

SCOMM

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Senate Rules Committee

Senator Richard L. (Dick) Eliason, Chairman

Dennis

826-3438

Watson

P.O. 134

Craig, Ak
99921

Keep posted on
mariculture

ALASKA STATE LEGISLATURE - SENATE

SENATOR RICHARD I. ELIASON

RULES COMMITTEE, CHAIRMAN
LABOR & COMMERCE COMMITTEE, VICE-CHAIRMAN
LEGISLATIVE COUNCIL
RESOURCES COMMITTEE
FISHERIES SUBCOMMITTEE, CHAIRMAN



P.O. BOX 143
SITKA, ALASKA 99835

P.O. BOX V
JUNEAU, ALASKA 99811
(907) 465-4916

* PRESS RELEASE * * FOR IMMEDIATE RELEASE * * PRESS RELEASE *

PUBLIC TESTIMONY ON FISH-FARMING, MARICULTURE SOUGHT IN SOUTHWEST & SOUTHEAST ALASKA BY SENATE FISHERIES PANEL

JUNEAU, ALASKA. APRIL 1, 1987. The Fisheries Subcommittee of the State Legislature's Senate Resources Committee today announced a tentative schedule of hearings in Southeast and Southwest Alaska to take public testimony on proposed aquatic farming legislation.

Senator Dick Eliason (R-Sitka), Fisheries Subcommittee Chairman, explained that the panel plans to gather testimony from different coastal regions of the state on pen-rearing of salmon and mariculture farming in general. The Senate's aquatic farming measure, Senate Bill 106, was referred to Eliason's subcommittee last week, and a comprehensive review of the issue is planned.

"We will have to objectively evaluate both the positive impact and the potential negative impact of this proposal," said Eliason. "It is in the best interests of the state to

understand, as thoroughly as possible, the ramifications of pen-rearing salmon. We have to look carefully at how pen-rearing might affect natural stocks, anticipate the impact it might have on the fishing industry and the state as a whole, rather than simply turning everyone loose in this modern day gold rush."

The Fisheries Subcommittee also includes Sen. Fred Zharoff (D-Kodiak), sponsor of SB 106, and Sen. Jim Duncan (D-Juneau). Hearings will be conducted during the month of April in Dillingham, Kodiak, Ketchikan, and Sitka, and details can be obtained from the Legislative Information Offices in those communities.

#

Attachment

For further information, please contact Senator Dick Eliason, P. O. Box V, Juneau, (907) 465-4916.

SENATE RESOURCES FISHERIES SUBCOMMITTEE
TENTATIVE HEARING SCHEDULE

FRIDAY, APRIL 10

3:15 - 5:30 (or later)

Dillingham City Hall Council Chambers, Dillingham

(Dillingham Legislative Information Office - 842-5319)

TUESDAY, APRIL 14

1:30 - 5:00

Kodiak Borough Assembly Chambers, Kodiak

(Kodiak Legislative Information Office - 486-8116)

FRIDAY, APRIL 24

9:00 - 1:00

Ketchikan Legislative Information Office conference room

(Ketchikan Legislative Information Office - 225-9675)

SATURDAY, APRIL 25

10:00 - 12:00, 1:00 - 3:00

Centennial Building, Maksoutoff Room, Sitka

(Sitka Legislative Information Office - 747-6276)

ALASKA STATE LEGISLATURE - SENATE

SENATOR RICHARD I. ELIASON

RULES COMMITTEE, CHAIRMAN
LABOR & COMMERCE COMMITTEE, VICE-CHAIRMAN
LEGISLATIVE COUNCIL
RESOURCES COMMITTEE
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P.O. BOX 143
SITKA, ALASKA 99835
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(907) 465-4916

MEMORANDUM

TO: Sen. Uehling, Chairman
Finance Sub-committee on Dept. of Commerce Budget

FROM: Sen. Eliason

DATE: April 6, 1987

RE: ASMI Budget

About a month ago I wrote to you in support of adequate funding for the Alaska Seafood Marketing Institute. I continue to feel very strongly that that is an important part of the state budget and hope that you will see that it receives the funding necessary to carry on with its good work.

Now I would like to request that some intent language be added to the ASMI budget to give some direction in an area which is just beginning to emerge as a possible source of some contention or confusion; that is, the area of mariculture. The distinction is between seafood which will be "farmed" in Alaska, rather than growing naturally in the wild and then being caught by fishermen. Will ASMI be under pressure to use its resources to promote the fledgling mariculture industry instead of, or in addition to, its original purpose?

ASMI was clearly established to promote natural Alaska seafood. Much of ASMI's advertising plays up the fact that this seafood is a natural wild product which feeds and grows in the "cold clear waters" off Alaska. Beyond that, ASMI's board of directors is made up of fish processors and fishermen involved in the traditional Alaskan fisheries, and the state funding of ASMI is matched by industry contribution.

Some traditional fisheries in Alaska are likely to be in direct marketing competition with mariculture which might develop. For example, the troll fishery which has always been a part of ASMI's campaign, could be severely damaged if salmon farming gets off the ground. It would certainly be unfair if ASMI began to shift its emphasis to specifically promoting pen-reared salmon. As it is, the generic advertising that ASMI does for "Alaskan seafood" will greatly benefit anyone engaged in mariculture.

My concern is that ASMI should continue to put its full energies into the promotion of the traditional fisheries and keep that industry strong and growing. If the mariculture industry chooses to establish a marketing institute that will be fine. Or perhaps eventually that industry could set up a contribution plan to ASMI, and ASMI can promote those products on a scale proportional to its contribution. But it should not take some of its already limited resources away from its original charge to begin promotion of the new industry.

I would propose the following intent language to be added to the ASMI budget:

"It is the intent of the Legislature that ASMI direct its efforts to the promotion of the traditional seafood industry of Alaska; that is, seafood which feeds and grows naturally, and is harvested by the fishing industry."

Thank you for your consideration of this request.

Jon C. Zuck
4340 Raspberry Road
Anchorage, Alaska 99502

April 7, 1987

Senator Richard Eliason
Alaska State Legislature
Pouch V (MS 3100)
Juneau, Alaska 99811

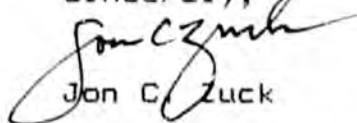
Dear Senator Eliason:

As a resident of the State of Alaska in Senate District G, I urge you to support proposed Senate Bill No. 106, "An Act relating to aquatic farming; and providing for an effective date".

Tremendous potential exists within the State of Alaska for development of an economically viable mariculture industry. This budding industry could complement the present seafood/fishing industry in providing year-round employment opportunities, opening new markets for quality seafood products, maintaining conservation efforts in our fisheries resources, in addition to adding new sources of revenues to the State's economy. The essence of the proposed bill is a framework to provide means in which to encourage responsible private sector development of mariculture opportunities. In structuring this mariculture bill, I believe careful attention must be given to streamline the present permitting process, to ensure an Alaskan owned and operated interest, and to avoid conflicts with existing fisheries (ie, salmon fisheries).

Thank you for your attention to this matter.

Sincerely,


Jon C. Zuck

cc: Senator Mitchell Abood
Senator Patrick Rodey
Senator John Coghill
Senator Fred Zharoff

This is a copy of testimony I submitted
to the House Resources Committee on March 31, 1987.
Please take this into consideration as you
review Senate Bill 106. Thank you.

Julie Hursey
Box 213
Petersburg, Alaska
F/V Thunder

APR 7 1987

Mike

I am opposed to the passage of House Bill 108, but before outlining the arguments I have with this bill, I will say that I am not opposed to mariculture ever being developed in Alaska. In particular, I think that shellfish mariculture could coexist well with the existing fisheries. However, the development of any kind of mariculture must follow a careful management plan to minimize adverse effects to the marine environment and our existing fisheries resources. My main argument with this bill is that it does not outline any such specific management plan, and too many crucial issues are left unresolved. Some of these issues include possible environmental degradation and adverse impacts on wild stocks of fish, realistic costs to the state, and conflicts over area use by different groups. I will address each of these in turn.

In order to ensure that development of the mariculture industry does not damage the environment, it is essential that a thorough monitoring plan is in place PRIOR to development. This program would oversee site selection, monitor water quality, conduct inspections of sites to maintain health standards and control any problems with disease. However, BEFORE such a monitoring program can be designed, and BEFORE the costs to state agencies can be assessed, there must be some sort of policy on the development of mariculture which would delineate the ultimate size and direction of industry growth. This bill fails to address controls over size and rate of growth of the mariculture industry.

Without knowing the ultimate number of farms, what size they will be or even where they will be, it is impossible to design an adequate environmental monitoring program, or to ensure environmental protection. According to the Gillespie Report "An Inquiry Into Finfish Aquaculture in British Columbia", environmental monitoring represents a major deficiency in the regulation of fish farms. In fact, this report mentions that site inspections have become infrequent because "approval agencies were too busy with the backlog of plans to conduct field inspections". To jeopardize environmental health because of such poor planning is inexcusable. We can learn from Canada's mistakes.

My particular concern is the effects that the uncontrolled development of salmon farming could have on environmental quality and the health of our wild stocks. It is a fact that if salmon farms are not carefully sited, fish wastes and excess feed can cause a pollution problem. Also, if a site is not properly located, penned salmon populations can become stressed and subject to disease. Canada is already having problems with farms that are improperly sited, and this in part led to the moratorium on new permits.

Julie Hursey
Box 213
Petersburg, Ak.
F/V Thunder

The probability of disease transmission from farmed salmon to wild salmon is unknown at this time. In Norway, where most of the research has been done, there were few natural stocks to worry about. Eventually, however, even they are planning to develop "green zones" or areas that are aquaculture free to protect what wild stocks they do have. House Bill 108 does not adequately address the question of protecting the health of the wild stocks. Perhaps these "green zones" should be considered. In any case, no industry should be allowed to develop at the expense of our healthy marine environment, and our wild stocks of fish.

If mariculture is to benefit state revenues, then we must have an accurate assessment of its costs to state agencies. Questions raised last week during testimony indicate that this is an area which needs to be addressed more carefully.

The number of farms that will be developed will determine the costs in part. According to Bryan Alle, the Fish and Game fiscal note is predicated on 100 permits being issued the first year, and an actual 20 farms being operational by 1992. What if this prediction falls short? Alle says that then costs will go up. But how much would they increase, and does the state have the resources to cope with a greater than expected increase in the numbers of farms? It is obvious that a range of fiscal scenarios must be presented by each agency, in order to have a more realistic picture of the probable costs, and to be able to plan accordingly.

In Canada, staff and funding levels have not kept pace with industry growth. According to Bryan Alle, there is a critical lack of pathologists in British Columbia, and we could face the same problem here if the mariculture industry grows beyond present predictions. Do these agencies have a contingency plan to deal with such a problem if it arises? What will happen if there are not adequate funds to cover the costs? Diverting funds from existing fisheries management programs is not an option. I must admit, the zero fiscal note submitted by the Department of Environmental Conservation mystifies me. Now they are reassessing that note. Good idea. I think this entire area needs more thorough investigation.

Another issue that is not addressed in this bill is how disputes over use of an area will be resolved between conflicting user groups, and the possible pre-emptive use of areas by the mariculture industry. Fish farms could be located in areas that have been traditionally used for anchorages, fishing grounds, gear storage areas, recreational uses, and even marine transportation corridors. Another source of conflict would arise if fish farms were placed in areas that are already used as spawning or nursery grounds for wild stocks. Canada is already having problems with these kinds of conflicts now, and it has reached serious proportions, according to Vince Goboyan, a Canadian delegate from the Canadian Standing Senate Committee on Fisheries.

Julie Hursey
Box 213
Petersburg, Alaska
F/V Thunder

A coastal zone management plan is urgently needed, to take inventory of our coastal resources, and to designate areas for specific uses. At this time, no such plan exists in the areas where mariculture could occur. It is essential to acknowledge the multiple uses of coastal waters and tidelands, and the diversity of user groups in order to minimize conflicts.

