE

BOX 207

DOUGLAS, ALASKA

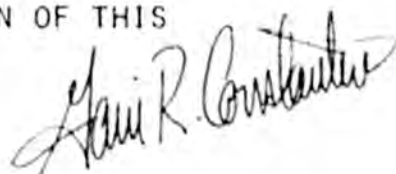
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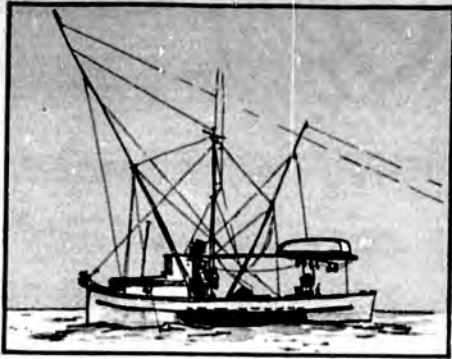
CAPITAL 417
DEAR SEN. ELIASON

CONCERNING SB 106 ADDRESSED BY YOUR BODY RELATING TO SEA FARMING, I, AND MY FELLOW FISHERMEN WHO ARE DISCOURAGED BY A STATE GOVERNMENT THEY FEEL IS PUTTING THEM OUT OF BUSINESS, STRONGLY URGE YOU LOOK VERY CLOSELY AT ANY LEGISLATION DESIGNED TO ENCOURAGE THE PRIVATE FARMING OF FISH, ESPECIALLY SALMON, ANYWHERE IN ALASKA.

IT IS NOT ALARMIST AT ALL FOR MYSELF, AS A POWER TROLL FISHERMAN, TO BE CONCERNED BY AN INDUSTRY WHICH UNDERS SELLS MY MARKETS WITH A CHEAPER, IF EVEN IN SOME OPINIONS, SUPERIOR PRODUCT, FLOODING AN ALREADY SEASONALLY SATURATED MARKET IN FRESH FISH. I DO NOT PROPOSE WE IGNORE THE SEA FARMING INDUSTRY ALTOGETHER, BUT THAT IT WOULD BE EXTREMELY UNWISE FOR THE STATE TO SANCTION A PRIVATE FOR PROFIT SALMON FARMING INDUSTRY WHICH WOULD UNDERCUT THE ALREADY DISTRESSED INCOMES OF A LARGE NUMBER OF ALASKA'S SALMON FISHERMEN.

TO CLOSE, I SUPPORT ALL PRIVATE NON-PROFIT HATCHERIES, AND ANY EFFORTS TO FARM SALMON FOR BROOD STOCK OR EGGS FOR THEM. I CANNOT SUPPORT ANY LEGISLATION DESIGNED TO COMPETE WITH ALASKA'S FISHERMEN OF FRESH, WILD FISH, AND HOPE IN YOUR DELIBERATIONS YOU WILL CONCUR. THANK YOU FOR YOUR CONSIDERATION OF THIS OPINION.





Alaska Trollers Association

REPRESENTING ALASKA POWER TROLLERS

130 Seward St., No. 213
Juneau, Alaska 99801
(907) 586-9400

TESTIMONY OF THE ALASKA TROLLERS ASSOCIATION

RE HB-108 AND SB-106:

"An Act relating to aquatic farming; and providing for an
effective date."

2/16/87

Earl E. Krygier

Executive Director

EXECUTIVE SUMMARY

The Alaska Trollers Association believes that passage of HB-108 and SB-106, "Act(s) relating to aquatic farming...", in their present form would be detrimental to the Alaska salmon industry and not in the best interest of the State. ATA generally supports of aquaculture, and believes there are many opportunities for Alaskans in various aquaculture developments. However, we specifically oppose those aspects of these companion measures aimed at permitting the pen rearing of salmon in Alaska.

Alaska produces some 43 percent of the world harvest of salmon. The pen rearing industry, spearheaded and dominated by foreign interests and backed by their governments' subsidy programs, is in direct competition with our salmon industry. This applies not just to king and coho salmon, but to all fresh and fresh-frozen product forms. Encouraging those interests to invest in and control pen rearing in Alaska is clearly not in the interest of our industry, and will jeopardize the enormous private and public investments already made in our wild and hatchery stocks. We cannot control the actions of other nations, but we need not actively contribute to the market competition facing our own industry.

We are also extremely concerned about possible biological impacts on our wild stocks. While the spread of an extremely virulent infection from penned to wild stocks may be of a low order of probability, the potential for major damage to wild stocks does exist. With so much at stake, is pen rearing worth the risk? Pen rearing will produce chronic habitat problems local to the rearing sites, will compete for release sites with our existing enhancement programs, and may physically displace existing fishery activity, as has been the case with log dumps.

Proponents assertions notwithstanding, pen rearing will divert increasingly scarce State government resources from existing fishery management programs. Fiscal impacts have not been addressed. ADF&G, DEC, DNR, DCED, and Revenue programs will be effected.

We contend that proponents are exaggerating the potential economic benefits of salmon farming in Alaska. Without the strict controls, which are not contemplated by these Bills, pen rearing operations will not be small, Alaska owned businesses. They will be large corporate operations, utilizing foreign technology, and funded and controlled by foreign interests. The few Alaskan jobs they will provide will be at the lower end of the technical and pay scales of these operations. To the extent that Alaskans are involved, either as investors in foreign dominated ventures or as independents, their position will be precarious. This industry is headed for a major "shake out" worldwide, and small, late entrants will be the most vulnerable.

In sum, salmon pen rearing threatens our existing industry and will not be the bonanza that proponents claim. Alaska's support for aquaculture should be in those areas where we can become the technological and market leaders. Let's not get on a bandwagon which is about to run out of gas!

INTRODUCTION

Proponents of aquaculture say it offers one of the single greatest new opportunities to develop and diversify State and local economies and create new jobs. To hear them talk, you'd think that salmon pen rearing in particular is "the greatest thing since sliced bread." Frankly, your fishermen constituents disagree. They think pen rearing of salmon could well be a disaster for them and a very bad deal for the State of Alaska generally.

It is important to look beyond the enthusiastic statements of proponents about the "great opportunity" represented by aquaculture. We must also look at its' effects on the entire spectrum of the existing seafood and support industries. The past administration's Ad Hoc Committee on Mariculture, including the representatives of the fishing industry, found that aquaculture in general does offer new opportunities - though not without costs. Indeed they found that some forms of aquaculture - pen rearing of salmon to be specific - could, in fact, have detrimental effects on the fishing industry, particularly in Southeast fishing communities.

We, the fishing community, suggest that pen-rearing of salmon - the "fish farming" which is really the key element driving this Bill - poses three principal threats to Alaska fisherman:

- saturation in the price and quality leading sectors of our markets which will eventually impact the price of all Alaska salmon, not just our "top of the line" fish;
- negative biological impacts on our vital wild stocks and rearing habitat; and
- diversion of increasingly scarce State government fiscal and managerial resources toward management of a new industrial sector dominated by foreign capital and operators, to the detriment of our Alaskan industry.

Additionally, we contend that the developmental and employment benefits of salmon pen rearing to rural communities and to the economy of the State in general are being heavily, even irresponsibly oversold by pen rearing advocates.

MARKET CONSIDERATIONS

The advocates of aquaculture claim that consumption is rising and that there will be no competition between the farmed and the commercial forms of seafood. The reality is, that the bulk of the highly touted "world increase" in seafood consumption will occur in shellfish, and cod and catfish type fish rather than in the more expensive salmon species. This projected increased in world consumption has two main components.

(1.) Fish as a Cheap Source of Protein: Aquaculture in Third World countries has increased exponentially during the past few years - mostly in the form of warm water pond culture of tilapia and carp. Such culture in Third World nations is often run in conjunction with annual irrigation of rice fields, or in areas where the yield of protein per acre is grossly in favor of pond culture (fish such as Grass Carp or other herbivorous species for local consumption, or shellfish for export) where lands have a low plant productivity due to bad soil conditions. In the industrialized countries cheap protein is also important, but here consumption increases are largely in the form of "fast-food" fillets for fish sandwiches and deep fried catfish. Indeed, the largest aquaculture sector in the U.S. is Mississippi Valley catfish farming, and the single largest fish processor in the U.S. is a catfish processing plant.

(2.) The Health Benefits of Seafood: In North America and Western Europe, the increased recognition of the health benefits of seafood mostly spawned by the educational efforts of such institutions as the Heart Association and the National Marine Fishery Service, has led to a greater consumption of fish and shellfish. Consumers who increased their consumption for health reasons, are normally more interested in the expensive product forms, such as fresh or frozen salmon.

Unfortunately for Alaskan fisherman, the increased awareness and consumption occurred coincidentally with the advent of the Norwegian pen reared salmon industry - though not because of it, as some would claim. Through aggressive marketing and government subsidized production and shipping (including heavily underwritten air freight rates on the government owned airline SAS) the Norwegians made heavy inroads in this product niche of the seafood industry. Our Alaskan commercial fisherman, unprotected from this heavily subsidized, government organized marketing blitz into their traditional markets, have not enjoyed the benefits of increased demand through higher prices or expansion of market opportunities for our other salmon species, such as frozen reds and ocean bright pinks. So, Norwegian salmon has not just hurt trollers, it has limited diversification opportunities for gillnet and seine caught fish as well.

There is really only one market for quality salmon. This market is worldwide and must absorb all inventory, both fresh and fresh-frozen. As fresh-farmed salmon output increases, it cuts into the commercial high quality fresh-frozen market where Alaskan fish has been traditionally been dominant. Present worldwide production of wild salmon is 600,000 to 700,000 metric tons, the vast majority of which is pink, chum and sockeye salmon. Only 70,000 to 80,000 metric tons are high quality coho and king salmon, and it is these fish which are facing competition from pen-reared salmon. This competition is increasing yearly. The production of pen-reared salmon worldwide is expected to approach

150,000 metric tons by 1990. Such an increase will nearly triple the present volume of high quality salmon. In the world market, Western Europe, Canada, and the United States represent "the marketplace" for high-quality salmon. The troll industry's fresh and fresh-frozen product has already felt the impact of market competition from pen reared fish. Our king salmon price to fisherman has dropped from \$2.50/ lb in 1985 to \$1.80/lb in 1986. Cohos dropped .50 cents /lb this past winter when a large inventory of Norwegian fish was dumped on the French market.