This brings to mind the question of how decisions will be made on area designations. Will this be made on a site by site basis, or will there be a comprehensive plan with public hearings? How much will it cost? Will the user groups have any input into this process, and what avenues will be available? The bill specifically precludes the Board of Fish from participating in site selection, but does not address the question of public participation in the process. This hardly seems fair.

In summary, I will say that I strongly object to the passage of this vaguely worded bill. I do not believe that enough planning and research has gone into determining an adequate environmental monitoring program to protect the marine environment, or our wild stocks of fish. I don't think that the costs to the state have been adequately assessed. I think the great potential for conflicts over area use could create a miasma of problems. I do not believe that we should start this industry, then develop the management plan as we go along. This would be extremely short-sighted, and could offer only band-aid solutions to the major problems which could arise. I think we can learn from the mistakes that Canada has been making.

House Bill 108 does not adequately address the problems that could arise from the development of mariculture. Until we have a better plan for avoiding problems, and until we know that we have the resources to deal with these problems as they occur, I am opposed to the passage of House Bill 108. Thank you very much for taking the time to consider this.

John McMullen
P.O. Box 021875
Juneau, Ak 99802

Hon. Jack Coghill, Chairman
Senate Resources Committee
P.O. Box V
Juneau, Ak 99811

McG
FY1
APR
7/1987

Dear Senator Coghill:

eventually
Aquatic farming for salmon and shellfish should be allowed to proceed in Alaska, but House Bill 108 and Senate Bill 106 should be held over until 1988. The present bills should be re-drafted to describe what the mariculture program is to become. Will preference for sites and permits be afforded Alaskans? Will production capacity for individual farms be capped to promote competition, and therefore lessen the probability of economic failure of individual farms?

If aquatic farming develops in the absence of state policy, I could envision a scenario in which well financed organizations would obtain the expensive sites near transportation centers for the operation of large production facilities, which would probably contain costs through the manufacture of their own fish food. Less well heeled Alaskans might well end up at more remote sites, with smaller production units, and the need to buy higher cost commercial fish food, which would result in a relatively low profit margin.

The State's "Fisheries Cabinet", comprised of the commissioners of several state agencies performed a review of the aquatic farming bills. Their staffs also met several times to discuss the problems that might be involved in administering the program. My conclusions after listening to some of those discussions are: (1) the program could easily be swallowed in the bureaucratic process, and (2) it is going to take awhile to define the regulatory process by which the program is to be administered.

A recent Attorney General's opinion stated that fish farming is legal in Alaska anyway. However, I think the state should sit on that until legislation is in place which names the Department of Commerce as the agency responsible for the program. The Department of Fish and Game is far too conservative to adequately promote this program, but does have the biological expertise in place to deal with the technical aspects of disease prevention, as an example.

Therefore, my recommendation is that HB 108 and SB 106 be held back a year and re-written while the regulatory process is ironed out. The result could be a program for Alaskans, which will be ready for implementation.

This letter is being sent to the Commerce and Labor, and Resources Committees of the House and Senate. I wish you well in your deliberations.

Sincerely,

John McMullen



ADOPTED AUGUST 1972

CITY of WRANGELL, ALASKA

INCORPORATED JUNE 15, 1903

BOX 531, 99929

(907) 874-2381

April 6, 1987

Representative Adelheid Herrmann
House Resources Committee
Alaska State Legislature
Post Office Box V, (MS 3100)
Juneau, Alaska 99811

Re: City of Wrangell Resolution #03-87-267 relating to proposed House Bill 108, and Senate Bill 106.

Dear Representative Herrmann:

As per your request during the March 31, 1987 teleconference regarding the above captioned legislation, I am enclosing a copy of the City of Wrangell Resolution #03-87-267 relating to proposed legislation for "Aquatic Farming".

Quite a large segment of Wrangell's economic base is derived from the commercial harvest of wild salmon stocks. It appears there has been no truly qualitative analysis of the short, or long range biological effects of pen raising salmon in Alaskan waters, consequently we feel it is premature to enact legislation that would legalize pen rearing of salmon at this time.

Such a simplistic approach to finfish farming may be expedient in the eyes of the potential investor, but to jeopardize our highly successful and growing salmon enhancement programs without conclusive evidence of the effects on the delicate eco-system of the existing salmon stocks and other aquatic life, would indeed seem foolhardy.

We in Wrangell are excited about the future economic potentials of mariculture and aquaculture, and have been supportive of its development, however we feel that, as the old adage says, "You should always look before you leap."

We hope you will consider our position in this matter.

Sincerely,


Jim Gove
Economic Development Director

cc: Members House Resources Committee
Members Senate Resources Committee
Representative Robin Taylor
Senator Lloyd Jones

encl.

CITY OF WRANGELL, ALASKA

RESOLUTION NO. 03-87-267

A RESOLUTION OF THE COUNCIL OF THE CITY OF WRANGELL, ALASKA, RELATING TO LEGISLATION PROPOSED IN HOUSE BILL #108 AND SENATE BILL # 106, "AN ACT RELATING TO AQUATIC FARMING AND PROVIDING FOR AN EFFECTIVE DATE", URGING A THOROUGH STUDY OF THE BIOLOGICAL AND ECONOMIC EFFECTS OF PEN REARING SALMON BEFORE ENACTING LEGISLATION LEGALIZING THE PEN REARING OF SALMON IN ALASKAN WATERS.

WHEREAS, the proposed program for pen rearing salmon in Alaska has the potential of having a negative effect on our existing fisheries and commercial fishing fleet; and

WHEREAS, the existing enhancement and hatchery program in alaska has been highly successful to date; and

WHEREAS, there have been no biological or economic studies to determine the effects the pen rearing of salmon may have on our existing fisheries economy, or the environment of existing wild salmon stocks; and

WHEREAS, the City of Wrangell has been supportive of controlled mariculture of shellfish, aquatic plant life, and existing salmon enhancement programs; and

WHEREAS, the proposed legislation encompasses the unknown of pen rearing salmon in Alaskan waters.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF WRANGELL, ALASKA:

1. The Council of the City of Wrangell Does hereby respectfully request that the Fifteenth Legislature of the State of Alaska eliminate any reference to fish farming or pen rearing of salmon in proposed House Bill No. 108 and Senate Bill No. 106.

2. The Council of the City of Wrangell further requests that the Fifteenth Legislature of the State of Alaska support the completion of a thorough study of the economic and environmental effect of pen rearing of salmon in Alaskan waters before proceeding with any legislation directed toward legalization of fish farming.

PASSED AND APPROVED: _____, MARCH 24, 1987

ATTEST:


City Clerk


Mayor



MOSS LANDING MARINE LABORATORIES

CALIFORNIA STATE UNIVERSITY FRESNO, HAYWARD, SACRAMENTO, SAN FRANCISCO, SAN JOSE, STANISLAUS

P. O. BOX 450
MOSS LANDING, CA USA
95039-0450
(408) 633-3304

April 10, 1987

Dear Senator Eliason,

I moved to Alaska in 1981 and fell in love with the State. Later I graduated from U.A.A. with a degree in Natural Science. Currently I'm in California attending graduate school as a Marine Biology/Ichthyology student with the intention of returning to Alaska when my course work is completed.

While I was an undergraduate in Alaska I worked as a seasonal aide creel censusing salmon for the Department of Fish and Game Sportfish Division. I am very proud of the Alaskan salmon runs and the progressive management by the State of Alaska that has ensured the continuation of healthy wild salmon stocks.

I am not proud that the Alaskan lawmakers are apparently conforming to reactionary, uninformed, and greed induced tactics being used by special interest groups to stymie the development of mariculture. Just last week I attended a meeting of the Pacific Fisheries Biologists in Portland, Oregon where the strongest sentiments expressed were of regret for failing to develop mariculture for the fish export market. Oregon is now importing more salmon annually than their commercial fishery produces.

Commercial fishermen work very hard for their living and I would not deny them the opportunity to earn their livelihood. But I do object to a select, self-interested group overriding the best interests of Alaska. It should be kept in perspective that the ocean and the fish that the commercial fishermen are exploiting are public resources.

Compared to the world development of mariculture, the United States is a backward country. The countries that have committed to mariculture have been very successful (Chile, Norway, Japan, Israel for example) and are exporting fish around the world.

Because of heavy exploitation, Alaskan salmon stocks are now carefully regulated. Similarly the quality of mariculture operations can be regulated through the permitting processes and revenues generated by licensing.

The time is right for Alaska to diversify its economic base. Mariculture, like commercial fishing, is hard, honest work. If Alaska continues to block the efforts of would-be maricultural

entrepreneurs, the development will happen elsewhere where the political climate is more receptive. As a consequence, the fish will still be produced and exported worldwide, at no benefit to Alaska.

I will be finishing my Master's Degree in 1988 and I hope to be able to return to Alaska to develop my own mariculture business. If I'm faced with an uphill battle all the way and denied the opportunity to earn a living in the manner I choose, I'll be forced to go elsewhere. That's the cold, hard reality for Alaska. Alaska can't afford to lose creative, forward thinking people that care about the State and its future.

Sincerely,

Lucy Wold

Lucy Wold

April 14, 1987

Senators Duncan; Eliason Jones
Pouch V
Juneau, AK 99811

Dear Senator,

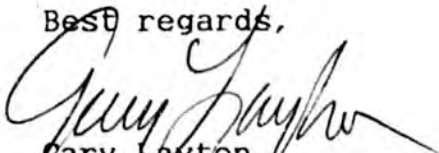
As a member of the Senate Resouce Committee, we urge your support of SB106, the Mariculture Bill, for two reasons.

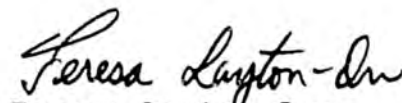
First, defeat of the Mariculture Bill will not prevent salmon farming. It will only prevent Alaskans from farming salmon. The world salmon farming industry is already established and growing.

Second, defeat of the Mariculture Bill will also prevent development of shellfish farming, a new industry with a growing market and having little, if any, conflict with established fisheries.

At a time when innovative additions to the Alaska economy are badly needed it seems wise to pass the Mariculture Bill.

Best regards,


Gary Layton
1803 Brenigan Circle
Kenai, AK 99611


Teresa Layton-Orr

Tina Ortman
P.O. Box 442
Talkeetna, AK 99676
(907) 733-2565

April 15, 1987

Dick Eliason
P.O. Box V
Juneau, AK 99811

Dear Mr. Eliason,

I am writing to voice my approval of Aquaculture. It is surprising to me that anyone would oppose developing our marine resources to their fullest. It would be like having a fertile, tilled garden plot but not planting any seeds. The fishermen who are opposed to aquaculture are like "the dinosaurs picketing the emergence of mammals". Aquaculture is the future, let's get started on it now.

Thank-you for your attention.

Kind regards,

Tina Ortman

Tina Ortman

From:
Rodger
Painter

Prospects

Of Debt and the Dollar

It was no accident that six of the so-called Group of Seven industrialized nations finally met last weekend to discuss the dollar, says Gert von der Linde, chief economist at Donaldson, Lufkin & Jenrette. The meeting came right on the heels of Brazil's announcement that it will suspend interest payments on its \$108 billion in international debt — a plan, says Mr. von der Linde, that has introduced a new threat to the dollar.

If American banks cannot collect on debt owed by Brazil or other South American nations, he says, foreign investors could lose confidence, withdraw their dollar deposits and sell the dollars on international markets — thus weakening the currency further.

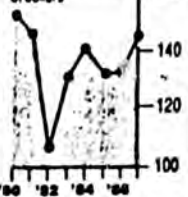
But the G-7 meeting "prevented substantial decline in the dollar," Mr. von der Linde said. And the participants' pledge to intervene in the future if the dollar dips too low should help neutralize the Brazilian factor. "With the threat of intervention, the potential negative that Brazil represents is at least postponed, if not eliminated," he said.

Plumper Profits

One reason for the stock market's soaring rise is that investors are anticipating loftier corporate profits in 1987, says Mickey

Profits

Of U.S. corporations after taxes, in billions of dollars



Source: '86 estimate and '87 forecast, Fidelity Bank

D. Levy, chief economist at Fidelity Bank in Philadelphia. Mr. Levy predicts that profits this year will be 9 percent higher than in 1986.

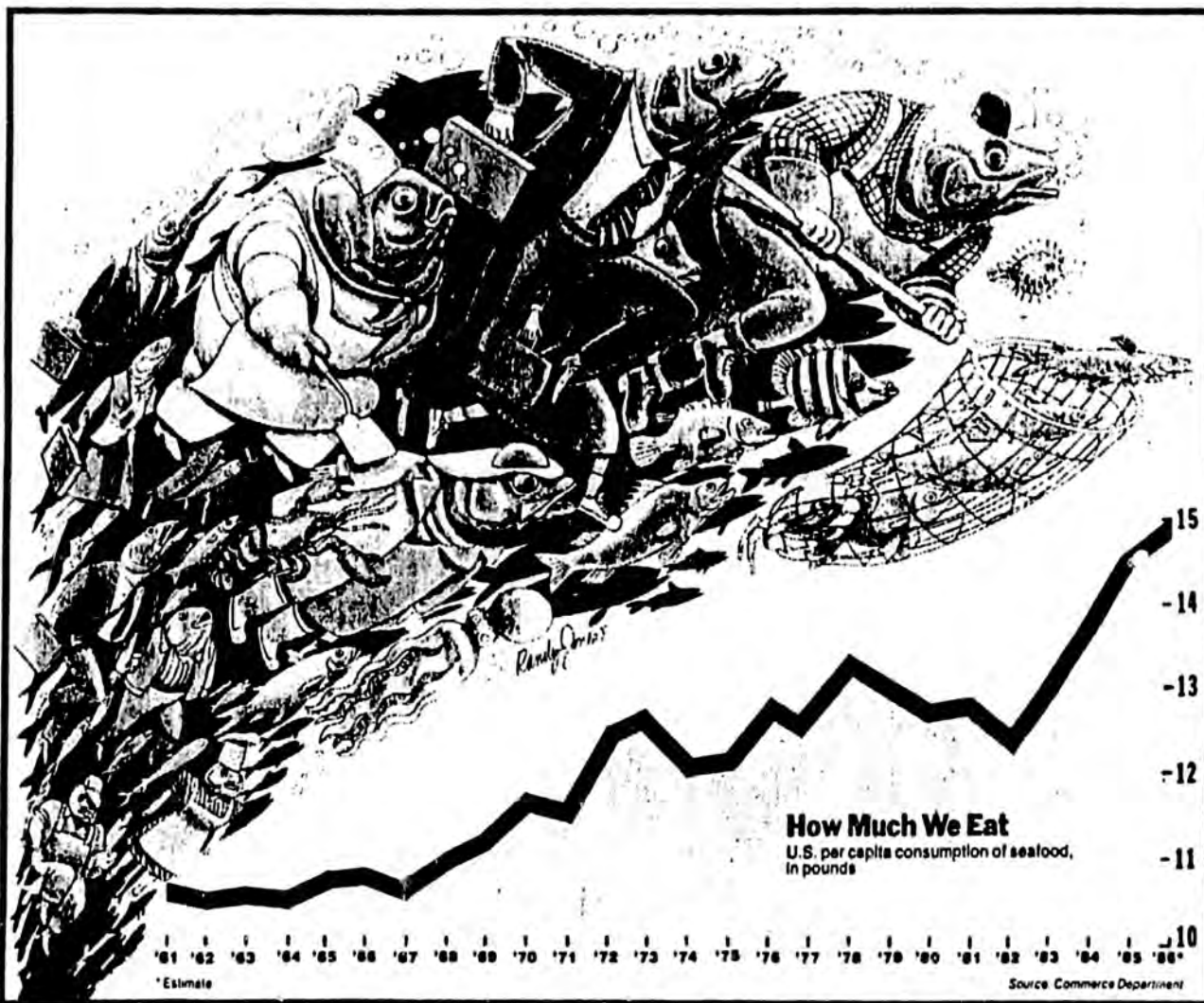
The weaker dollar is at the heart of the expected improvement, he says. The dollar's diminished value makes imports more expensive, and this, in turn, raises demand — and prices — for American-made products. Since labor costs are likely to remain relatively low —

major wage settlements are not expected until 1988 — profit margins will increase.

Where will profit gains be the greatest? Probably among companies that have been hurt by foreign competition during the strong-dollar years — chemical and pharmaceutical corporations, for instance. Such companies are poised for greater profitability, says Mr. Levy, since by now "they have trimmed their inventories, lowered their operating costs and reduced their break-even points."

Passport Discrimination?

Across America, the Fish Are Jumpin'



maybe some lobsters or some shrimp, and that would

Seafood businessmen like to say that consumers

It's a bigger business than chicken. Even tilapia and skate wings sell.

By N. R. KLEINFELD

DURING Steve Connolly's early days in the seafood business back in the late 1940's, he was accustomed to getting the brush-off.

Working as a salesman for a Boston fish wholesaler, he would go out on his rambling pilgrimages to supermarkets and restaurants and, as he recalled, "I'd tell them I was selling fish. They'd say, 'Well,

maybe some lobsters or some shrimp,' and that would be it. All the time, I'd hear, 'We don't use much fish. Now get going. The meat man just walked in.'"

Five years ago, Mr. Connolly founded his own wholesale company in Boston, called Steve Connolly Seafood. When his salesmen make their rounds, he said, the reaction is, "You're selling seafood? Sit right down. Take the best chair. I want something of everything you've got." His company sold \$8 million worth of fish its first year and \$25 million last year.

The seafood industry has changed drastically. As Americans have become bewitched by things like orange roughy, tilapia and opakapaka, the business has gone from mom-and-pop dimensions to sizable operations like Mr. Connolly's that do \$10 million to \$40 million in fish sales annually. With something like 4,000 seafood wholesalers and processors in the country, no one dominates the fish industry, though consolidation is beginning to occur.

Seafood businessmen like to say that consumers have developed a penchant for just about anything that swims. To meet this demand, the 61-year-old Mr. Connolly has been fairly crafty in marketing peculiar fish products. Even he, though, is sometimes startled at what people will eat. His latest offering, for instance, is skinned skate wings (skate is a flat fish with the broad-winged body of a ray fish). It is tough to remove a skate's skin. Some people accomplish it by taking pliers and yanking it off. A few weeks ago, however, Mr. Connolly succeeded in adapting a machine normally used to skin liver to shave off skate wings.

"I think the wings are going to work well," he said. "They're cheap and so I see them having a wide appeal. Skate could really go."

Only a decade or two ago, fish had a dull image. It was something to eat grudgingly on Friday or when the budget was too strapped for a sirloin. Various fac-

Continued on Page 8

The Fish Are Jumpin' All



The New York Times/Sieve Liss

Culling live crabs at the dock for Connolly's Crabs in Gloucester (left). The crabs are shelled by machine.

Continued from Page 1

tors, however, have conspired to lift it from a food associated with penance to an everyday staple, and even a gourmet treat. Most of all, the concern for healthier diets has prompted consumers to gravitate to meat substitutes, like fish, that are low in calories and in fat. The steady spread of aquaculture, the science of raising fish on watery farms outside of oceans, has increased the seafood stock; some 12 percent of total American fish consumption now comes off farms, four times the amount in 1975. And wider use of airplanes to transport fish and better refrigeration equipment has introduced more fresh species to inland parts of the country.

These factors, says the National Marine Fisheries Service, have pushed per-capita seafood consumption up from 10.9 pounds in 1966 to 12.9 pounds in 1976 to 14.5 pounds in 1985. Expectations are that consumption may approach 30 pounds by 1990. That is still well shy of chicken, in the \$9.5-pound neighborhood, and beef, at a dwindling 79.

Nobody, though, expects fish to catch poultry or meat. Not enough fish swim in the world's waters for that to happen, even though America imports more than half its seafood. And most fish do not grow quickly enough for fish farms to meet huge demand. If chicken eating goes up, farmers can toss more eggs into the incubators and within weeks chickens are plump enough for market. Fish,

however, can take two or three years to mature, at sea or on the farm.

"To increase per-capita consumption by one pound," explained Lee Weddig, the executive vice president of the National Fisheries Institute, a trade association, "you would need to catch 700 million additional pounds of fish in the water. The total amount of cod and haddock caught in New England is about 100 million pounds. So you see the problem."

Nevertheless, the taste for fish and the preoccupation with health, have elevated seafood to a roughly \$16 billion annual business — compared with \$12 billion in revenue for chicken, which is cheaper, and \$44 billion for beef — and encouraged a lot of companies to take a new look at it.

Now you can visit any burger outlet — McDonald's, Burger King, Wendy's — and find fish. There is also a growing network of fish specialty chains like Long John Silver, Sea Galle and the Red Lobster. Supermarkets, meanwhile, are opening new and sizable seafood sections. And big corporations like Ralston Purina, W.R. Grace, Campbell Soup, Weyerhaeuser and Con Agra have gotten into fish farming. One group of companies has applied its energies to producing imitation fish products.

Demand keeps climbing even though prices of some species have reached the \$7 to \$10 a pound range. New, inexpensive varieties, however, are hitting the market, some selling for as little as \$2 a pound. Fish are hot

enough that "trash fish" like monkfish that used to be dumped back are now being served in expensive restaurants and at classy dinner parties.

Kroger's feels it is as plugged-in as the wisest supermarket chains to middle American tastes. It was one of the first to discover fresh seafood — even though its 1,050 stores are largely sprinkled through the Midwest, where not a lot of fish swim.

Kroger will fly red snapper in from Taiwan, if that's the only place it can get enough. The chain even has its own fresh fish distribution warehouse, handling 72 varieties, in Greensburg, Ind.

Kroger's got into fresh seafood in 1977, and is steadily adding departments to all of its stores. It has gotten up to store No. 491. Its sales are growing by 15 percent a year, according to Bill Parker, a vice president. "It's probably the best growth category we have," he added. Fish, moreover, generally command higher markups than meat and poultry, Mr. Parker said. And the supermarkets realize that there is an enormous opportunity to be mined, since fish have predominantly been a restaurant product. According to surveys, two-thirds of the seafood sold is consumed at restaurants, though fish people believe the pendulum is starting to swing toward home preparation.

Grand Union took enough care with its new seafood departments that it hired Milton Glaser, a well-known

graphic designer, to work on them. The white-tiled departments, with their ice cases and tanks for live shellfish, have helped Grand Union's seafood sales to spurt by 12 percent in each of the last two years, according to Steve Osder, the director of seafood merchandising.

Throughout the country, supermarkets have gotten onto a fish kick, putting in more display space and snazzier departments, as well as stocking greater variety. Supermarkets, Mr. Osder said, still sell more frozen than fresh seafood, although sales of frozen seafood have been stagnant. Canned fish, particularly tuna, is another growing category, driven by nutritional concerns and the American infatuation with the tuna fish sandwich; in 1985, annual per-capita canned fish consumption was 5.2 pounds, the highest level since 1937, when it was 5.3.

After tuna, shrimp is the most widely purchased seafood, in pounds sold, followed by codfish, clams and salmon. What's nice about fish is the variety. In all, something like 400 species are available to buy. Some of the hot newcomers are the orange roughy, the kingclip and the catfish (which used to be eaten mainly in the South but is now being promoted and accepted in the North). Kroger's, in fact, says catfish is its No. 1 seller.

There is still a sticky obstacle to selling catfish and other fresh seafood for home consumption: People don't know how to prepare them.

Not to worry at Kroger's. All of its fish departments pass out recipes. Some stores sport video units that enable a customer to call up recipes. At still others, Kroger's has specially designed scales. When attendants weigh a fish, they can punch a button and the scale will print out a recipe on the price sticker. Up to 150 recipes can be stored in each scale.

Recipes or not, it's a dicey managing seafood departments. Mr. Osder of Grand Union knows that all too well. Availability fluctuates almost daily. Prices become unpredictable, often surging with little warning. It has to do with the nature of how we get fish.

"Unlike all other agricultural commodities in the food chain, seafood is the only hunted commodity," Mr. Osder said. "Other products are farmed, and there is a degree of control. Some fish are farmed now — mainly trout, catfish and salmon — but everything else is hunted."