Demand for this high quality fish just can't expand as fast as the supply is growing. Studies indicate that every man, woman and child in the United States would need to exchange a meat dinner for a salmon dinner to increase consumption by 25,000 metric tons per year. If pen-reared salmon production does reach 150,000 metric tons by 1990, then a population the size of the United States would have to eat six salmon dinners per year that they are not presently consuming. This is a product which retails for \$6.00 to \$8.00 a lb. Any economist will tell you that it is unreasonable to expect such a demand increase to occur in such a short time. It also means that the enormous amount of high quality salmon on the market will have to sell at reduced prices to compete within its own market niche, with other seafood, and with a more competitive red meat and poultry industry.

This problem was headlined in the December 1986 edition of FISH FARMING INTERNATIONAL which read, "SURPLUS SALMON WARNING - PRODUCTION MAY EXCEED DEMAND BY 23,000 TONS". The article stated that an imbalance of projected supply and demand by 1990 (three years from now) could cause sharp price reductions and upset profit margins. It stated that lower margins would force the least efficient producers out of the industry and preclude small-scale new entrants. It went on to say that farms which produce less than 500 tons per year (this latter type of large facility has a cost of US\$3 million +) would not have the product volume capacity to reach profit margins. They state that such large investment would be very risky, since a stock loss every five years through disease or the effects of unseasonable weather would yield zero net returns. Such losses are not without precedent. Salmon farmers in Norway, on the Sunshine coast of B.C., and at the National Marine Fisheries Service experimental farm at Little Port Walter in Southeast Alaska, have experienced such losses from algal blooms, stress induced by harassment from marine mammals, and from disease.

Commercial fisherman, as users of a wild, common property resource have been striving for years to stabilize natural fluctuations through hatchery enhancement and resource allocation. Pacific coast fisherman, in trying to solve those problems via the U.S./Canada Treaty, will face not only an increase in production from salmon farms, but the need to market the expected great increases in wild and ocean released hatchery

stocks resulting from the U.S./Canada Treaty. Canada and the Pacific States plan to release 2.6 billion enhancement salmon by 1990 - an increase of 245 percent! Add to this the increases from natural stocks rebuilding to maximum sustainable yield. This represents a tremendous investment in management and enhancement dollars, and tremendous sacrifices by our fishermen to achieve wild stock rebuilding. Pen reared salmon compete with these fish and dilute the value of our already massive investment.

It is also frequently asserted that penned salmon won't compete with Alaskan wild stock salmon since most of our production occurs during the summer, whereas penned salmon are sold in the winter. In fact, 10% of all pen reared salmon is sold in the summer. As long as penned salmon production was low, its summer market impact was not too severe. The total Alaska troll king and coho salmon production was about 9,700 MT in 1985. If full projected pen reared salmon production of 150,000 MT is reached by 1990, then a 10% summer market competition will be 15,000 MT in the summer of 1990. That is, they will dump more fresh fish in the summer market alone than the entire Alaskan troll production. As we have said, Alaskans in general will lose from this competition since the development of new product forms of pink/chum/and sockeye, ie. fresh frozen ocean bright quality, will be out-competed by the fresh farmed fish industry which has already developed its market strategy. But, the hardest hit will be the troll fleet. Our product, both fresh and fresh-frozen, competes head to head with pen reared salmon.

Since the volume of pen reared salmon projected by 1990 will triple the product volume available from the current harvest of all king and coho salmon (the two species which compete most directly with pen reared salmon), the issue of product saturation is both real and imminent. Whether or not Alaska becomes involved in the pen rearing of salmon will not change the fact that our wild stock fishing industry will see an increased market competition with pen reared fish, but we don't have to contribute to the problem.

I've spoken about world market impacts and their effects on Alaska fishermen, but if we allowed pen rearing in Alaska we would also have to deal with direct competition in our local markets. Most pen raised fish would be marketed in the winter when local fishermen are supplying local winter markets and getting their best price. When there is such high winter unemployment, winter fishing is both good for mental health and for the pocketbooks. Local pen-reared fish would severely hurt our local winter markets since buyers would not need to wait - as they're presently accustomed to doing - for a winter storm to pass so that local boats can "sneak back out" for a bit of winter fishing.

BIOLOGICAL CONCERNS

Additionally, salmon farming poses threats to our native stocks and our rearing habitat in Southeast. The rapidly growing aquaculture industry faces two big environmental problems; self-inflicted water pollution around the fish farms, and disease epidemics in the pens.

The problem of pollution from feces and unconsumed feed poses a real habitat problem. Most of the choice sites for aquaculture are important as nursery areas for other juvenile fish and shellfish. The problem of bottom habitat degradation is exemplified by the history of log storage facilities. The scientific literature is full of descriptions of the harmful effects to critical environments from hydrogen sulfide pollution - the same pollutant by-product associated with salmon farms.

As for disease, in 1983 epidemics cost the farmed salmon industry approximately \$110 million. Much of this occurred when a bacterial disease in Norway forced 29 out of 40 farms to slaughter their entire stock. Fish farmers, and feed lot farmers in general, respond to diseases with antibiotics which can lead to new virulent forms of disease. Virulency can take the shape of drug resistant disease strains or as new forms of disease to which natural stocks have little or no immunity. The major countries producing farmed salmon have either destroyed their

natural runs or never had them, so they have no natural stocks at risk. However, Alaska produces 90% of all U.S. landings, which equates to 43% of the world landings, from wild, natural runs of salmon. Can we really afford to risk a major disease induced crash of our wild stocks? We think not! Proponents of pen rearing would like to "wish away" the disease problem, but its not a simple thing to deal with and the risks are potentially catastrophic.

MANAGEMENT AND FISCAL CONCERNS

Pen rearing advocates are fond of stating that they aren't seeking State loans and hence won't have a fiscal impact on State government. This is a ruse. Loans aren't the only way of impacting the budget. With revenues getting tighter and tighter State resource managers are faced with doing more and more with less and less. Introducing pen rearing will have an impact on departments charged with regulating the seafood industry and managing the State's tideland resources. DNR, DEC, Revenue and ADF&G will all have to gear up to deal with permitting, regulating and otherwise managing this new industry. You tell me what it will cost! The only certain thing is that it won't be cheap, and that it will negatively impact already shrinking management efforts applied to our existing fisheries.

I think it would be very wise to have a detailed examination of the fiscal impacts of this legislation before proceeding further.

We have previously mentioned the U.S./Canada Treaty. Two additional programs were sold by the State of Alaska to the fishing fleet which promised a long term future and stability, Limited Entry and Salmon Enhancement. Though these programs hold promise, they have put the troll fleet in a precarious make-it or break-it balance. The farming of salmon can upset this balance. It is important to remember that Limited Entry was instituted to control excess effort and give assurances to fisherman that a reasonable livelihood could be obtained. The State also invested heavily in this process by making State loans available and by instituting additional programs which would benefit limited Entry participants and the seafood industry. Such basic assurances encouraged many Alaskans to invest their lives and wealth in this newly stabilized industry. If the State now decides to allow pen rearing of salmon, which competes directly with Limited Entry fisherman, it will have broken its trust with the existing industry. Additionally, salmon enhancement was conceived and developed in Alaska through a legislative process, the main intent of which was to exclude "private-for-profit" salmon farming or ranching. The Alaska Legislature understood at that time the social and economic implications of private salmon culture on a healthy commercial fishing industry. Those legislators understood that salmon culture was capital intensive and would likely be dominated by out-of-State extractive investment unless regulated to ensure that control and benefits remained in Alaska.

OVERSELLING THE ECONOMIC BENEFITS OF SALMON PEN REARING

Proponents of pen rearing salmon like to claim that they will be able to produce 1,900 jobs. Just how many of these will be held by Alaskans? A recent T.V. documentary promoting the salmon farming industry made a sad, unintended joke of this claim, stating that on the large fish farms on the Sunshine Coast in British Columbia you need to speak Norwegian to get by. We strongly contend that this new industry will not create 1,900 new jobs. On the contrary, it may well displace that many and more existing jobs in the seafood industry and its' supporting industries (shipwrights, fuel and food suppliers, etc.).

The Southeast troll fishery has the highest residency rate of any fishery in the state. Fully 85 percent of our fishermen live here in Alaska. Last year this represented nearly 3,500 fisherman and crew members. Using a standard 2.2 employment multiplier for Southeast indicates that the troll fishery alone may generate a total employment of 7,700 fishing, processing and support industry jobs, all of which are in some degree of jeopardy from pen rearing. Many trollers are barely making it now. Further, price slumps will place even more fishermen in the marginal category, forcing many to seek scarce winter employment on shore, and others to quit entirely. To the extent that Alaska based pen rearing hurts Alaskan fishermen, and it will, we are talking about displacing existing investment with new investment and new

people. As residents of Alaska, we want to see more jobs and more economic stability in our communities for the people that live here now. The following analogy exemplifies our dilemma. The Chamber of Commerce is always a strong local proponent of development. That is, until a Fred Meyers, Safeway, or McDonalds' wants to come to town. We all know that this is because the Chamber is made up of locally-owned small restaurant, grocery and shop owners who want some development, but not "that kind" of development. They know from painful experience that such new development often simply displaces existing industry owned and run by local people. That is the threat our fishermen - your neighbors - see and feel.

Pen-rearing is the latest economic "buzz word". Its logical conclusion is market saturation and an economic shake-out. Alaska's late leap onto the bandwagon - which will run out of gas about the time our production reaches market size - means more economic instability in communities which have suffered enough from the boom/bust economy which has characterized Alaska. The hype over salmon farms reminds me of a similar, though not so global, "new opportunity" in the early 1970's. Remember "worm farms"? Sportsfishermen surely wanted worms and the worm casts made a wonderful plant mix. The only problem was market saturation. Toward the end of that little boom, the only real money in worms was in selling the technology and equipment to "new farmers"! Isn't it interesting that Norway 'as curtailed developing new salmon farms, but is very hot on exporting its

technology, fry and pens to "new farmers" worldwide? They see the shake-out coming. We'd best have our eyes open too! This isn't just my opinion and advice, as I'm repeating sentiments which are increasingly being expressed in the international aquaculture industry press, most notably FISH FARMING INTERNATIONAL.

Salmon farming is capital intensive rather than labor intensive. Multi-national companies and foreign banks will put up the bulk of the start up dollars, and they will expect the earnings to flow back to them, as do out-of-State companies such as Fred Meyers or Safeway. Those profits won't be retained in the local community. Multi-national corporations are known to come in for the quick initial profits and sell out or just quit business for tax losses which offset other corporate gains. This is not just hype.

Certainly, wise foreign investment in Alaska is needed. We need the inflow of capital. However, such investment should be in the form of joint ventures with Alaskans, not just a license to steal from our resource base. Unfortunately, this bill does not address the issue of controlling the form and rate of growth of this proposed new industry to ensure that Alaskans are the primary beneficiaries (nor has the Alaska Mariculture Association put forth any proposals in this regard). Because of the start-up and operating costs involved, "Ma & Pa" type Alaskan operations will have a difficult time even "getting their foot in the door", and it is even more doubtful that any who did get started could stay

afloat if hit with a disease outbreak or a down turn in the market which all experts project within the next 3-5 years. Advocates of pen rearing like to sell the idyllic view of rural coastal Alaska sprinkled with hundreds of small scale, family run salmon farming operations. We see pictures of the old world charm of Norway with a neat, trim little salmon farm in the foreground. What you, as Legislators, aren't being told is that the Norwegians were only able to accomplish that through strict controls on the size of farms, establishment of quasi-public marketing agencies to ensure sales stability and fair treatment of individual small producers, absolute limits on the total number of entrants, etc. - in sum, strong central control over the magnitude, location and conduct of development. Nobody is even talking about those kinds of controls here. So, what will our development really look like?. Odds are it will take the form of large corporate farms with minimal labor inputs. Wherever possible these will be located outside existing cities or villages to avoid local taxes. Managerial personnel will be largely non-Alaskan. This is hardly a view to gladden the hearts of those who see salmon farming as a means to alleviate rural poverty in Alaska, but it is accurate. Just look at what has happened in B.C.

It would be interesting to know if Sealaska, one of the main promoters of this new industry, plans to invest it's own capital, or is it looking for foreign investment capital?

SUMMARY

It's true that many of the aforementioned impacts will occur whether or not Alaska allows the farming of salmon. We can do little more than prepare for the glut of high priced fish by assuring our quality standards and strongly promoting the market virtues of "Wild Alaskan Fresh And Fresh-Frozen Salmon."

The only real justification for permitting the pen rearing of salmon in Alaska is to produce benefits for residents of the State. We need to know in what manner and under what conditions pen rearing of salmon can produce benefits to Alaskans which outweigh the social and economic costs of introducing the new industry. The only answer which make sense to us, is one which compliments the existing industry rather than bringing in new people to compete with the existing seafood industry. Unfortunately, the advocates of pen rearing have not provided us with such a solution, and failing that, we don't see any good reason why the State of Alaska should actively contribute to aggravating difficulties for its own industry by permitting and promoting pen rearing of salmon here.

If entrepreneurs want to develop new aquaculture opportunities which do not negatively impact our existing industrial base, that's great. Indeed, we think there are many opportunities for Alaska to get ahead of the competition in new aquaculture technologies. There is already interesting work going on with scallops and oysters, and there is available technology for

lobster culture which might well be adaptable to high value Alaska crab species. These, and a host of other opportunities are what you should be encouraging. However, we ask you to say no to pen rearing of salmon, and urge you to beware of placing the State in a position of having to cope with the economic instability of a new industry which is nearing a major shake-out worldwide.

I would like to close my testimony with these thoughts from an article in the January, 1987 issue (pg. 5) of SEAFOOD INTERNATIONAL headlined "Salmon Prices Fall As Supply Forecasts Rise":

"Salmon prices are falling, and the Irish Sea Fisheries Board (BIM) is predicting they will continue to do so over the next five years. BIM commissioned a study to examine the potential supply and demand situation for farmed Atlantic salmon in the next decade, and the effects of increased production levels on prices. Using information based on the Norwegian, Scottish and Irish salmon farming industries, BIM concludes that adherence to strict quality standards and efficiency in production, marketing and distribution will become of crucial importance; but prices will still fall. (S)ome experts were forecasting...salmon prices...on a par with cod. The last two months of 1986 certainly saw a drop in price levels (in Europe). In the USA plentiful supplies also pushed prices down, and this is expected to continue. Meanwhile,

in all countries, production forecasts are up for this year. Future emphasis is likely to be on frozen fillets, portions, blocks and prepared items, with merchandising aimed at convincing the consumer that each country's salmon is the best."



UNITED FISHERMEN OF ALASKA

Jack Cadigan
Executive Director
907-586-2820
1-800-478-FISH

Mr. Chairman and Members of the Committee:

My name is Bob Blake and I am here to express some of the concerns the United Fishermen of Alaska and the Cordova District Fishermen United have with the CS for House Bill #108.

Our basic concerns are outlined in the United Fishermen of Alaska's Resolution 87-3, passed unanimously by the Board of Directors at their annual meeting the first week in February, which is:

Keeping in mind that Alaska has 90% of the U.S. salmon production and 43% of the world salmon production, excluding pen-reared salmon, you can understand our anxiety.

We raise the following issues:

1. (a) Disease related problems have the potential of affecting existing stocks of wild salmon which are fully utilized by sport, commercial and subsistence users, or are needed for PNP brood stock or spawning escapement.
(b) Potential of polluting the quality environment needed for continued production of wild stocks of salmon, sea run trout and other aquatic plants and animals by use of antibiotics in treating pen-reared disease problems, surplus fish food damaging the bottom dwellers around net pens, restriction of water current movement because of net pen placement, human waste and garbage contamination, etc.
(c) Genetic alterations are a potential concern; after several cycles of altering and domesticating, pen-reared salmon, upon escaping, could in turn effect the gene pool of wild stock.
(d) What are the impacts of hormones, toxicants (ie. TBT) antibiotics, etc., on the natural environment, animals and the human food chain?
2. Where do the smolt or eggs come from to start up a Mariculture industry?
(a) Certainly not from imported stocks - the history of importing smolts is laden with disease problems.
(b) Wild chinook in Southeast is still in the build-up stage to help fulfill the U.S./Canada Treaty obligations.

Southeast hatcheries are not up to maximum capacities to meet that obligation either, and even if they are close, what about the ever increasing needs of the sportfish, commercial and subsistence common property users? Chinook and coho stocks in Southeast are fully utilized under the existing fisheries and industry. The same goes for Cook Inlet and Prince William Sound, any surplus spawning escapement is currently utilized by FRED and PNP hatcheries for supplementing existing user group fisheries. All the chinook and coho stocks West of Cook Inlet are also fully utilized by existing fisheries or escapement.

✓ 3. Funding problems that need to be addressed:

.F.R.E.D. Division of the Alaska Department of Fish & Game would be required to bear inspection costs. They would have to develop a disease control and management program and provide all types of associated services. Where's the funding for these additional costs going to come from? The F.R.E.D. Division is forced by the proposed FY88 budget to close down four State hatcheries and reduce its other programs, all of which are valuable to existing users.

.D.E.C. will have to be involved with all the environmental research and monitoring. While that agency's budget isn't proposed to be cut this year, they simply don't have enough funding to monitor existing problems (even the Alyeska Pipeline Terminal).

.D.N.R. is way behind on existing work loads of permitting, land use planning, etc. That agency's budget is being cut even further.

.D.C.E.D. is set up in this legislation to be a lead-type agency. They are taking a 26% budget cut, I believe, for FY88.

None of the agencies involved are able to carry out their current legislative mandates and program needs for their existing respective user groups. Shouldn't their budgets be brought up to levels to meet the current needs of existing industries and user groups before the Legislature imposes more changes on them? I can appreciate the Legislature's desire to enhance the State's economy, but not at the expense of reducing the economic potential of existing industries.

4. Physical displacement of traditional users: Commercial fishermen fear disruption from traditional fishing grounds and anchorages, as well as the hazard to navigation salmon farms will pose. We have to assume that sport fishermen, recreational boaters and tourists will feel the same way. Waterfront property values could also diminish, depending on the siting of such farms. Tourism is a blooming industry in this State. People come to Alaska to find esthetic values, to photograph pristine environment, and to have the ultimate experience sportfishing and hunting, not to see salmon farms scattered all up and down the coast in all the favorite fishing spots and anchorages.

5. The PNP and State hatchery program has been stated as the best renewable resource investment the State has made with oil dollars. It's a shame that the State did not make more money available for this venture during times of plenty, because the program collectively has not come close to achieving its potential throughout the State. Our hatchery system supplements the wild stock resource for the common property fishery. Every person in this State has access to the hatchery-produced fish if they so desire, via commercial, sport or subsistence fishing. This venture in hatchery production has created many more jobs for State residents and helped maintain the economic viability of the commercial and sport fishing fleets in much of the State. In Prince William Sound, for instance, the commercial fishermen opted to increase the salmon resource rather than eliminate many of the fishing permits. We have done this through ocean ranching and it works. Our Prince William Sound hatcheries are also producing chinook and coho for sport fishermen and tourists. If the State is ever again going to invest in the salmon industry, it should invest in the proven commodity, and not in potential disaster. The existing industry provides many, many thousands of jobs.

6. Funding: As stated earlier, the State is not willing or able to fund the four agencies that will have to be involved with this Mariculture legislation to a level that will allow them to adequately manage their present obligations. This needs to be rectified first. Both the Enhancement and Commercial Fishing Loan programs have been mislabeled "revolving". The principle and the interest from both programs go directly into the General Fund upon repayment. Both loan funds are literally out of money unless the Legislature makes an appropriation to them. Some of the loans from these programs have been transferred to AIDA to help finance things like the Red Dog Mine. These loan repayments go directly to AIDA, not to the General Fund. It might be a consideration of this Committee to look into this "non-revolving" situation before there is no money left for reinvestment in the State's largest non-oil industry.