When Bob Valenti goes to get his fish, he steps outside his weather-beaten office, walks a dozen feet and gathers them up. Wind, rain, storms — those things don't stop him.

For 11 years, Bob Valenti has been raising striped bass in artificially made pools beside Napeague Bay in Amagansett, L.I. The early settlers called the area the Promised Land, and that's what Mr. Valenti hopes it will become for his Multi Aquaculture Systems Inc.

He is a jowly man of 43, roughly dressed, with a contagiously cheerful disposition. He gave up a career as a fish geneticist working for private marine laboratories to become a farmer. "I got tired of the politics involved in getting funds," he said. "So, like a lot of fish research people, I thought, hey, aquaculture looks promising. Let's go do it."

The heart of his operation is 22 circular tanks, each 26 feet in diameter. Some people, he said, think farm fish aren't as tasty. He shook his head vigorously. "How can't it taste the same? It swims in water, and the water has to be clean to keep the fish swimming, right?"

The rapid rise in demand for seafood has drained American waters and taxed the nation's fishing fleets. Hence, 64 percent of the all fish sold in the United States is imported, the fisheries service says. That makes this nation the world's No. 2 importer of fish, after Japan. We are also the No. 2 exporter, after Canada, selling mostly salmon and crab to Japan. Imports, though, far outshadow exports; in 1985, the latest figures available, about \$4 billion in fish came in; about \$1 billion went out.

To help keep fish on the dining table, entrepreneurs like Mr. Valenti and huge corporations have gotten into aquaculture, which is being looked on as the best hope of producing enough fish in this country to keep up with growing demand. But researchers have not yet discovered ways to grow many species in artificial settings. And most fish take years of feeding before they get big enough and therefore are often too expensive to farm profitably.

Fish farming began in China 4,000 years ago, but the sophistication has greatly improved as techniques have been perfected in the last decade. The most popular farmed seafood in this country are salmon, trout, crawfish



The New York Times/Michael Shephard
Amagansett fish farmer Bob Valenti showing off a stuffed striped bass (above). A skate about to be skinned.



and oysters. Virtually all the rainbow trout sold commercially in America is farmed, as is 95 percent of the catfish. These are species with short and therefore relatively inexpensive growing cycles. But other seafood — abalone, mussels, salmon — are being tried, and the technology is such that some species, like striped bass, now grow to eating size more quickly on farms than in their natural habitats offshore.

Because of all this, Bob Valenti thinks he is on the brink of big dollars. His farm strategy has gone through several cycles. For the first five years, he raised pan-sized striped bass to sell to restaurants and wholesalers, but then the commercial catch became plentiful enough that his income almost disappeared. He switched to raising young fish to sell to stock lakes or for other farms.

But a dwindling supply of striped bass, as well as contamination of them in some waters, has prompted various states in the last few years to restrict striped bass fishing. Thus Mr. Valenti is returning this year to raising pan-sized bass. He figures to produce about 35,000 pounds a year. Don't look for his fish tomorrow. It takes 12 to 18 months for farm bass to grow big enough to cook.

A lot of seafood fans seem perfectly happy to dine on surimi — a cheap fish disguised as an expensive one.

The disguise process begins with a fish block, generally made from the flesh of pollack, a fish available in enormous quantities from the Bering Sea. By complex cooking and blending techniques, the block is fashioned into different filaments, lengths and structures. Mixed in are ingredients such as egg white, wheat, food coloring and often artificial flavoring so that the pollack winds up appearing like a shellfish. Depending on the ingredients, it can appear as shrimp or crab or look almost anything.

"Surimi is like flour to the baker," said David Berelson Jr., the president of the Berelson Company, the biggest American surimi marketer. "It can be created into any product."

Berelson, which is based in San Francisco, brought the idea to America in 1975 from Japan, where surimi is an old art. The Sugyo Company, a small enterprise in Nanao, had sold Berelson other fish products, and when executives told David Berelson Jr. about surimi, lights went off.

"I was born and raised out in California," Mr. Berelson said, "and I always loved crab. I saw it get very scarce and very expensive and I thought, my God, this is a wonderful opportunity."

Berelson's Sea Legs brand is now the biggest selling surimi product. Sea Legs Supreme, a crab salad, is the most popular item, though the company also markets other crab and lobster surimi products. About 20 other companies also sell surimi versions of shrimp and scallops.

Since surimi's arrival in the United States, the concept has blossomed into what is estimated to be a \$400 million business. Berelson won't disclose what its surimi revenues are, but it says industrywide surimi sales

have doubled each year, until they leveled off in 1986 because of price increases of about 20 percent, set off by the rise in the value of the yen.

Surimi isn't for everyone. Some say it tastes awful compared with unprocessed fish. The product, moreover, doesn't contain as much protein or as many nutrients as fresh fish. Nevertheless, some restaurants drop surimi into salads and seafood offerings without advising consumers. That's legal everywhere but in Maine, where seafood ingredients must be identified.

Many fish, unfortunately, don't sound like something you would want to put in your mouth. They've got these abysmal names. Do you want to go out on a date and order dogfish? Would you ever serve the to-laws a helping of blowfish?

There's a simple solution. Change the names. Fish wholesalers have. Dogfish is more commonly known now as salmon shark or grayfish. Blowfish is called sea roach or sea squab. Monkfish, which not only sounds like something best left in the sea but also happens to be about the ugliest fish in the ocean, goes by lotie, its French name. "The name doesn't sound so hot, so you make up new ones," said Bill Desmond, a vice president of Inland Seafood, an Atlanta fish wholesaler. "A lot of the seafood business is marketing. Just about any fish in the sea, you have something similar to it. So you borrow that name."

The three-year-old Sea Grill Restaurant in Manhattan, in fact, has found a marketing edge by routing bizarre fish. Bob McKay, the assistant director, says that the establishment has been especially successful with Hawaiian fish like mahi, uno and opak. "They're going to be one of the trends to watch in 1987," he said. "We're finding that the public really has an open mind. They'll try these things they never heard of. And don't blame them. They're good."

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

REQUEST: _____

Bill Version: CSHB 108(L&C)

Publish Date: HOUSE 3/4/87

Revision Date: _____

Agency Affected: ADF&G

Title: _____

BRU: FRED

Sponsor: Zharoff et al. Ellis et al.

Components: FRED

Requestor: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES		157	157	183	236	330
TRAVEL		6	6	10	17	20
CONTRACTUAL		1	1	2	4	8
SUPPLIES		2	4	6	10	22
EQUIPMENT				1	2	5
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING		166	168	202	269	385

CAPITAL						
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REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND		166	168	202	269	385
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME		2	2	3	3.5	9
PART-TIME		1	2	1	2	0
TEMPORARY		1	0	0	0	0

ANALYSIS: (Attach a separate page if necessary)

This analysis estimates costs of pathology services and permitting based on 100 permit applications in FY 88, ultimately resulting in 20 operational fish farms by FY 92 of economically significant size.

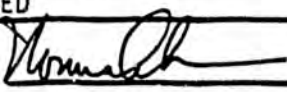
(see attached for additional comments)

Prepared by: Dr. Mike Kaill

Phone: 465-4160

Division: ADF&G/FRED

Date: _____

Approved by Commissioner: 

Date: 3-2-87

Agency: _____

Distribution (by preparer):

Legislative Finance

Legislative Sponsor

Requestor

Office of Management and Budget

Impacted Agencies

Senate Secretary

CONTINUATION OF FISCAL NOTE, SB106/HB108. rev 3/2/87

Estimated cost of services to be provided by ADF&G are fish pathology services, permit processing and technical oversight.

For pathology services, estimated costs are based on current workload and budget for the section at this time, to arrive at a per-unit cost (e.g. \$600,000/37 hatcheries = \$16,000/hatchery). An additional \$12,000 is budgeted for investigations and diagnostic services in the first year. Types of services are: diagnostic, broodstock, water source analysis, shellfish certification, pre-release inspection, and human health concerns.

For permitting and technical oversight services, an assessment of work requirements was made by calling the Marine Resources Division of the B.C. provincial government. For the first three years, two full-time technicians would be required. Thereafter, manpower needs will diminish. The types of work to be undertaken will be communication with applicants, review of application materials, coordination with programs such as coastal zone consistency review, and technical biology and fish culture oversight.

It is very difficult to anticipate what will happen if a mariculture program is enabled in Alaska. We have prepared this note based on observations and consultations with managers of similar programs. We then applied this to Alaska, using the incomplete data at hand. These must be considered rough estimates of cost. As further information becomes available, the fiscal note could change. Also, as the bill becomes modified as it passes through the legislative process, there may be changes in the bill that will have corresponding changes in the fiscal note.

STATE OF ALASKA 1987 LEGISLATIVE SESSION

FISCAL NOTE

REQUEST:

Bill Version: CSHB 108(L&C)

Publish Date: HOUSE 3/4/87

Revision Date: N/A

Title: Aquatic Farming: Mariculture

Agency Affected: Commerce & Econ. Dev.
BRU: Economic Development Advocates

Sponsor: Rep. Ellis/Senator Zharoff

Requestor:

Components: Office of Commercial
Fisheries Development**EXPENDITURES/REVENUES:** (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES	15.0	5.5	6.0	6.6	7.3	8.0
TRAVEL	10.0	5.5	6.1	6.7	7.3	8.1
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	25.0	11.0	12.1	13.3	14.6	16.1
CAPITAL						
REVENUE	5.0	10.0	15.0	20.0	25.0	30.0

FUNDING: (Thousands of Dollars)

GENERAL FUND	25.0	11.0	12.1	13.3	14.6	16.1
FEDERAL FUNDS						
OTHER						
TOTAL	25.0	11.0	12.1	13.3	14.6	16.1

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

This program will become a priority mission of OCFD and shall be assigned to existing personnel. Initial permit requests are not expected to exceed 80% of one Development Specialist II available time. Travel is programmed for site visits as envisioned by the bill and contractual includes phone, photocopy and

Prepared by: W.G. Paulick
Division: Office of Commercial Fisheries Development

Phone: 465-2162
Date: 2/17/87

Approved by Commissioner: Anthony Smith
Agency: Department of Commerce and Economic Development

Date: 2/17/87

Distribution (by preparer):

Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)
Senate Secretary

page 1 of 2

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1987 LEGISLATIVE SESSION
FISCAL NOTE

Analysis: (Continued)

other expenses related to permitting as required by the bill. FY 87 includes funding for public hearings, etc., to finalize new regulations. Program receipts have been estimated by using a fee of \$100 per annual permit; 50 new permits per year.

STATE OF ALASKA 1987 LEGISLATIVE SESSION

FISCAL NOTE

REQUEST:

Bill Version: CSHB 108(L&C)

Publish Date: HOUSE 3/4/87

Revision Date: 2-4-87

Title: An Act Relating to Aquatic FarmingAgency Affected: Natural Resources
BRU: Land and Water ManagementSponsor: Ellis, Rieger, Cotten, Brown,
Requestor: etc.

Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES	0	84.6	171.3	171.3	210.6	210.6
TRAVEL	0	20.0	25.0	25.0	22.0	22.0
CONTRACTUAL	0	2.0	4.0	4.0	4.0	4.0
SUPPLIES	0	1.0	2.0	2.0	2.0	2.0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING	0	107.6	202.3	202.3	238.6	238.6

CAPITAL	0	0	0	0	0	0
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REVENUE	0	15.5	23.5	32.0	36.0	40.0
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FUNDING: (Thousands of Dollars)

GENERAL FUND	0	107.6	202.3	202.3	238.6	238.6
FEDERAL FUNDS	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL	0	107.6	202.3	202.3	238.6	238.6

POSITIONS:

FULL-TIME	0	2	3	3	4	4
PART-TIME	0	0	2	2	2	2
TEMPORARY	0	0	0	0	0	0

ANALYSIS : (Attach a separate page if necessary)

See Attached

Prepared by: Paula Burgess
Division: Land and Water ManagementPhone: 465-3400Date: 2/13/87Approved by Commissioner: [Signature]
Agency: Natural Resources

Date: _____

Distribution (by preparer):

Legislative Finance
 Legislative Sponsor
 Requestor
 Office of Management and Budget
 Impacted Agency(ies)
 Senate Secretary

In order to assess the fiscal impact of HB 108, we estimate the number of new applications for tideland leases and permits that we expect. The actual number of applications will vary depending upon the fee structure for leasing and permitting, and the "prove up" requirements of the bill. At present our permit fees are extremely low and the cost of obtaining a lease is quite high. At this stage no "land law" accompanies the bill to alter the lease or permit structure. We recognize that certain changes are desirable to encourage growth of the industry, such as the acceptance of a paper plat rather than a full survey for a lease in remote areas. While such changes may be forthcoming in later committees, the fiscal note here reflects the existing permit structure.