7. What are we trying to accomplish with pen-reared salmon? Are we trying to create a "cottage" industry, a "mom and pop" show up and down the coast, or are we trying to develop an environment for multi-national investors to exploit to the fullest by providing a few jobs and taking home the profits (if there are any) at the expense of several existing industries? If the State is desirous of maximum potential benefit to the State itself, or its residents, it will have to make a tremendous financial investment in order to pull it off. Norway had to do it because its rural coastal communities were drying up from lack of fisheries resources to sustain their economy. Norway also had very little natural "salmon" resource to worry about or consider effecting. Alaska's present economic situation and flourishing salmon stocks do not mandate such a move. Besides, it does not appear that the limited size structure restricted by Norway to accomplish their goal will be economically viable in Alaska. Without the money to do it in-State, the only logical option would be to allow outside investors to come in, bring their experts and equipment with them, and control an industry that will provide just a few local resident jobs while competing for General Fund dollars and services at our expense. In my "logical" scenario, it would be prudent for the State to carefully analyze the actual value gained for potential cost incurred. As commercial fishermen, we realize the market impact of pen-reared salmon on Alaska wild salmon. While we don't feel that pen-reared will ever really displace our markets, we do already feel an impact and will continue to feel that impact with or without Alaska being involved. If this Committee is intent on pursuing HB108 in its present form, then it should consider including in the legislation a time frame during which pen-reared salmon could be sold in order to not directly compete for market space during the wild salmon seasons.

As the U.F.A. and the C.D.F.U. support the careful and controlled development of shellfish and plant mariculture, and we are not desirous of slowing down the process by which the existing shellfish farmers can continue, or new farmers becoming involved, we suggest that this Committee split the two issues into two separate bills, thus allowing shellfish legislation to proceed with little or no resistance.

We appreciate the opportunity to speak on this issue during its past hearing and will be providing more information and comments in the future. Thank you.



UNITED FISHERMEN OF ALASKA

Jack Cadigan
Executive Director
907-586-2820
1-800-478-FISH

UNITED FISHERMEN OF ALASKA

RESOLUTION 87-3

WHEREAS in 1985 the United Fishermen of Alaska requested the State of Alaska to perform a thorough study of the biological, economic and sociological problems and potentials of salmon pen rearing in Alaska, but this study has not yet been undertaken; and

WHEREAS the UFA supports the careful and controlled development of shellfish and plant mariculture; and

WHEREAS the development of the salmon farming concept of mariculture will adversely affect the fishermen and the most successful hatchery and enhancement program in North America by: (1) reallocating State funds and services; (2) competing with markets for wild salmon; (3) preventing water and land use of traditional fishing, hatchery, enhancement, and smolt rearing and release sites; (4) increasing the potential disease contamination of the wild stock; and

WHEREAS no realistic fiscal note has been produced to identify the cost to the state incurred by the management of the proposed activities;

NOW THEREFORE BE IT RESOLVED that the Board of Directors of the United Fishermen of Alaska urges the State of Alaska to take no action on legislation and development of salmon farming mariculture until such time as the aforementioned issues of concern are addressed through private and public forums.

Robert M. Blake
President

Date

Alaska Mariculture Association

P.O. Box 020704

Juneau, AK 99802-0704

(907) ~~586-2032~~ 463-3600

STRAIGHT TALK ABOUT MARICULTURE DEVELOPMENT IN ALASKA

- Q. I've been hearing a lot about mariculture development in Alaska. What is it all about anyway?
- A. Mariculture--or sea farming--is a rapidly growing industry throughout the world that produces food, pharmaceutical and industrial products. Interest in Alaska focuses on the cultivation of high value fresh products to supply growing premium quality seafood markets. The productive, unpolluted waters of Alaska's many sheltered bays and fjords are considered some of the best mariculture sites in the United States. These sea-farming operations offer tremendous opportunities in coastal Alaska to develop year-round jobs. This is particularly important in rural communities where there are few other realistic, stable sources of new local employment. Literally thousands of non-petroleum dependent jobs could be created.
- Q. What kind of jobs and how many will be created? Are we talking about another industry that will employ many non-residents and provide few local benefits?
- A. One of the most attractive features of mariculture is that it will offer year-round jobs which are likely to be filled with local residents. Many mariculture operations, particularly shellfish culturing, are ideally suited for family enterprises. Finfish farming is more likely to involve a range of businesses from family operations to medium sized farms employing up to ten people. These businesses also will create new opportunities for local processing plants, light industrial manufacturing of equipment such as nets and pens, and new markets for fish and fish wastes to be used in production of fish food. The increased exports of fresh seafood products also could help lower transportation costs for all Alaskans. The number of new jobs that could be achieved under development of the full potential of sea farming in Alaska is difficult to estimate. A 1987 study for the legislature projected "a total employment effect of about 1,920 jobs and a payroll of \$48.8 million" for salmon farming alone. This would provide more resident jobs than the present Alaska logging industry and nearly double the resident payroll.

Q. Isn't mariculture something new and untested?

A. Fish farming probably originated in China about 600 B.C. and oyster culturing thrived in ancient Rome and Gaul. Recent advances have led to an aquaculture explosion around the world. The federal government estimated the 1983 world production of aquaculture seafood at about 22 billion pounds; this is expected to increase to 48 billion pounds by the turn of the century. Commercial fishing landings are expected to remain relatively stable during the same period. This production from aquatic farms will become increasingly important to keep pace with projections for increased consumption of seafood.

Q. How do we know it will work in Alaska?

A. Alaska already has nearly a dozen sea farms producing oysters, one producing mussel farm, and a recently concluded agreement between the State of Alaska and Japan calls for the development of seven scallop sites on Kodiak Island to test the feasibility of scallop farming in Alaska. The agreement also covers a feasibility study of giant kelp (*Macrocystis*) farming in Sitka. Experiments conducted in Southeast by the state and federal governments have proven the feasibility of pen-rearing king salmon to marketable size in a competitive period of time.

Q. I'm concerned about salmon farming. Can you tell me more about it?

A. There currently are about 15 countries currently producing pen-reared salmon. Worldwide production of farmed salmon increased from 27 million pounds in 1981 to 97 million pounds in 1985. This is expected to grow to 314 million pounds by 1990. These dramatic increases are reacting to a strong and growing demand in the marketplace for fresh, high quality seafood. Seafood consumption is growing rapidly throughout the world, and no where faster than in the U.S. Americans ate 609 million more pounds of fish in shellfish in 1985 than they did in 1982 which represents a 21.5 percent growth in only four years. Since domestic commercial fishing production declined over the same period nearly all of the increased sales were enjoyed by foreign producers. In fact, America's seafood trade deficit increased by 14 percent in 1985 alone to climb to a staggering \$5.6 billion.

Q. Even though the market is growing, the increases in farmed salmon production sound like they might hurt our salmon fishermen.

Sales of farmed salmon in the U.S. are directed at markets for premium quality fresh seafood; the Alaska Seafood Marketing Institute estimates that only three percent of Alaska's salmon catch is sold on fresh markets. A 1986 survey of major U.S. seafood distributors conducted by the Alaska Sea Grant Program and the University of Alaska reveals that few buyers consider

farmed salmon to be a legitimate substitute for frozen wild salmon. Markets for Alaska's great volume of lower value salmon species (pinks and chums) and virtually all canned production clearly are unaffected by the high value farmed salmon. Likewise, existing markets for frozen sockeye salmon appear to be unthreatened. The only area of market impact on Alaska fishermen from farmed salmon is the "white tablecloth" restaurant trade which is primarily filled by troll salmon. Trollers accounted for about four percent of the value of the 1985 salmon catch. The relatively minor impact of farmed salmon on prices for wild salmon is underscored by recent figures from the Alaska Department of Fish and Game. The 1986 Alaska salmon catch of 123.5 million fish was worth \$385 million to fishermen or \$15 million more than value of the previous year's harvest of 144.6 million salmon.

- Q. This information appears to suggest that farmed salmon is having little impact on markets for wild salmon, and there is a growing demand for premium quality salmon. How can we take advantage of this opportunity?
- A. To take full advantage of the growing markets for premium salmon Alaska should move forward on two fronts. First, we need to more aggressively promote our premium quality salmon products, both fresh and frozen. A pilot project for a Premium Quality Seal Program was tested in 1986 by the Alaska Seafood Marketing Institute and Department of Environmental Conservation using frozen troll-caught salmon. If successful, this project could forge the way for the needed promotional effort. Secondly, Alaska should move forward with the pen-rearing of salmon so we don't miss out on this important opportunity for growth. Millions of dollars have been pumped into the Norwegian economy from 740 salmon farms and 250 hatcheries. This fact has not gone unnoticed by Alaska's neighbors--British Columbia and Washington State--who are aggressively promoting salmon farming. The market opportunities will be filled by others if Alaska fails to act.
- Q. Have salmon fishermen in other countries become involved in salmon farming?
- A. Yes. More than half (55 percent) of the applicants for Norwegian salmon farming permits between 1973 and 1978 came from a fishing background. The Prince Rupert Fishermen's Cooperative in British Columbia provides an excellent example of how fishermen can take advantage of fishing and farming. Groups of six to eight fishermen are forming partnerships with local entrepreneurs to finance and operate salmon farms. Cooperative members have 10-20 farms under development. The Prince Rupert Cooperative operates hatcheries and a feed mill to service farms of members and to sell surplus production to others. The cooperative processes and markets the wild and farmed production of its members. These fishermen also are experimenting with oyster and mussel farming.

Q. How about impacts on our wild stocks? Won't exotic diseases be introduced, and what about the potential for sea-farmed fish and shellfish to escape and intermingle with wild stocks?

A. The State of Alaska already has recognized the need to ensure that cultured fish and shellfish do not pose a health risk to wild stocks. The state has implemented the most stringent cultured fish health standards in the nation. These regulations apply to the existing private nonprofit salmon ocean ranching program and to mariculture operations. The impressive track record of Alaska's ocean ranching program demonstrates that salmon, other finfish and shellfish can be cultivated in public waters without risk to wild stocks. These proven regulations are a model for health management systems at mariculture facilities. Mariculturists are very concerned and careful about the prevention of disease because it is critical to the profitability of sea farms that production losses be very minimal. State government will play major regulatory and extension agent roles in ensuring that mariculture operators have adequate health management systems to maintain the health of the cultured species while protecting wild stocks. A 1986 study by the University of Washington concluded that disease from farmed fish "does not appear to be transmitted to the wild population." The study went on to say, "The potential consequences of the interbreeding of escaped and wild organisms, if any at all, are unclear. However, for salmonids at least, the potential magnitude of the problem would seem minimal" when compared to the impacts of present ocean ranching programs.

Q. Mariculture operations obviously require continual sources of brood stock. Where will it come from? Will it impact existing fisheries and enhancement programs?

A. Sea farms will require dependable sources of disease-free brood stock. During initial development of a salmon farming industry, brood stock will be acquired through purchases of surplus eggs from private or public hatcheries. This can be replaced by private hatcheries developed by salmon farmers. Some shellfish farms--mussels and scallops--will require the collection of brood stock from wild sources. Brood stock taken from these common property sources--hatcheries or gathering from the wild--will occur only if a surplus exists.

Q. I'm concerned about pollution. Will sea farms create accumulations of waste that will pollute our waters?

A. Clean water is a primary concern of mariculture operators as most cultured species are very susceptible to pollution. One of the reasons Alaska is so attractive as a mariculture center is its clean and pure waters. A recently completed study by the University of Washington of salmon farms and shellfish operations in Puget Sound said there appears to be little risk of adverse environmental impacts from mariculture. Only farms located in

areas of very poor circulation pose any danger of accumulations of organic rich debris threatening sea life.

Q. If mariculture is such a natural for Alaska and could be so beneficial why are there so few sea farms?

A. Alaska has lagged behind other areas primarily because of the strength of its natural fisheries resources; mariculture development has been pioneered in countries where the natural stocks have been depleted. The strong market demand for cultured seafood has sparked considerable interest in Alaska in recent years. Individuals and companies interested in mariculture in Alaska have encountered the normal problems facing the development of any new industry. In this case, those problems have been exacerbated by the lack of a state policy on mariculture development and the resulting void in direction to regulatory agencies. The many Alaskans interested in mariculture have found that permitting processes presently exist only for oyster farming.

Q. Does this mean Alaska needs to develop a new layer of regulations and bureaucracy to deal with mariculture?

A. No. Existing permitting processes can easily be adapted for mariculture licensing, and the industry will require little in the way of new government services. Mariculture supporters are primarily interested in getting the state to provide a regulatory climate conducive to development of stable, profitable businesses.

Q. Who will be able to participate in mariculture anyway?

A. Mariculture is open to everyone. No limited entry system or other artificial legal barriers have been erected. As mentioned earlier, there is great opportunity for many small-scale businesses, many of which will primarily require sweat equity investments.

Q. You've convinced me. How do I find out more about mariculture and get involved in this wonderful opportunity?

A. The Alaska Mariculture Association has been formed to advocate policies leading to the development of a stable, year-round mariculture industry, and to assist businesses develop into profitable operations. The AMA will provide members with information pertaining to the permitting and regulatory system, markets, sources of investment capital, quality assurance practices, research, suppliers and other issues of concern. Memberships start at only \$25 per year.

(907) ~~586-2032~~ 463-3600

Power troller (44' wooden) with permit	\$87,000
Prince William Sound gillnet (28') w/permit	110,000
Cook Inlet salmon seine (36' fiberglass) w/permit	157,500
Steel seine vessel w/SE salmon permit	289,500
w/SE salmon & herring permits	589,500
w/False Pass salmon permit	500,000
AK Peninsula drift/longline (46') w/salmon permit	550,000
66' steel crabber/longliner w/refrigeration	350,000
53' steel seiner/crabber	400,000
108' steel joint venture dragger	1,950,000

Alaska Mariculture Association

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Mariculture Development and Alaska Processors

Alaska has some of the world's largest seafood processing capacities, but most of these plants remain idle or under-utilized for much of the year. Mariculture offers the opportunity to utilize these plants on a year-round basis, lowering overhead costs, providing more stable work forces and allowing Alaska companies to be more competitive in markets seeking continual supplies of fresh seafood.

Cultivation of shellfish--oysters, mussels, scallops--offer the opportunity for Alaska processors to diversify product lines, while salmon farming can provide a flow of fresh product during the off-season for commercial fishing. The year-round nature of mariculture also will help improve transportation services and lower the cost of moving product to the marketplace.

Mariculture also will provide a good market for fish food made from the waste generated at processing plants.

The complementary nature of mariculture to commercial seafood production is apparent in British Columbia where processors report an increasing flow of farmed salmon into existing processing facilities. A recent report prepared for the B.C. government said the B.C. Fisheries Council which represent major fish processors in the province "reported that a trend was beginning whereby many processing companies were joint venturing with fish farms to market their product, thereby using the excess capacity of existing plants. Government sources indicated that over 50 percent of farm salmon had recently been contracted for processing by the major unionized companies."

A recent article in the magazine Canadian Aquaculture points to a growing interest among processors in fish farming. "I think salmon farming could be the biggest thing in the seafood industry," said Harry Guenther of J.S. McMillan Fisheries. Guenther said the company plans to develop hatcheries to supply salmon farms, pick up grown fish from the farm sites, and provide processing and marketing services.

"Right now we all have underutilized production capacity," Guenther said. "Fish farming means these assets can be operated 12 months a year."

(over)

B.C. Packers, the largest processor in the province, also is processing and marketing farmed salmon. Explains company officer Vance Lipovsky: "B.C. Packers is in the business of selling fish. It's not important whether it comes off a boat or from a farm as long as it's of high quality."

Another example of the compatibility of fish farming and seafood processing comes from the east coast of Canada where Connors Brothers Limited has expanded into salmon farming. "We've taken an idle fish plant and turned it into a hatchery and feed plant," said a Connor Brothers spokesman. "Aquaculture allows us to keep employees we might otherwise have to lay off and provides additional employment opportunities as well."

The Prince Rupert Fishermen's Cooperative, B.C.'s second largest processing company, provides a clear example of the opportunities for both processors and fishermen. The House Research Agency reports that groups of six to eight fishermen are forming partnerships with local entrepreneurs to finance and operate salmon farms. Cooperative members have 10-20 farms under development. The coop operates hatcheries and a feed mill to service farms of members and to sell surplus production to others. The cooperative processes and markets the wild and farmed production of its members. These fishermen also are experimenting with oyster and mussel farming.

In explaining his support for mariculture development, one Southeast Alaska processor recently told the Alaska Mariculture Association that he wants to operate his plant, retain his local work force and supply customers seeking fresh fish on a year-round basis. Despite his efforts to buy all the troll salmon available during the winter fishery, he was able to purchase only 500 pounds of product the previous week. Naturally, the workers were sent home, the plant sat idle and the customers bought fish elsewhere.

Alaska Mariculture Association

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Alaska Mariculture and Seafood Markets

Development of mariculture in Alaska could strengthen the competitiveness of Alaska seafood in the world marketplace. By broadening the diversity of products and providing year-round supplies of premium quality seafood, sea farming will help Alaska take better advantage of the growing appetites of consumers for fish and shellfish.

Seafood consumption in the U.S. grew by 609 million pounds or 21.5 percent during the past four years for which statistics are available (1982-85), but nearly all of that growth came from increased imports of foreign products. In fact, imports of foreign fish and shellfish increased by 14 percent in 1985 alone. The U.S. fisheries trade deficit amounted to a staggering \$5.6 billion that year.

The growing consumer demand for seafood in the U.S. and throughout the world is being filled by aquatic farm products. Global aquaculture production in 1983 was 22 billion pounds and accounted for about 12.2 percent of the total world supply of edible fish and shellfish. Experts say aquatic farming production will reach 48 billion pounds by 2000.

At the same time, commercial fishing production in the U.S. is declining slowly and world fisheries landings have stabilized. World aquaculture production is expected to grow by 5.5 percent annually over the next 25 years, while fisheries landings are anticipated to increase by .5 percent annually.

Development of oyster, mussel and scallop farms would bolster Alaska's ability to offer a variety of high quality fresh seafood, while salmon farming could allow seafood distributors to offer year-round supplies of fresh Alaska salmon. A long-term strategy of supplementing commercial fisheries landings with supplies of cultured seafood is Alaska's best hope of remaining a major force in world markets.

Another important market consideration for Alaska in mariculture development is the potential impact of farmed salmon production in the state upon commercial fishermen. A close look at the discrete markets for Alaska's diverse salmon industry reveals that farmed salmon competes with a very small segment of our wild salmon production.

(more)

Farmed salmon sales in the United States are directed at buyers willing to pay a premium for year-round supplies of high quality fresh seafood. Canned salmon and lower-value fresh and frozen products (pinks and chums) do not compete with farmed salmon. The deep red flesh and stronger flavor of sockeye salmon provides a secure market niche for Alaska's most valuable salmon species.

The premium quality U.S. markets being penetrated by foreign farmed salmon are important to only a small portion of Alaska's salmon production. Alaska's troll salmon production which supplies the bulk of premium quality salmon marketed in the "white tablecloth" restaurant trade accounted for less than 4 percent of the total value of Alaska's 1985 salmon production.

While farmed salmon has had a dramatic impact on European markets for Alaska's premium quality chinook and coho catches, the effect in the United States is very unclear. A 1986 survey of U.S. seafood buyers by the Marine Advisory Program showed that distributors and brokers, by a three-to-one margin, do not regard farmed salmon as a substitute for frozen Pacific salmon. This is significant since the Alaska Seafood Marketing Institute estimates that only three percent of Alaska's salmon production is sold on fresh markets.

Also important to keep in mind is that demand in the U.S. for seafood is rising so rapidly the market appears to be prepared to handle tremendous new volumes of product. And, foreign production of farmed salmon will be streaming into the U.S. from the 13 other countries now involved in salmon farming, regardless of what happens in Alaska.

A Scottish marketing research report said farmed salmon provided slightly more than six percent of the world salmon supply in 1985 and is expected to increase its total world market share to about 14 percent by 1990. The Alaska House Research Agency in a 1987 report to the legislature said, "By 1990, total farmed (salmon) production is expected to dominate world trading in both fresh and frozen premium products."

The additional amount of farmed salmon an Alaska industry is likely to produce will have an insignificant influence on any market competition between world supplies of pen-reared salmon and Alaska's wild catch. If the premium quality markets for Alaska's commercial fishing salmon production is to be affected, then these impacts will occur whether or not Alaskans are involved.