We estimate the number of new applications the first year to be the following:

- 30 salmon
- 25 scallop
- 10 oyster
- 3 mussel
- 2 kelp

We require one adjudicator in the Southeast Region and one adjudicator in the Southcentral Region to handle the new applications. The second year we require one additional adjudicator (to be located where the need is the greatest) to handle additional new applications. By the fourth year we are assuming the need of two adjudicators in each of the two regions.

The second year we require a part time contract administrator to handle the accumulation of two years of lease contracts, and a part time surveyor to review survey plats. (The survey cost may be reduced somewhat if the bill is amended to allow paper plats rather than full surveys in remote areas.)

A goal of the state and of those seriously interested in aquatic farming is to avoid land speculation. In order to accomplish this, it will be necessary to inspect most lease and permit sites once a year. Some inspections can be combined with other field investigations, and some may be performed under cooperative agreements with other agencies. A lean inspection program will cost \$10,000 for each adjudicator the first year (travel and per diem). In subsequent years the cost will decline as we establish inspection efficiencies.

Under existing statutes and regulations, the number of leases and permits estimated above would generate

approximately \$15,500 in revenue the first year. As the number of operations increases each year, the revenue increases modestly. If the bill were amended to allow the Commissioner to charge a percentage of gross receipts, revenues could increase substantially once the industry began to flourish.

Position Summary

Fiscal Year '88

Two (2) - Natural Resource Officers II (Range 16)

Fiscal Years '89 and '90

Three (3) - Natural Resource Officers II (Range 16)
One (1) - Part-time Contract Administrator (Range 14)
One (1) - Part-time Surveyor (Range 20)

Fiscal Years '91 and '92

Four (4) - Natural Resource Officers II (Range 16)
One (1) - Part-time Contract Administrator (Range 14)
One (1) - Part-time Surveyor (Range 20)

STATE OF ALASKA 1987 LEGISLATIVE SESSION

FISCAL NOTE

Bill Version: CSHB 108(L&C)
 Publish Date: HOUSE 3/4/87

REQUEST

Bill/Resolution No.: HB 108
 Title: "An Act relating to aquatic farming"
 Sponsor: ELLIS
 Requestor:
 Date of Request:

FISCAL DETAIL

Agency Affected: Environmental Conservation
 BRU: Environmental Health
 Components: Seafood Industry,
 Palmer Laboratory

EXPENDITURES/REVENUES : (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0

CAPITAL	0	0	0	0	0	0
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REVENUE	0	0	0	0	0	0
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FUNDING : (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS :

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

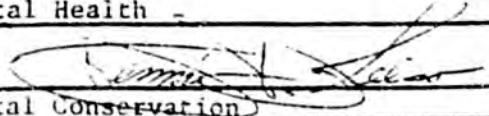
ANALYSIS : Attach a separate page if necessary

This Bill will have no fiscal impact on the Department of Environmental Conservation.

Prepared by: Douglas Donegan
 Division: Environmental Health

Phone: 465-2609

Date:

Approved by Commissioner: 
 Agency: Environmental Conservation

Date: 4/16/87

Distribution (by Agency preparing fiscal note):

Legislative Finance
 Legislative Sponsor
 Requestor
 Office of Management and Budget
 Impacted Agency(ies)



UNITED FISHERMEN OF ALASKA

SB106
Jack Cadigan
Executive Director
907-586-2820
1-800-478-FISH

BOB BLAKE TESTIMONY
SENATE LABOR & COMMERCE COMMITTEE 3/18/87

I hope each of the Committee Members has had the opportunity to read the paper describing the UFA's basic concerns on pen reared salmon I submitted for your past hearing on SB106. Those concerns we have listed are genuine and sincere, and we respectfully request that this Committee take them into serious consideration before moving this legislation. I would like to add a few additional comments and factors that should be evaluated.

Jobs - Additional employment has been the motherhood cry issued by proponents of pen reared salmon. We contend, what jobs? In 1985, Scotland had 83 salmon farms which employed 500 people. Norway had 500 farms which employed 1500 people. The cost estimate I have heard from a proponent of salmon farming is that there could possibly be 100 farms in Alaska. If we use an average between Scotland and Norway, we would employ 350 people directly. By comparison, in the Prince William Sound commercial fishery alone, there are 258 seine boats with an average of 4 persons per boat, or 1032 jobs and 538 drift boats for approximately 650 jobs, or a total of 1682 jobs on fishing boats alone. There are at least 150 additional jobs provided by the tender fleet. On the processing end, during the peak of the season, Cordova uses approximately 500 workers, Valdez 300 workers, Seward, Whittier and Homer, 200 to 300 workers, and probably on floaters, 250 to 300 workers, for a total of at least 1250 workers. This does not take into account fish that are hauled to Kodiak or upper Cook Inlet for processing. That is a total of 2932 jobs directly attributed to catching and processing common property salmon in just Prince William Sound alone. It does not take into account the many, many support service related jobs. Cordova would not exist if it were not for the vitality of the Prince William Sound salmon fishery. There are 11,584 individual salmon permit holders in Alaska, and there are more permits than that in total. Without going through a lengthy research process, I have not extrapolated the exact number of fishing jobs that number covers, but at a minimum, it is over 35,000 salmon fishery related jobs! The benefit of providing 350 jobs in direct salmon farming to us is irrelevant when compared to taking a chance on jeopardizing the 35,000 direct fishing jobs.

HB108, at least, states that aquatic farming be developed in a manner which assures full participation and full benefits to the people of the State. As that relates to actual jobs on salmon farms, I would think that this Committee might take a look at the British Columbia salmon farming industry to find out how many of the B.C. jobs are taken up by people who speak Norwegian and how many are actually held by Canadians.

Fiscal Impacts - One concern I would like to reemphasize before this Committee today is the very real concern fishermen have for lack of funding being provided by the State to continue research, management, and enhancement of the common property fisheries. We are very concerned that not only existing fisheries needs won't be met, but also if pen reared salmon was allowed, that there wouldn't be adequate funding available to cover proper management, enforcement, research, etc., for that industry also. This has already happened in B.C.. The pen farmed salmon industry is expanding rapidly and the budgets for research, management, enforcement and monitoring are being cut. The same thing is happening right now in Alaska before we even get involved with pen reared salmon! Many necessary research and management programs have been cut from ADF&G's Commercial Fish Division's budget because of shortfalls in State revenue. A prime example of ADF&G budget cuts is reflected also in the F.R.E.D. Division's budget which has four common property fish hatcheries being mothballed in FY88 for lack of funds. The one I'm most familiar with is the Cannery Creek hatchery in Prince William Sound, which for lack of approximately \$150,000 is scheduled for closure in July. This hatchery has a 100 million egg capacity, capable of producing between 3.5 and 4 million pink salmon, which in 1987 would be worth between \$3.5-\$5 million to the fishery. The raw fish tax revenue to the State from those fish would be \$140,000-\$200,000, with the regional non-profit aquaculture association receiving an additional \$70-\$100,000 in enhancement tax.

If the State is unwilling or unable to fund existing programs that have such significant benefit to the State and its people, why is the Legislature so intent on supporting a high-risk industry like pen reared salmon, which we don't even know is economically viable in Alaska, which will provide very few jobs or benefits to the State, and is a possible detriment to our proven, historic industry?

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE COMMISSIONER

STEVE COWPER, GOVERNOR

400 WILLOUGHBY AVE.
JUNEAU, ALASKA 99801-1796
PHONE: (907) 465-2400

February 24, 1987

The Honorable Tim Kelly
Chairman
Senate Labor and Commerce Committee
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Senator Kelly:

Subject: Senate Bill 106, relating to aquatic farming.

Position: The Department of Natural Resources recommends that the Senate Labor and Commerce Committee pass SB 106 to the Resources Committee for further consideration of land use issues.

Background: SB 106 provides for the construction and operation of aquatic farms. Under AS 38.05.070, land, including tide, submerged or shoreland, to which the state holds title, may be leased in a manner provided in AS 38.05.070 - 38.05.105 and subject to the approval of the Commissioner of Natural Resources.

Recommendation: While the Department of Natural Resources generally supports the goals of SB 106 and the creation of new commercial opportunities through utilization of the state's resources, in the opinion of the department, SB 106 needs to further address land use issues.

Specifically, the department recommends that leasing and permitting processes be designed to encourage development of the mariculture industry, but discourage speculation. This could be accomplished, for example, by requiring applicants to demonstrate by prove up that their projects are viable by preparation of a development schedule. Additionally, leasing and permitting alternatives which encourage small operations, such as lease fees or rent based on gross receipts, could be considered.

The enclosed fiscal note is based on an estimate of the number of leases and permits that would result from the bill

Senator Tim Kelly

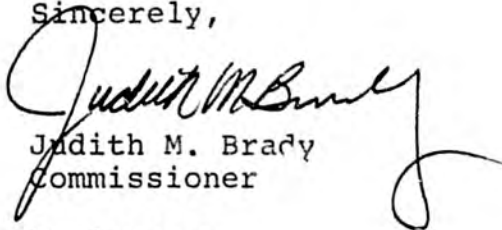
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February 24, 1987

as presently written. The actual number of new applications will undoubtedly vary depending on the fee structure for leasing and permitting and any special requirements that the final bill contains.

I would be pleased to make my staff available to work with your staff regarding the land use issue. If you would like additional information or have any questions, please contact my office.

Sincerely,



Judith M. Brady
Commissioner

Enclosures

cc: Committee Members
Sponsors
George Sullivan, Governor's Office
Rod Swope, Governor's Office
Paul Peyton, DCED
David Benton, ADFG
Tom Hawkins, DLWM

STATE OF ALASKA 1987 LEGISLATIVE SESSION

FISCAL NOTE

REQUEST:

Revision Date: 2/24/87
 Title: An act relating to aquatic farming
 Sponsor: Zharoff, Sturgulewski, et al
 Requestor: Senate Labor & Commerce

Bill Version: SB 106
 Publish Date: _____

Agency Affected: Natural Resources
 BRU: Land and Water Management

Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES	0	84.6	171.3	171.3	210.6	210.6
TRAVEL	0	20.0	25.0	25.0	22.0	22.0
CONTRACTUAL	0	2.0	4.0	4.0	4.0	4.0
SUPPLIES	0	1.0	2.0	2.0	2.0	2.0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING	0	107.6	202.3	202.3	238.6	238.6

CAPITAL	0	0	0	0	0	0
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REVENUE	0	15.5	23.5	32.0	36.0	40.0
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FUNDING: (Thousands of Dollars)

GENERAL FUND	0	107.6	202.3	202.3	238.6	238.6
FEDERAL FUNDS	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL	0	107.6	202.3	202.3	238.6	238.6

POSITIONS:

FULL-TIME	0	2	3	3	4	4
PART-TIME	0	0	2	2	2	2
TEMPORARY	0	0	0	0	0	0

ANALYSIS : (Attach a separate page if necessary)

See Attached

Prepared by: Paula Burgess Phone: 465-3400
 Division: Land and Water Management Date: 2/13/87

Approved by Commissioner: Judith M. Bandy Date: _____
 Agency: Natural Resources

Distribution (by preparer):

Legislative Finance
 Legislative Sponsor
 Requestor
 Office of Management and Budget
 Impacted Agency(ies)
 Senate Secretary

SB 106 Analysis

In order to assess the fiscal impact of SB 106, we estimate the number of new applications for tideland leases and permits that we expect. The actual number of applications will vary depending upon the fee structure for leasing and permitting, and the "prove up" requirements of the bill. At present our permit fees are extremely low and the cost of obtaining a lease is quite high. At this stage no "land law" accompanies the bill to alter the lease or permit structure. We recognize that certain changes are desirable to encourage growth of the industry, such as the acceptance of a paper plat rather than a full survey for a lease in remote areas. While such changes may be forthcoming in later committees, the fiscal note here reflects the existing permit structure.

We estimate the number of new applications the first year to be the following:

- 30 salmon
- 25 scallop
- 10 oyster
- 3 mussel
- 2 kelp

We require one adjudicator in the Southeast Region and one adjudicator in the Southcentral Region to handle the new applications. The second year we require one additional adjudicator (to be located where the need is greatest) to handle additional new applications. By the fourth year we are assuming the need of two adjudicators in each of the two regions.

The second year we require a part-time contract administrator to handle the accumulation of two years of lease contracts, and a part-time surveyor to review survey plats. (The survey cost may be reduced somewhat if the bill is amended to allow paper plats rather than full surveys in remote areas.)

A goal of the state and of those seriously interested in aquatic farming is to avoid land speculation. In order to accomplish this, it will be necessary to inspect most lease and permit sites once a year. Some inspections can be combined with other field investigations, and some may be performed under cooperative agreements with other agencies. A lean inspection program will cost \$10,000 for each adjudicator the first year (travel and per diem). In subsequent years the cost will decline as we establish inspection efficiencies.

Under existing statutes and regulations, the number of leases and permits estimated above would generate approximately \$15,500 in revenue the first year. As the number of operations increases each year, the revenue increases modestly. If the bill were amended to allow the commissioner to charge a percentage of gross receipts, revenues could increase substantially once the industry began to flourish.

Position Summary

Fiscal Year '88

Two (2) - Natural Resource Officers II (Range 16)

Fiscal Years '89 and '90

Three (3) - Natural Resource Officers II (Range 16)
One (1) - Part-time Contract Administrator (Range 14)
One (1) - Part-time Surveyor (Range 20)

Fiscal Years '91 and '92

Four (4) - Natural Resource Officers II (Range 16)
One (1) - Part-time Contract Administrator (Range 14)
One (1) - Part-time Surveyor (Range 20)

BY ZHAROFF, STURGULEWSKI,
COGHILL, UEHLING,
JOSEPHSON, FAIKS AND RODEY

1 IN THE SENATE

2 SENATE BILL NO. 106

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FIFTEENTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act relating to aquatic farming; and providing
7 for an effective date."

8 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

9 * Section 1. FINDINGS AND POLICY. (a) The legislature finds that

10 (1) aquatic farming in the state would provide a consistent
11 source of quality food, provide new jobs, increase state exports, create
12 new commercial fishing and other business opportunities, and increase the
13 stability and diversity of the state's economy;

14 (2) many areas of the state are ecologically suited for aquatic
15 farming development;

16 (3) aquatic farming would complement and enhance the variety and
17 quality of Alaska seafood and aquatic products, and thereby benefit the
18 state's economy; and

19 (4) the principal responsibility for development of aquatic
20 farming in the state rests with the private sector.

21 (b) It is the policy of the state to encourage the establishment and
22 growth of an aquatic farming industry and to assist in the planning and
23 orderly development of the industry.

24 * Sec. 2. AS 08 is amended by adding a new chapter to read:

25 CHAPTER 06. AQUATIC FARMING.

26 Sec. 08.06.010 AQUATIC FARM AND HATCHERY PERMITS. (a) A
27 person may not, without a permit from the commissioner, construct or
28 operate

29 (1) an aquatic farm; or

1 (2) a hatchery for the purpose of supplying aquatic plants
2 or aquatic animals to an aquatic farm.

3 (b) A permit issued under this section authorizes the permittee,
4 subject to the conditions of this chapter, to acquire, purchase, offer
5 to purchase, transfer, possess, sell, and offer to sell stock and
6 aquatic farm products that are used or reared at the hatchery or
7 aquatic farm.

8 (c) The commissioner, after consulting with the commissioner of
9 fish and game and the commissioner of environmental conservation, may
10 attach conditions to a permit issued under this section that are
11 necessary to protect the public health or natural stock.

12 Sec. 08.06.020. PERMIT APPLICATION AND RENEWAL. (a) An
13 applicant for an aquatic farming or hatchery permit required under
14 AS 08.06.010 shall apply on a form prescribed by the commissioner.

15 (b) An application for renewal must be accompanied by fees
16 required under AS 08.01.065 and a report of a health inspection of the
17 farm or hatchery to be permitted. The inspection shall be conducted
18 by the Department of Fish and Game or by a fish disease diagnostician
19 approved by the Department of Fish and Game. The inspection shall be
20 conducted not more than 30 days before the application is submitted to
21 the department.

22 Sec. 08.06.030. AQUATIC FARM STOCK ACQUISITION PERMITS. (a) A
23 person may not acquire aquatic plants or aquatic animals from wild
24 stock in the state for the purpose of supplying stock to an aquatic
25 farm or hatchery required to have a permit under AS 08.06.010 unless
26 the person holds an acquisition permit from the commissioner of fish
27 and game.

28 (b) An acquisition permit authorizes the permit holder to ac-
29 quire the species and quantities of wild stock in the state specified

1 in the permit for the purpose of supplying stock to an aquatic farm or
2 hatchery required to have a permit under AS 08.06.010.

3 (c) The commissioner of fish and game, in consultation with the
4 commissioner of commerce and economic development, shall specify the
5 expiration date of an acquisition permit and may attach conditions to
6 an acquisition permit, including conditions relating to the time,
7 place, and manner of harvest. Size, gear, place, time, licensing, and
8 other limitations applicable to sport, commercial, or subsistence
9 harvest of aquatic plants and aquatic animals do not apply to a har-
10 vest with a permit issued under this section.

11 (d) The commissioner of fish and game shall forward a copy of
12 each permit application under this section to the commissioner of
13 commerce and economic development. The commissioner of fish and game
14 shall issue or deny a permit within 30 days after receiving an appli-
15 cation.

16 (e) The commissioner of fish and game may deny or restrict a
17 permit under this section if the commissioner finds that the proposed
18 harvest will substantially impair sustained yield of the species. The
19 decision of the commissioner of fish and game must contain the factual
20 basis for the findings. If the substantial impairment could not have
21 been reasonably foreseen and avoided through available management
22 options, the commissioner of fish and game shall explain why in the
23 decision.

24 (f) Except as provided in (e) of this section, the commissioner
25 of fish and game shall issue a permit if

26 (1) wild stock is needed for initial farms or hatchery
27 stock;

28 (2) there are technological limitations on the propagation
29 of cultured stock for the species sought;

1 (3) wild stock is needed to maintain the gene pool of a
2 hatchery or aquatic farm; or

3 (4) commercial harvest of the species sought is not limited
4 under AS 16.43 and is not fully developed.

5 (g) Aquatic plants and aquatic animals acquired under a permit
6 issued under this section become the property of the permit holder and
7 are no longer a public or common resource.

8 (h) The commissioner of fish and game shall make stock available
9 for aquatic farming purposes.

10 Sec. 08.06.040. IMPORTATION OF AQUATIC PLANTS OR AQUATIC ANIMALS
11 FOR STOCK. A person may not import into the state an aquatic plant or
12 aquatic animal for the purpose of supplying stock to an aquatic farm
13 or hatchery unless authorized by the commissioner of fish and game or
14 by a regulation of the Board of Fisheries.

15 Sec. 08.06.050. LIMITATION ON SALE, TRANSFER OF STOCK, AND
16 PRODUCTS. (a) A private hatchery required to have a permit under
17 this chapter may sell or transfer stock from the hatchery only to an
18 aquatic farm or other hatchery that has a permit issued under this
19 chapter.

20 (b) Stock may not be transferred to or from an aquatic farm or
21 hatchery required to have a permit under this chapter without prior
22 notice of the transfer to the commissioner. A notice of transfer
23 shall be submitted at least 30 days before the proposed date of trans-
24 fer.

25 (c) A notice of transfer must be accompanied by a report of a
26 health inspection of the stock. The inspection shall be conducted by
27 the Department of Fish and Game or by a disease diagnostician approved
28 by the Department of Fish and Game.

29 (d) The Department of Fish and Game may restrict or disapprove a

1 transfer of stock if it finds that the transfer
2 (1) would present a substantial risk of spreading disease;
3 or
4 (2) in the case of a transfer from a hatchery for which a
5 permit has been issued under AS 16.10.400, would significantly impair
6 the production needs of the hatchery.
7 (e) A person may not sell, transfer, or offer to sell or trans-
8 fer, or knowingly purchase or receive, an aquatic farm product grown
9 or propagated in the state unless the product was grown or propagated
10 on a farm with a permit issued under this chapter. The permit must be
11 in effect at the time of the sale, transfer, purchase, receipt, or
12 offer.
13 Sec. 08.06.060. RELEASE OF CERTAIN FISH PROHIBITED. Salmon and
14 trout may not intentionally be released into the public water of the
15 state from a hatchery or aquatic farm required to have a permit under
16 this chapter without prior authorization from the Department of Fish
17 and Game.
18 Sec. 08.06.070. DISEASE CONTROL AND INSPECTION. (a) The De-
19 partment of Fish and Game may order the quarantine or the destruction
20 and disposal of diseased hatchery stock or of aquatic farm products
21 when necessary to protect wild stock. A holder of a permit issued
22 under this chapter shall report to the Department of Fish and Game an
23 outbreak or incidence of disease among stock or aquatic farm products
24 of the permit holder.
25 (b) A holder of a permit issued under AS 08.06.010 shall allow
26 the Department of Fish and Game to inspect the permit holder's farm or
27 hatchery during operating hours and upon reasonable notice. The cost
28 of inspection shall be borne by the Department of Fish and Game.
29 (c) The Department of Fish and Game shall develop a disease

1 management and control program for aquatic farms and hatcheries.

2 (d) The Department of Fish and Game may enter into an agreement
3 with a state or federal agency or a private provider to provide ser-
4 vices under (b) and (c) of this section, or inspections under AS 08.-
5 06.020(b).

6 Sec. 08.06.080. REGULATIONS. The commissioner may adopt regu-
7 lations necessary to implement this chapter.

8 Sec. 08.06.090. PENALTY. A person who violates a provision of
9 this chapter, a regulation adopted under this chapter, or a term or
10 condition of a permit issued under this chapter, is guilty of a class
11 B misdemeanor.

12 Sec. 08.06.900. DEFINITIONS. In this chapter

13 (1) "aquatic farm" means a facility that grows, farms, or
14 cultivates aquatic farm products in captivity or under positive
15 control;

16 (2) "aquatic farm product" includes an aquatic plant or
17 aquatic animal, or fish parts that are propagated, farmed, or cul-
18 tivated in an aquatic farm and sold or offered for consumption;

19 (3) "commissioner" means the commissioner of commerce and
20 economic development;

21 (4) "hatchery" means a facility for the artificial incu-
22 bation of stock, including rearing of juvenile aquatic plants or
23 aquatic animals;

24 (5) "positive control" means, for fish and other mobile
25 species, enclosed within a natural or artificial escape-proof barrier;
26 for species with limited or no mobility, such as a bivalve or an
27 aquatic plant, "positive control" also includes managed cultivation in
28 unenclosed water;

29 (6) "stock" means live aquatic plants and aquatic animals

1 acquired, collected, possessed, or intended for use by a hatchery or
2 aquatic farm for the purpose of further growth or propagation.