The House Research report on salmon farming summed up the situation like this: "...the question of whether or not pen rearing of salmon should be allowed in Alaska misses the crux of the issue. Rather, the basic question is whether or not Alaska will use its comparative advantages as a producer of farmed salmon to compete in growing domestic markets."

Sitka Conservation Society

P.O. BOX 316

SITKA, ALASKA 99835

6 March 1987

Govenor Steve Cowper
Box A
Juneau, Alaska 99811

Dear Govenor Cowper:

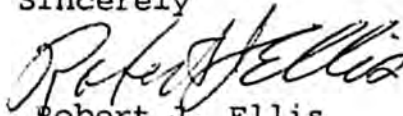
A very important public resource is being lost for lack of planning for the Southeast Alaska Coastal Zone. There is urgent need for a moratorium on issuance of tide lands use permits for lodges and mariculture.

Sitka Conservation Society has been following the rapidly developing land rush to homestead our tide lands and views this activity with great alarm. This later day "land rush" is well exemplified in the requests for land use permits in such widely scattered locations as the lodge at Kelp Bay, another floating lodge at Kell Bay on Kuiu Island, a fin fish culture site in Vixen Inlet north of Ketchikan, and a oyster culture site at Edna Bay on Kosciusko Island in Sea Otter Sound. Soon all our bays and inlets will be committed.

The Sitka Borough is revising our Coastal Zone Management Plan and the use of our bays and inlets has been a major issue of concern from subsistence users, commercial fishermen and potential mariculture operators among others. It is clear that a similar problem exists for all of Southeast--if we do not act soon to prevent uncontrolled development the opportunity for planning will be lost.

The Sitka Conservation Society requests that the State of Alaska through the Department of Natural Resources institute a moratorium on issuance of tide land use permits for floating lodges and mariculture until a Southeast-wide plan for these public lands is completed. We must act quickly to prevent the permanent loss of this tremendously valuable public resource.

Sincerely



Robert J. Ellis

for Sitka Conservation Society
Box 316
Sitka, Alaska 99835

cc: Senator Eliason
Rep. Grusendorf
Comm. DNR
Comm. ADFG
Sitka CZM Committee
Sitka Borough Assembly
Sitka Fish and Game Advisory Comm.
NSRAA
Troll PAC

Dick Eliason, Senator
Alaska State Legislature
P.O. Box V (MS 3100)
Juneau, Alaska
99811

February 23, 1987

Dear Senator Eliason:

As a partner in a private, non-profit salmon hatchery and "hopeful-to-be" participant in a mariculture operation, I have a personal interest in SB-106. As a professional economist in Alaska since 1971 and a resident since 1963 I am convinced that your support of mariculture in Alaska is in the public interest.

Many people who have an interest in mariculture do not expect state loans, gifts or other forms of "help". What we do expect and hope for is a simple approach that will remove the bureaucratic pitfalls and redundant state "processes" that required over four years of persistence and dedication to obtain just the permits for one of the private non-profit hatcheries.

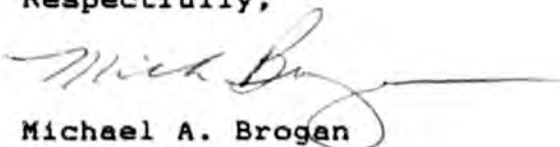
What we ask for is a cleared path that we can walk on in pursuit of our entrepreneurial interests. I cannot afford another four or five years of expense, labor and opportunity cost.

It is predictable, I suppose, but disturbing that the regional aquaculture associations have solicited proposals from lobbyists to mount a campaign designed to prevent passage of legislation that will allow for private mariculture operations.

Your expertise and leadership will prove invaluable in allowing the mariculture industry in Alaska to prosper and grow. Alaska is a small part of the international fishery economy, but the potential exists to become very significant. If you will assist by making sure that we are allowed to pursue our goals the potential may be realized.

I will look forward to your response and contribution to enabling legislation.

Respectfully,



Michael A. Brogan
1435 N ST.
Anchorage, Alaska
99501



Telegram

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SEN DICK ELIASON

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JUNEAU AK

PROTECT ESTABLISHED FISHERY INCOMES BY CRITICAL SCRUTINY
OF POTENTIAL DAMAGES RESULTING FROM PASSAGE SB106 HB108.

DAVID KUBIAK

PO BOX 2084

KODIAK AK 99615



Senate Rules Committee

Senator Richard I. (Dick) Eliason, Chairman

AG's opinion on
current statutes

MEMORANDUM

State of Alaska

DEPARTMENT OF FISH AND GAME

TO: Larri Spengler
Assistant Attorney General
Department of Law

DATE: February 6, 1987

FILE NO.:

TELEPHONE NO.: 465-4100

SUBJECT: Fish Farming

RECEIVED
Department of Law

FEB 11 1987

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

PM
7 8 9 10 11 12 1 2 3 4 5 6

In recent months there have been an increasing number of questions as to what is legal and not legal in conducting fish farming operations. I would appreciate your assistance in analyzing existing law on the subject. There is an immediate need to clarify what can and cannot be legally done now and begin discussions on how best to clarify any ambiguous matters.

The staff has reviewed existing Title 16 statutes and regulations dealing with fish farming, commercial fisheries, salmon hatcheries, research, and fish importation, transplantation, and holding. That review indicates that some fish farming activities are legal, although the route one must follow through the law to reach that conclusion is complex. Other matters are not so clear. Set out below are the results of the review.

I would very much appreciate your timely comments on our conclusions, as well as any suggestions for needed changes. All indications are that fish farming legislation will be introduced early this session; therefore, both departments need to be prepared to deal with the legal issues involved under existing law and any proposed in legislation.

Collecting Permits

The department has issued what are commonly referred to as "collecting permits" [AS 16.05.340 (b)] to initiate cooperative efforts with other public agencies and the private sector involved in mariculture projects. While such permits are appropriate for conducting mariculture research projects, they are not appropriate for initiating commercial ventures. The statute indicates that the permit is to be limited to scientific, propagative, and educational purposes. It has been a long standing policy that fish taken under these permits may not be sold, bartered, or used for human consumption.

We prefer to stop issuing collecting permits to private individuals involved in scallop mariculture research. Many of these people believe that by receiving these permits they are grandfathering themselves into a fishery. Such is not the case. Additionally, we feel that there are other legal

avenues that can be used to establish commercial ventures associated with farming of scallops, as well as some other species.

Fish Farming License

The Department of Revenue, under AS 16.05.340 (a)(14) may issue a fish farming license. Fish farming, by definition [AS 16.05.940 (12)] is a commercial activity, thus allowing one to sell the products of the operation. The farming operation must conform to the statutory definition, e.g. the fish must be held in positive control and enclosed in an escape-proof barrier. By informal agreement, the Department of Revenue does not issue fish farming licenses without approval from the Department of Fish and Game. This policy is predicated on the fact that we are the agency that administers the laws that govern the taking or importation of the fish species that would be farmed. This policy ensures that fish farming activities are biologically and legally sound. With the growth of mariculture, the existing policy should be formalized.

Stocking Fish Farms

Since it appears that fish farming, in general, is a legal activity, we must then look at the legal means of obtaining the fish to be farmed. Those fish can be imported or obtained instate. Most of our experience has been with imported species, so I will cover those first.

The importation, transportation, and possession of live fish are covered by the regulations found in 5 AAC 41. 5 AAC 41.001 and 5 AAC 41.070 limit importation to ornamental fish. No other species of fish may be imported for use in fish farming.

A question that many find perplexing is how does one obtain, other than by importation, fish for placement in a farm? It seems clear to us that, at the present time, one must do this through commercial fishing laws. Since fish farming and the sale of fish to farms as brood stock are commercial operations, the taking of those fish cannot be done under sport, subsistence, or personal use fishing regulations. If one has all the proper permits and licenses, the season is open, and legal gear is used, the fish may be harvested and subsequently farmed. For the most part, this is clearly the case for shellfish. The case is not so clear for finfish. 5 AAC 37.900 prohibits the transplantation of aquatic plants for the purpose of farming of the plant.

Procedures Under Current Law

The following lays out how we might handle requests for fish farms and associated operations under current laws. We would ask the individuals to discuss their operation with the local area management biologist, as well as FRED Division staff. They would review the request and route their recommendations up through channels. The farmer or fisherman would then, if he so desires, start the process of obtaining the needed permits and licenses. The processes, licenses, and permits will differ depending on species involved and whether the operation is to gather brood for sale to farms or the farming of purchased brood. Those who obtain their own brood stock will need to follow a combined process.

One who only takes fish to sell as brood stock would follow, with some possible exceptions, the process followed by typical commercial fishermen. The brood stock supplier would obtain an interim-use or entry permit from Commercial Fisheries Entry Commission (CFEC) for the species and gear types needed. He could then harvest those species during the normal open season provided by regulation. This will work fine for some species; particularly those without size limits, those for which the season is open during a period when individuals of the desired age are available, and those for which appropriate gear can be used. In some instances, seasons could be adjusted to allow the taking of juveniles or larva. Under AS 16.05.050 (10), the commissioner could approve the issuance of a CFEC permit for a new gear type, such as scallop spat collecting bags, which could be used to capture larvae or juveniles. Additional controls could be placed on brood stock fisheries through permitting processes. For most invertebrates and some bottom fish, this could be done through existing regulations such as 5 AAC 38.062. For other species, seasons for taking under the conditions of a permit issued by the department could be opened by emergency order. We have used this approach in the past to initiate experimental-type fisheries.

Once a brood stock is available, the Department of Revenue (DOR) licensing and DF&G permitting process for the fish farmer are relatively simple. The farmer would apply to DF&G, under 5 AAC 41, for a permit to transport and hold live fish. We would review the proposed operation for compliance with AS 16 and 5 AAC. Upon issuance of the permit, we would then recommend that DOR issue a fish farming license.

As I indicated earlier, the above processes can currently be used to handle most fish farming and brood stock requests. The process is not easily deduced by the public, and for that matter some staff, and is rather complex in

Larri Spengler

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February 6, 1987

implementing. If you agree that the processes as outlined are legal, we could then develop a document that explains those processes in a logical clear manner. Additionally, your analysis and comments on the process will be invaluable in assisting the legislature in development of clear fish farming policy and statutes.

cc: Steven Pennoyer
Ken Parker
Tom Kron

MEMORANDUM

State of Alaska

TO	Hon. Don Collinsworth Commissioner Dept. of Fish and Game	DATE	January 31, 1985
		FILE NO.	366-187-84
	Norman C. Gorsuch Attorney General	TELEPHONE NO.	465-3600
FROM	By: ^{LIS} Larri I. Spengler Assistant Attorney General Department of Law	SUBJECT	Marine net pen salmon rearing

You have asked whether marine net pen salmon rearing is authorized under current fish and game statutes and regulations, and if it is not, what steps would be needed to do so. As discussed below, it appears that fish farming would not pose any constitutional problems, but that it is not now statutorily authorized.

As explained by your department, marine net pen salmon rearing differs from the private nonprofit hatchery program authorized and governed by AS 16.10.375 -- 16.10.475 in that the salmon are not released into the open ocean where they are subject to the common property fishery. Additionally, the salmon are not hatched from eggs as part of the operation, but rather smolts are reared in enclosures that either float or are grounded on the ocean bottom under state or federal leases. The salmon in the enclosures are placed there by the operator of the fish farm.

Fish farming is clearly contemplated by existing statutes. It is defined in AS 16.05.940(12) as

the business of propagating, breeding, raising, or producing fish ... in captivity for the purpose of marketing the fish ... or their products, and "captivity" means having the fish ... under positive control, as in a pen, pond, or an area of land or water which is completely enclosed by a generally escape-proof barrier.

A fish farming license costs \$100 and is to be obtained from the Department of Revenue. AS 16.05.340(a)(14); AS 16.05.360.

Just after statehood, the attorney general's office determined that salmon farming as defined now in AS 16.05.940(12) would not violate the Alaska Constitution. 1959 Inf. Op. Att'y Gen. (June 10; Gregg). The question arose because article VIII, section 15, of the Alaska Constitution provides in part:

No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State.

Honorable Don Collinsworth
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This provision is "based on section 1 of the White Act of June 6, 1924, 43 Stat. 464, under which Alaska's fisheries were regulated prior to Alaska's statehood." Bozanich v. Reetz, 297 F. Supp. 300, 306 (D. Alaska 1969), rev'd on other grounds sub nom Reetz v. Bozanich, 397 U.S. 82 (1970). The leading case considering the White Act is Hynes v. Grimes Packing Co., 337 U.S. 86 (1949), which noted:

Congress did not propose that these rich fishing grounds should be monopolized ... [t]he legislative history of the White Act only emphasizes what the statute clearly says, that is, no special privileges in Alaskan fishing preserves.

337 U.S. at 120. The case enjoined a closure of certain Alaskan waters to fishing by all but residents of the Karluk Indian reservation and their licensees. It is that kind of exclusive right or special privilege that article VIII, section 15, is designed to prohibit; no fishing opportunity may be made available to a closed class. As the court in Hynes noted, the provision prohibits a grant to a single individual, corporation, or any special group or number of people. 337 U.S. at 122.

In the case of marine net pen salmon rearing, the opportunity to operate a fish farm would not be available only to an established, closed class of individuals. It is not an exclusive right or special privilege of fishery as envisioned by article VIII, section 15. The salmon farming would occur as an exercise of a property right, via state or federal leases. Salmon already legally reduced to possession would be raised in water leased by the operator, within "a generally escape-proof barrier." AS 16.05.940(12).

An analysis of whether tidelands fishery leases for commercial set nets violate article VIII, section 15, is helpful in evaluating the constitutionality of fish farming. The attorney general's office has concluded that leasing tideland sites for commercial set net fishing does not create an exclusive right or special privilege of fishery. 1963 Op. Att'y Gen. No. 3 (March 13). This conclusion is based on the fact that what is granted is a property right, not a right of fishery. */ The same would be true of a state or federal lease to use marine waters. In fact, for fish farming the conclusion that article VIII, section 15, is not violated is even clearer than for set net sites, because the salmon raised in the net pens would have been already legally reduced to possession.

*/ Similarly, the lease of tidelands and submerged lands for shellfish culture involves a property right, not an exclusive right of fishery. 1963 Inf. Op. Att'y Gen. (Sept. 26; 366-119-84).

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However, there is no mechanism under current fish and game statutes ~~for smolts~~ to be legally reduced to possession to transfer to rearing pens. Currently, no person may possess live fish without a permit from the Commissioner of Fish and Game. Permits may be used for transportation, possession, and release of live fish for "human consumption or sport fishing purposes" or for "scientific, educational or propagative purposes." AS 16.05.340(b); 5 AAC 41.001 and 5 AAC 41.005. Raising salmon for sale -- commercial purposes -- is not encompassed. The salmon to be reared in marine fish farms in state waters may not be imported from outside Alaska. 5 AAC 41.070(a); compare with 5 AAC 39.975(13) and 5 AAC 75.995(31) (defining "waters of Alaska"). Further, they could not be purchased from hatcheries within the state, for AS 16.10.420 prohibits sale or transfer of eggs or fry from hatcheries to anyone other than the department or other hatcheries.

Because of the existing statutory framework, there is no legal basis for regulations that would authorize the acquisition from hatcheries within the state of smolts for rearing and eventual commercial sale. In order to accomplish such a result, a mechanism for obtaining the smolts would need to be enacted, such as an amendment to AS 16.10.420 regarding possible sale of hatchery fry. Alternatively, the Board of Fisheries under AS 16.65.251(9) could amend 5 AAC 41.070 to allow importation of smolts. Further, in either case, the board would need to amend 5 AAC 41 under AS 16.05.251 to authorize release and possession of the smolts in the marine pens, for rearing and eventual sale.

In summary, marine net pen salmon rearing would not constitute an exclusive right or special privilege of fishery, but is not currently authorized by fish and game statutes and regulations.

LIS:dlm

cc: Steve Pennoyer
Norman Cohen
Stan Moberly
Kevin Duffy

No source
for fry:
hatcheries / leg
import / bds

No permit
currently
for this purpose
(5 AAC 41)

§ 16.05.940

(12) "fish or game farming" means the business of propagating, breeding, raising, or producing fish or game in captivity for the purpose of marketing the fish or game or their products, and "captivity" means having the fish or game under positive control, as in a pen, pond, or an area of land or water which is completely enclosed by a generally escape-proof barrier;

§ 16.05.340

(14) Fish or game farming license 100

Sec. 16.05.920. Certain acts made unlawful. (a) Unless permitted by this chapter or by regulation adopted under this chapter, a person may not take, possess, transport, sell, offer to sell, purchase, or offer to purchase fish, game or marine aquatic plants, or any part of fish, game or aquatic plants, or a nest or egg of fish or game.



§ 16.05.340

(b) The commissioner of fish and game may issue without cost a permit to collect fish and game, including fur animals, subject to limitations and provisions that are appropriate, for a scientific, propagative, or educational purpose. In addition, the commissioner shall issue a permit for the collecting of wild fur animals for improving the genetic stock of fur farm animals. Permits issued under this subsection shall be in accordance with current sustained yield management practices for the species of wild game for which the permit is requested. The annual permit fee for an Alaska resident to collect wild fur animals for fur farming purposes is the same as the fee for resident trappers.

Statutes-
legislature

16.05.940 (9) "fish" includes eggs ("any stage of its life cycle")

Sec. 16.40.010. Disposition of surplus buffalo and musk oxen. Whenever it is determined by the Department of Fish and Game that a surplus exists in the herds of buffalo and musk oxen under its control, the department may, under regulations adopted by it, grant the surplus or portions of it to persons, groups, associations, partnerships, or corporations for the purpose of raising and breeding the animals as domestic stock for commercial purposes, or for scientific and educational purposes. A person, group, association, partnership, or corporation may receive animals only after proving to the satisfaction of the Department of Fish and Game

- (1) intent to raise and breed the animals; and
- (2) possession of facilities for maintaining the animals under positive control. (§ 1 ch 15 SLA 1962)

AS 16.05.151

(a) The State of Fisheries may adopt regulations it considers advisable in accordance with the Administrative Procedure Act (AS 44.05.010).

State - legislative

(b) prohibiting and regulating the live capture, possession, transport, or release of native or exotic fish or their parts.

5 AAC 41.001. APPLICATION OF THIS CHAPTER. The provisions of this chapter govern the transportation, possession, or release of live fish transplanted for or cultivated for human consumption or sport fishing purposes, or as part of an aquaculture program for scientific, educational or propagative purposes. Unless specifically provided, the provisions of this chapter do not apply to the transportation, possession, or release of fish taken for commercial, sport, or subsistence purposes.

5 AAC 41.005. PERMIT REQUIRED. (a) No person may transport, possess, export from the state, or release into the waters of the state, any live fish unless the person holds a fish transport permit issued by the commissioner or his authorized designee, and the person is in compliance with all conditions of the permit and the provisions of this chapter. A fish transport permit will be issued for a fixed term subject to the provisions of (c) of this section.

regulations - board

5 AAC 41.070. PROHIBITIONS ON IMPORTS AND RELEASE OF LIVE FISH. (a) Except as provided in (b) and (c) of this section, no person may import any live fish into the state for purposes of stocking or rearing in the water of the state.

(b) Live oysters originating from locations other than Korea, the Gulf of Mexico, and the Atlantic Coast of North America, may be imported for aquaculture purposes and may be released into the waters of the state only pursuant to a permit required by this chapter. Live oysters native to and originating from Korea, the Gulf of Mexico, or the Atlantic Coast of North America may be imported for aquaculture purposes pursuant to a permit required by this chapter and released into the waters of the state only if:

(1) the brood stock is derived from oysters commercially cultured on the Pacific Coast of North America through three or more generations; and

(2) the disease history or an inspection indicates no incidence of disease that is not indigenous to Alaska.

(c) Ornamental fish not raised for human consumption or sport fishing purposes may be imported into the state, but may not be reared in or released into the waters of the state. Fish wastes and waste water from ornamental fish may not be released directly into the waters of the state.

statute-
legislature

Sec. 16.05.930. Exempted activities. (a) This chapter does not prevent the collection or exportation of fish and game, a part of fish or game or a nest or egg of a bird for scientific or educational purposes, or for propagation or exhibition purposes under a permit which the department may issue and prescribe the terms thereof.

dept.