3 * Sec. 3. AS 03.05.020(a) is amended to read:

4 (a) The commissioner shall

5 (1) require routine inspection of food animals, fish,
6 poultry and derivative food products, to protect the public against
7 fraud, disease and spoilage, and in this connection adopt uniform
8 regulations establishing standards of identity and composition of
9 these food products and minimum standards of sanitation and handling
10 methods as to all phases of slaughtering, processing, storing, trans-
11 porting, displaying and selling of these food products;

12 (2) issue orders or cause the orders to be issued by an
13 authorized veterinarian prohibiting transportation and sale of food
14 products intended for human consumption which do not meet the minimum
15 requirements established under (1) of this subsection, and limiting
16 their use and disposal in conformity with protection of the public;

17 (3) adopt a schedule of fees or charges, and credit pro-
18 visions, for services rendered by state veterinarians to farmers and
19 others at their request in caring for livestock and poultry, and all
20 the fees shall be transmitted to the commissioner for deposit in the
21 state treasury;

22 (4) designate points of entry for admission of livestock or
23 poultry into the state, and arrange inspection at those points with or
24 without collaboration and assistance of the federal government, and
25 bar entry of stock or poultry not shipped under a valid permit or not
26 free from contagious or infectious disease;

27 (5) adopt, repeal, and amend regulations consistent with
28 existing law for

29 (A) the labeling and grading of milk and milk products

1 and standards of cleanliness and sanitation, to at least the
2 minimum of current recommendations of the United States Public
3 Health Service, for the operation of dairies selling, or offering
4 for sale, milk or milk products;

5 (B) the production and sale of ice cream and allied
6 frozen desserts;

7 (C) the production and sale of imitation milk and
8 imitation milk products;

9 (6) monitor aquatic farms and hatcheries that hold permits
10 under AS 08.06.010 for the possible presence of paralytic shellfish
11 poisoning.

12 * Sec. 4. AS 08.01.010 is amended by adding a new paragraph to read:

13 (27) regulation of aquatic farms and hatcheries under
14 AS 08.06.

15 * Sec. 5. AS 16.05.251 is amended by adding a new subsection to read:

16 (f) Except as expressly provided in AS 08.06.040, the Board of
17 Fisheries may not adopt regulations or take action regarding the
18 issuance, denial, or conditioning of a permit under AS 08.06, the
19 construction or operation of a farm or hatchery required to have a
20 permit under AS 08.06.010, or a harvest with a permit issued under
21 AS 08.06.030. Regulations or orders adopted by the Board of Fisheries
22 under this section do not apply to a harvest with a permit issued
23 under AS 08.06.030.

24 * Sec. 6. AS 16.05.330(a) is amended to read:

25 (a) Except as otherwise permitted in this chapter, a person may
26 not engage in sport fishing, including the taking of razor clams; in
27 hunting, trapping, or fur dealing; in the farming of [FISH,] fur [,]
28 or game; or in taxidermy, without having the appropriate license or
29 tag in actual possession.

1 * Sec. 7. AS 16.05.340(a)(14) is amended to read:
2 (14) [FISH OR] game farming biennial licenses.....200

3 * Sec. 8. AS 16.05.920(a) is amended to read:
4 (a) Unless permitted by AS 16.05 - AS 16.40 or AS 08.06, or by
5 regulation adopted under AS 16.05 - AS 16.40 or AS 08.06, a person may
6 not take, possess, transport, sell, offer to sell, purchase, or offer
7 to purchase fish, game, or marine aquatic plants, or any part of fish,
8 game, or aquatic plants, or a nest or egg of fish or game.

9 * Sec. 9. AS 16.05.930 is amended by adding a new subsection to read:
10 (g) AS 16.05.330 - 16.05.720 do not apply to an activity au-
11 thorized by a permit issued under AS 08.06.010 or 08.06.030, or to a
12 person or vessel employed in an activity authorized by a permit issued
13 under AS 08.06.010 or 08.06.030.

14 * Sec. 10. AS 16.05.940(14) is amended to read:
15 (14) "[FISH OR] game farming" means the business of prop-
16 agating, breeding, raising, or producing [FISH OR] game in captivity
17 for the purpose of marketing the [FISH OR] game or game [THEIR] prod-
18 ucts, and "captivity" means having the [FISH OR] game under positive
19 control, as in a pen [, POND,] or an area of land that [OR WATER
20 WHICH] is completely enclosed by a generally escape-proof barrier;

21 * Sec. 11. AS 16.10 is amended by adding a new section to read:
22 Sec. 16.10.269. LIMITATIONS. AS 16.10.265 - 16.10.267 do not
23 apply to the purchase or sale of aquatic farm products from a holder
24 of a permit issued under AS 08.06.010 or stock from a holder of a
25 permit issued under AS 08.06.030.

26 * Sec. 12. AS 16.10.380(b) is amended to read:
27 (b) In this section "user group" includes, but is not limited
28 to, sport fishermen, processors, commercial fishermen, aquatic farm-
29 ers, subsistence fishermen, and representatives of local communities.

1 * Sec. 13. AS 16.10.400 is amended by adding a new subsection to read:

2 (h) AS 16.10.400 - 16.10.475 do not apply to the construction or
3 operation of a private hatchery that has a permit issued under AS 08.-
4 06.010.

5 * Sec. 14. AS 16.10.420 is amended to read:

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

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

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

12 (3) no salmon eggs or resulting fry, sold to a permit
13 holder by the state or by another party approved by the department,
14 may be resold or otherwise transferred to another person, unless that
15 person holds a permit issued under AS 08.06.010;

16 (4) no salmon be released by the hatchery before department
17 approval, and, for purposes of pathological examination and approval,
18 the department shall be notified of the proposed release of salmon at
19 least 15 days before the date of their proposed release by the hatch-
20 ery;

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

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

25 (7) surplus eggs from salmon returning to the hatchery be
26 made available for sale first to the department and then, after in-
27 spection and approval by the department, to operators of other hatch-
28 eries authorized by permit to operate under AS 16.10.400 - 16.10.470,
29 or AS 08.06.010;

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

4 (9) [REPEALED

5 (10)] a hatchery be located in an area where a reasonable
6 segregation from natural stocks occurs, but, when feasible, in an area
7 where returning hatchery fish will pass through traditional salmon
8 fisheries.

9 * Sec. 15. AS 16.10.450 is amended to read:

10 Sec. 16.10.450. SALE OF SALMON AND SALMON EGGS BY HATCHERY. A
11 hatchery operator who sells salmon returning from the natural water
12 [WATERS] of the state, or sells salmon eggs to another hatchery op-
13 erating under AS 16.10.400 - 16.10.470 or with a permit issued under
14 AS 08.06.010, after utilizing the funds for reasonable operating
15 costs, including debt retirement, expanding its facilities, salmon
16 rehabilitation projects, fisheries research, or for costs of operating
17 the qualified regional association for the area in which the hatchery
18 is located, shall expend the remaining funds on other fisheries activ-
19 ities of the qualified regional association. Fish returning to hatch-
20 eries and sold for human consumption must [SHALL] be of comparable
21 quality to fish harvested by commercial fisheries in the area, and
22 shall be sold at prices commensurate with the current market.

23 * Sec. 16. AS 16.43.140 is amended by adding a new subsection to read:

24 (d) This chapter does not apply to activities authorized by a
25 permit issued under AS 08.06.010 or 08.06.030.

26 * Sec. 17. AS 16.51.180(5) is amended to read:

27 (5) "seafood" means finfish, shellfish, and fish by-prod-
28 ucts, including but not limited to salmon, halibut, herring, flounder,
29 crab, clam, cod, shrimp, and pollock, but does not include aquatic

1 farm products as defined in AS 08.06.900;

2 * Sec. 18. This Act takes effect immediately under AS 01.10.070(c).



SENATOR FRED F. ZHAROFF
ALASKA STATE LEGISLATURE

P.O. BOX 405, KODIAK, ALASKA 99615 (907) 486-5259

DURING SESSION:

P.O. BOX V, JUNEAU, ALASKA 99811 • (907) 465-3473 • 465-3474

DISTRICT N

ALASKA PENINSULA • ALEUTIAN CHAIN • BRISTOL BAY • KODIAK ISLAND • LAKE CLARK/LAKE ILIAMNA • PRIBILOF ISLANDS • SHUMAGIN ISLANDS

March 6, 1987

Senator Dick Eliason
Alaska State Senate
P.O. Box V
Juneau, Alaska 99811

Dear Dick:

A group of 12 Kodiak fishermen recently copied you on a letter written to me in which they expressed their concerns about Senate Bill 106, the aquatic farming legislation. Enclosed is a copy of my response.

Sincerely,


Fred F. Zharoff
Alaska State Senate



SENATOR FRED F. ZHAROFF

ALASKA STATE LEGISLATURE

P.O. BOX 405, KODIAK, ALASKA 99615 (907) 486-5259

DURING SESSION:

P.O. BOX V, JUNEAU, ALASKA 99811 • (907) 465-3473 • 465-3474

DISTRICT N

ALASKA PENINSULA • ALEUTIAN CHAIN • BRISTOL BAY • KODIAK ISLAND • LAKE CLARK/LAKE ILIAMNA • PIRILLOF ISLANDS • SHUMAGIN ISLANDS

March 5, 1987

WaΨ

Dear ΨbΨ:

Thank you for your letter of February 24 regarding Senate Bill 106, "An Act relating to aquatic farming; and providing for an effective date."

Before I respond to your specific concerns, please allow me to preface my remarks by saying that I fully recognize the importance of the commercial fishing industry to our region's economy. It has provided and will continue to provide a livelihood for generations of Alaskans. Neither I nor any Alaska legislator would knowingly take actions that would damage this industry or our natural resources. SB 106 is simply predicated on the recognition that aquatic farming is a growing worldwide industry. For at least the last couple years, there has been considerable discussion about whether Alaska should enter this new field. Without legislation, this discussion is purely theoretical and academic. I introduced SB 106 to put the issue on the table. We need to make decisions now about whether Alaska will develop mariculture, and, if so, in what form.

Let me now address the specific issues you raised.

The legislative findings section states -- in a very general fashion -- the legislature's goals for aquatic farming. The findings are neutral on potential conflicts, though language recognizing the current users' concerns could certainly be inserted. The House version, HB 108, now says, "that the industry be developed in a manner consistent with the protection and enhancement of traditional high value industries and with protection of the state's natural resources".

The brood stock acquisition permit section most likely will be revised. It was written mainly for shellfish. If done properly, the collection of brood stock for scallops, oysters, clams and mussels would have little impact on commercial fishing activities. However, more time for public comment and more protection for commercial fishing -- especially for fully allocated fisheries -- would be appropriate.

There still needs to be discussion of the Board of Fisheries' exact role in the issuance of aquatic farm permits, possibly to review brood stock acquisitions. Our intent, to date, has been to create as much as possible a self-contained permit system in which the commercial fishermen's and general public's interests can be heard and addressed.

I expect the state to recover the costs of paralytic shellfish poisoning testing and disease diagnostic services from either user fees or taxes on the revenues generated by aquatic farms. As a point of clarification, we have found that the Alaska Department of Environmental Conservation already is obligated under existing statutes to monitor shellfish production for paralytic shellfish poisoning. Section 3 of the bill, which contains language to this effect, is unnecessary and will be deleted.

The amendment in Section 17 to AS 16.51.180(5) does not exempt aquatic farm products from the fisheries business tax. It exempts aquatic farm products from the Alaska Seafood Marketing Institute, which was established to promote traditional seafood industry products. I wrote an inquiry to the commissioner of revenue requesting him to clarify the status of aquatic farm products in relation to the fisheries business tax statutes (AS 43.75.010 - 43.75.140). I am awaiting his response.

Your letter all but accuses me of supporting the Japanese Longliners Association's Pacific cod allocation in trade for the Coastal Fisheries Development Feasibility Study agreement between the Japanese Overseas Fisheries Cooperation Foundation and the State of Alaska. This is not true. The agreement -- signed August 1, 1986 -- provided for a surimi demonstration project, and feasibility studies for kelp in Sitka and scallops in Kodiak. As a longstanding advocate of Americanization, I do not support "hidden" agreements.

In the December 9 letter to the North Pacific Fishery Management Council that you reference, I and other members of the legislature's bush caucus requested the council to make a "sufficient" Pacific cod allocation so that joint ventures could continue with the resident fishermen of Bristol Bay and Norton Sound. We did not request a specific amount. The council's final decision was to recommend that the longliners receive a 22,000 m.t. allocation, leaving 258,000 m.t. to be taken by the domestic industry.