(b) This chapter does not prohibit a person from taking fish or game during the closed season, in case of dire emergency, as defined by regulation adopted by the appropriate board.

(c) AS 16.05.920 does not prohibit bearing and sale of fish from private ponds, the raising of wild animals in captivity for food or the raising of game birds for the purpose of recreational hunting in (CR) game hunting preserves, under regulations adopted by the appropriate board. In this subsection, "animals" includes all animal life, including insects and bugs.

board

(d) Nondomestic animals of any species may not be transferred or transported from the state under (a) of this section unless approved by the Board of Game in regular or special meeting. Animals transferred or transported under (a) of this section shall be animals that are

certified by the department to be surplus and unnecessary to the sustained yield management of the resource. Each application for a permit under (a) of this section shall be accompanied by a statement prepared by the Department of Fish and Game examining the probable environmental impact of the action.

(e) This chapter does not prevent the traditional barter of fish and game taken by subsistence hunting or fishing, except that the commissioner may prohibit the barter of subsistence-taken fish and game by regulation, emergency or otherwise, if a determination on the record is made that the barter is resulting in a waste of the resource, damage to fish stocks or game populations, or circumvention of fish or game management programs.

(f) A permit may not be required for possessing, importing or exporting mink and fox for fur farming purposes. (§ 28 art 1 ch 94 SLA 1959; am § 1 ch 7 SLA 1972; am § 2 ch 104 SLA 1972; am § 4 ch 82 SLA 1974; am §§ 16, 17 ch 206 SLA 1975; am § 1 ch 20 SLA 1976; am § 13 ch 151 SLA 1978; am § 4 ch 23 SLA 1983)

Statute -
legislative

Sec. 16.10.420. CONDITIONS OF A PERMIT. The department shall require, in a permit issued to a hatchery operator, that:

(1) salmon eggs procured by the hatchery must be from the department or a source approved by the department;

(2) no salmon eggs or resulting fry be placed in waters of the state other than those specifically designated in the permit;

(3) no salmon eggs or resulting fry, sold to a permit holder by the state or by another party approved by the department, may be resold or otherwise transferred to another person;

(4) no salmon be released by the hatchery before department approval, and, for purposes of pathological examination and approval, the department shall be notified of the proposed release of salmon at least 15 days before the date of their proposed release by the hatchery;

(5) diseased salmon be destroyed in a specific manner and place designated by the department;

(6) adult salmon be harvested by hatchery operators only at specific locations as designated by the department;

(7) surplus eggs from salmon returning to the hatchery be made available for sale first to the department and then, after inspection and approval by the department, to operators of other hatcheries authorized by permit to operate under §§ 400 - 470 of this chapter;

(8) if surplus salmon eggs are sold by a permit holder to another permit holder, a copy of the sales transaction be provided to the department;

(9) Repealed by § 5 ch 110 SLA 1980.

(10) a hatchery be located in an area where a reasonable segregation from natural stocks occurs, but when feasible, in an area where returning hatchery fish will pass through traditional salmon fisheries. (§ 2 ch 111 SLA 1974)

PACIFIC FISHERIES
LEGISLATIVE TASK FORCE

Salmon Net Pen Aquaculture - Remarks of L. Joe Miller
FEB. 7, 1987

My name is L. Joe Miller, I live on Whidbey Island. Our waterfront property is far removed from the areas zoned for salmon net pen culture.

I chair a large organization on South Whidbey known as Save Our Shores and I also chair The Marine Environment Consortium, a coalition of concerned groups throughout Puget Sound. My professional background is in local government as a city manager in Bellevue Washington and Rochester New York.

I will confine my remarks to the issues of land use, impact upon the human environment, and my recommendations for the sharing of responsibilities between state and local authorities.

The concern of our members centers principally on water quality, property values, noise, lighting, odor, view obstruction, adequacy of regulation, financial impacts on local governments, the physical mass and appearance of structures, access and shore facilities and the preemption of traditional marine uses, such as sports fishing, commercial fishing, water sports, recreational boating, commercial boating (safe harbors and limitation on operating speeds).

We urge a careful analysis of the economic issues including: (1) how many jobs will result from this industry and how many existing jobs might be lost; (2) is there any validity to the balance of payments claims; (3) are there any successful financial net pen operations in this state; (4) what is the risk of price manipulation and destabilization of the fishing industry; (5) how much revenue is this industry liable to produce and how will it be distributed within our society.

If a salmon pen were located in tanks on dry land it would be regarded as industrial in nature and would never be allowed in a residential district. At best it might be described as a feed lot. In fact, it is not farming at all but is simply a feed lot for fish, with all attendant problems.

Under our law such an operation would be exempt from local zoning restrictions only if the facility were operated by the state itself. That exemption would not extend to the states lessees. The same rules apply to the submerged lands along our shores.

The films we have seen of fish pens in Norway and Scotland appear to be well removed from established residential areas. We think this a good idea and should be an essential element of siting criteria in this country.

I suggest that a basic issue is: If we are to have net pens, how should the program be administered? More specifically, what are the respective roles of state and local governments?

Clearly, the missions and expertise of the various state agencies suggest their responsibility in the areas of marine biology, public health, water quality and marketing. You will note that the Washington State interim guidelines are limited to these areas and, I believe, appropriately so.

On the other hand, local governments are better able to know and understand the impacts on the owners and users of adjacent properties, and the traditional users of the aquatic areas in question. This is commonly known as land use planning and administration, the traditional and proper province of cities and counties. Land use uniquely requires the intimate involvement and participation of affected neighbors.

The state can't perform this role effectively because their departments are not easily accessible, their personnel can't know the local issues and conditions, local concerns are not within their missions or imperatives, and indeed, there is strong potential for conflict between state and local goals and objectives. Finally, land use issues are not within the technical capacity of the state agencies involved. Fisheries and agriculture experts are not experienced land use planners.

These local issues are profoundly important to the people in the local communities and you can be sure that those people will be involved in this process somewhere, somehow. The economical and expeditious place for this to happen is in the local land use process, not in the state legislatures or the courts.

I believe that we are beginning to sort out the appropriate state and local roles in the State of Washington. Heretofore, counties have been too passive because they perceived that they were powerless. They are beginning to realize that they do indeed have substantial jurisdiction in these local issues that I have described. Also, the state authorities appear to be recognizing that this is a shared program. It would be useful, and indeed, essential, to develop some formal clarification and definition of the respective roles if we are to move toward a workable environment.

If net pens are to operate here at all, the industry, the neighborhoods, and the state and local governments are going to have to establish a better atmosphere of trust and role sharing. I doubt that much will happen in net pen aquaculture in this state until the present relationships are substantially improved.

**Some relationships between pathogenic bacteria and
salmon net pen culture**

Pacific Fisheries Legislative Task Force, State Capitol, Olympia,
Feb. 7, 1987

Dr. Arthur H. Whiteley, Professor, Department of Zoology,
University of Washington

I intend in these few minutes to comment on one aspect only of pen rearing of salmon - the relationship to pathogenic bacteria and other agents of disease.

The growth of bacterial populations in a natural environment is limited by the availability of nutrients. In a typical, natural marine environment the bacterial populations are relatively sparse. Given appropriate nutrients, either in the form of dissolved materials or sediments, the opportunity for growth in these populations will be much enhanced. It is generally agreed that salmon pen culture contributes substantially to the eutrophication of the environment of the pen - both in terms of soluble and finely suspended material, and in terms of larger particles that form heavy sediments on the bottom. In this way, the pens enrich the local environment for bacterial growth. Those bacteria already present in the water and substratum can increase. Any brought in with the introduced fish can increase as well. A variety of diseases can thereby be fostered by the pens. Some of these are of bacterial origin, some are viral, and some are due to organisms such as fish lice, parasitic worms, etc. The enhancement of the bacteria by nutritional enrichment works to the disadvantage of the penned fish. They are already stressed by the conditions in which they grow. They are therefore susceptible to bacterial invasion. Notably *Vibrio anguillarum* and *Renibacterium salmonarum* infect the penned fish and often kill them, and other vibrios and aeromonads are of major importance as salmon pathogens. *Vibrio anguillarum* produces disease in penned salmon in this State and in British Columbia. It also is ubiquitous in Norwegian waters, and is responsible for many of their fish farm diseases. With the advent of intensive fish farming in Norway, a new disease, the "hitra" disease, has appeared and now is responsible for 80% of the disease problems in the Norwegian fish farms. Its cause is uncertain, but vibrio species occur in connection with the disease

outbreaks (Håstein, 1986).

A significant question is whether these infections affect wild fish. Weston (1986) concludes that the evidence argues against such transmission. Others point out the difficulty of making such a determination because of the mobility of the wild fish and other complexities associated with working in a submerged, marine environment (Trust, 1986; Johnson, 1989; Staley, pers. com.). It takes only a few minutes exposure for a fish - penned or wild - to become infected. Often the route of transmission is through the gills. The infected fish often die, but if they survive, they frequently become carriers of the pathogenic organism. Both viruses and bacteria can be shed through the feces of the fish, thus spreading the focus of contamination in the natural environment. Moreover, in certain cases (*Renibacterium*) the bacteria can be passed from a female to her eggs, where it associates with the yolk, and transmits the disease to her offspring (Trust, 1986). It is too early to conclude that there is no transmission from a pen to the general environment and to the wild fish there. On the contrary, it is the opinion of microbial ecologists that an infected fish pen would in all likelihood serve as a focus for the infection of fish in the environment, and from them for the transmission of disease to their offspring (Staley, pers. com.).

In addition to pathogenic bacteria, the stressed salmon can serve as a focus for a number of serious viruses. These, too, may enter their host through the gills, and can be transmitted to other fish and to next generations (Trust, 1986). It is expected that they will be locally enhanced by the concentrations of wastes associated with fish pens (Staley, pers. com.), and this enhancement poses problems for the penned fish, and for wild fish as well. The danger that such viruses can be transmitted to wild fish is recognized by laws that prevent introduction of salmonids from the Columbia River system, which is infected by viruses, into any other river system in this State.

These pathogens and related ones that will multiply in the accumulated fish wastes, can serve as a reservoir of infection of marine invertebrate organisms as well. This, too, is a difficult field of inquiry because of the nature of the environment and the mobility of some of the organisms, and most information is derived from study of captive invertebrates. It is believed,