I signed the letter in order to support the herring joint venture between the Japanese longliners and the Bristol Bay Herring Marketing Cooperative. This joint venture directly benefits the resident, small boat gillnetters of Bristol Bay, who, to date, have never been able to secure commitments from domestic processors for markets. The joint venture, unfortunately, would not be economically viable unless the longliner fleet had access to Bering Sea bottomfish, in this case Pacific cod. The herring cooperative is on notice that it cannot count on the continued presence of the Japanese in our waters. It must develop alternate markets. While I am willing to support this exception this year in the case of the herring cooperative I still favor strongly a phase out of all foreign fishing. I recognize the economic benefits that will accrue to our state the sooner this is accomplished.

My position on improving the district's economy is that we must promote all possible sources of development, including a phase out of all foreign fishing and, over the long term, the development of mariculture.

Under present state statutes, however, no formal regulatory or permitting process exists for Alaskans to participate in the mariculture industry. The current version of SB 106 represents a first attempt at establishing the rules

and providing a forum for discussion. My intention is to develop regulatory procedures to avoid conflicts in advance.

I appreciate your effort in informing me of your concerns about SB 106. You should be aware, however, that a bill is a working document. It is subject to constant revision. The committee process provides us with an official forum in which to listen to concerns and address the important issues. The concerns you have raised, all valid, will be addressed.

As previously stated, aquatic farm production -- especially salmon -- is growing on a worldwide basis. I can just imagine three years from now people sitting around, scratching their heads, wondering what happened to Alaska's seafood markets. "Why didn't the legislature do anything?" they will say. Rather than wait until then, let us give this issue a long hard look now.

In the coming months, every aspect of aquatic farming will be discussed, debated and analyzed. I invite and encourage both you and every other interested individual to participate in this process. Please check with the Legislative Information Office about the dates and times for hearings. The United Fishermen's Marketing Association and the Kodiak Regional Aquaculture Association is organizing a special meeting on this bill for later in the month. Again, I appreciate the issues you raised in your letter. I welcome all constructive comments and specific suggestions about areas to consider. If you have further concerns, please do not hesitate to contact me.

Sincerely,

Fred F. Zharoff
Alaska State Senator

cc: Representative Cliff Davidson
Senator Dick Eliason
Governor Steve Cowper
Bill Osborne, KANA
Kodiak Daily Mirror



CORDOVA DISTRICT FISHERMEN UNITED

P.O. Box 939

Cordova, Alaska 99574

(907) 424-3447

February 23, 1987

Senator Mike Szymanski
P.O. Box V
Juneau, AK 99811

Dear Senator Szymanski:

Cordova District Fishermen United (CDFU) supports the orderly controlled development of shellfish and plant mariculture. Before mariculture is introduced into Alaska, however, a socio-economic study should be done. The study was requested by the United Fishermen of Alaska (UFA), CDFU, Prince William Sound Aquaculture Corporation (PWSAC) and recommended by the fisheries mini cabinet.

The development of salmon farming without the state studies, coastal community input and the recent land grab for fish farm sites in Canada have raised many eyebrows in Alaska. The people of Alaska have entrusted millions of dollars to enhance wild stocks. In 1975, the fishermen of Prince William Sound formed PWSAC and started the most successful hatchery and enhancement program in North America. Enhancement of wild stocks and ocean ranching is the best investment the State of Alaska has ever made. This tremendous investment is now paying for the state and the fishermen. As wild stocks are on the decline, hatchery production is kicking into gear.

PWSAC is one of seven private non-profit regional associations in Alaska and was created by the fishermen and the legislature to enhance salmon production. Prince William Sound fishermen passed a 2% salmon enhancement tax to financially support the salmon enhancement program of PWSAC. The 2% salmon enhancement tax received by PWSAC will amount to \$750,000 annually and will, in turn, partially support the program that will provide \$25 million annually to the commercial fisheries by the year 1995, at which time PWSAC will be providing over half of the commercial fishery revenues in Prince William Sound.

Page Two
Senator Mike Szymanski
February 23, 1987

It makes no sense to the CDFU Board of Directors to cut funding for state hatcheries, management of the commercial fishery and the enforcement division to start a new industry which will require millions of dollars to get started.

We are harvesting 130 million salmon per year and continuing to build our future salmon runs to obtain greater harvests. We are the fish farmers of Alaska and have made a big commitment to the State of Alaska by building new hatcheries, paying assessments, upgrading fishing vessels and putting out a better quality of salmon all the time. CDFU is concerned that the coastline, wild stocks, traditional fishing grounds and enhancement programs are protected before a fish farming bill is passed.

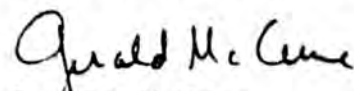
Ocean ranching is the biggest investment in the State of Alaska and the State should keep funding the enhancement programs. Commercial fishing has and always will be a major employer in Alaska, where fish farming will only employ a few.

Foreign companies in some cases are prevented from expanding in their own countries because of legislation protecting local communities. We have made our choice to protect the wild stocks and enhance the salmon runs in the State of Alaska. In five years, the State of Alaska could have five new hatcheries operating and generating revenues before the first pen-raised salmon ever hit the market. We need to keep investing our money to compete on the world market by freezing, labeling and storing our fish products in the State to be distributed all year round.

We urge you to take no action on legislation and development of fish farming mariculture until all concerned groups and communities have had a chance to respond to the impacts of fish farming.

Sincerely,

CORDOVA DISTRICT FISHERMEN UNITED



Gerald McCune
Vice President

GM/mb1

CORDOVA DISTRICT FISHERMEN UNITED
RECOMMENDATIONS

1. Strict controls to prevent foreign corporations and banks from taking over fish farming in Alaska. This industry should be kept in the hands of U.S. corporations and citizens if Alaska wants the full benefits of fish farming to stay in Alaska.
2. A complete study of the environmental effects of salmon farming on wild stocks and coastline communities.
3. No use of fish farming as a trade off for wild stock fishery habitat lost.
4. Control development of fish farming sites.
5. Alaska keeps control of any aquaculture development.
6. Clearcutting at sites have quality control standards.
7. Limits on proximity of fish farms to other sites and density controls of fish in farms.
8. Regulations covering location of fish farms.
9. Studies of tidal flush out at fish farms.
10. Environmental impact, with respect to wild fish stocks.
11. Concerns of commercial fishing, sport fishing, recreation groups and coastal communities should be addressed.
12. Studies of Norway and Scotland controlled development of fish farming.
13. Continued state funding of PNP and FRED hatcheries to enhance the wild stocks and enhance salmon production by ocean ranching. This means leave the funding in Commerce for the state and PNP to advance our enhancement programs.
14. No importation of Atlantic salmon eggs into Alaska.
15. Research, health inspection and testing of facilities be set up to address concerns of the use of hormones and antibiotics, impacts of toxicants, disposal of dead fish and human waste, predator control and efficient feed practices. Studies have been done implicating the toxicant Tributyltin (TBT) as a human health risk and has recently been found in imported farm salmon. A ban of TBT in the State of Alaska should be made into law.

CDFU CONCERNS

1. Reallocation of State funds and services to fish farming.
2. A rush on salmon farm sites in Alaska without proper guidelines. Loss of traditional fishing grounds.
3. Predator control for fish farms be reviewed and identification of appropriate predator control methods.
4. Impact on water quality and marine environment.
5. Excess feed falling through netpens.
6. Good tidal flush-out sites.
7. Separation of fish farms and shellfish farms.
8. Navigational obstruction of fish farms and safe anchorages lost to the commercial vessels.
9. Conflicts with fish farmers and commercial fishing vessels.

Alaska troll sector fights farmed salmon impact

Fearful that farmed salmon will destroy prices and markets for Pacific troll-caught salmon, Alaska fishermen and processors are launching a campaign to promote the virtues of wild fish.

But the man heading up the campaign admits his efforts are largely a defensive effort designed to retain the market share that still exists for troll salmon.

"We've seen our market share for troll fish from Alaska and B.C. get smaller and smaller over the last five years," says Barry Lester, of the Alaska Troll Salmon Processors Association. "We've seen it reflected in prices."

"From our own point of view as processors our goal is to maintain the markets we have and not see any decline. If we succeed, we should try to expand."

Lester's organization was formed during the spring in response to growing concern in the American troll industry about the impact of farmed fish.

Lester said in an interview Aug. 7 that farmed salmon has invaded traditional troll salmon markets in the European and New York smoked salmon industries. Second grade farmed salmon not suitable for restaurant sale is going into the smoker market as volumes of production rise.

Lester said the processors decided to take a positive approach: "We don't want to say it swims in its own waste and is filled with chemicals against disease. We're trying to talk about the virtues of wild salmon."

The program involves promotions with buyers in European

and New York markets as well as improved grading and quality standards on the grounds and in the plants.

Earl Krygier, spokesman for the Alaska Trollers Association, said his organization is pledged to support the campaign. "We've seen prices soften quite a bit, especially because our troll coho go to European markets. The Norwegians are definitely making inroads."

Krygier said Alaskan fishermen are solidly behind the moratorium imposed on salmon farm-

ing in Alaska and are reaping the benefits of their non-profit hatchery system. "It would be a real mistake to bring farms in here."

So far the processors have financed the campaign internally, but Lester hopes support will come from other quarters.

Continued erosion of the troll fishery could have "a devastating effect on the economy of Alaska," he said. "We're talking about a way of life. This goes beyond the economic situation to the very existence of fishermen."

B.C. production adds to farmed salmon glut

As trollers see coho and chinook prices tumble under the assault of farmed salmon, experts in Norway are predicting Atlantic salmon production there could soar to 150,000 metric tonnes by 1990.

Even B.C.'s farmed salmon production is shooting up, with harvests this year likely to hit 2,000 tonnes up from only 250 tonnes in 1985.

The forecast Norwegian production is a staggering leap from about 30,000 tonnes last year and double recent forecasts of 80,000 metric tonnes. The 1986 harvest should be between 63,000 and 68,000 tonnes.

Canadian federal and provincial fisheries departments have just begun to assess the impact of the farmed production on existing salmon sales from B.C.

Jim Fralic, aquaculture co-ordinator for the provincial agriculture department says B.C. farmed salmon production should jump to 2,000 tons this year, up from 250 in 1985.

He said declining prices may have an impact on the viability of B.C. salmon farms, which normally forecast their economic position based on the strong prices of the past two years. "We've always been of the opinion that prices for farmed fish would come down," he said.

"We hoped to reduce the cost of production at the same time by reducing the rate of natural mortality. There are indications this is happening as people get more experienced."

Troll prices dive to \$2.25

Trollers found fairly good fishing as the season opened June 20 but needed the volume to partly compensate for a major price cut.

Opening prices posted by B.C. Packers for spring salmon were \$2.20 for large, \$1.65 for medium and \$1.30 for small.

That was a 17 percent cut from last year's July 1 opening prices of \$2.65, \$2.10 and \$1.50. By June 23 this year the prices had moved up to \$2.25, \$1.70 and \$1.35, still far below the July 8, 1985, range of \$2.75, \$2.25 and \$1.70.

Without the protection of a minimum price agreement, troll fishermen are at the mercy of price-cutting processors, who are blaming Norwegian farmed salmon in European markets for the depressed prices.

By July 10, B.C. Packers had raised its prices to \$2.35, \$1.80 and \$1.40.

Coho prices were more stable, opening at \$1.30, \$1.20 and 85 cents this year, compared with 85 cents, \$1.25 and \$1.40 in 1985.

Initial troll spring landings on the west coast of Vancouver Island were good, apparently more because of abundance than increased effort.

Spring returns to the Skeena were double the 10-year average for the first week in July, according to fisheries northern director Paul Sprout. That was in stark contrast to the sharp decline in sockeye returns.

By July 10, the fisheries department could report total chinook catches of 35,537 in the northern area up to July 5 and warned that catch controls could be necessary if "current catch rates continue."

Northern coho catches totaled 336,537, including 126,036 taken in the week of July 5 alone.

Chinook catches on the west coast of Vancouver Island also were running ahead of forecast. On July 7 the department closed the Big Bank to slow the harvest rate. By the end of the week ending July 5 the troll catch had hit 145,300, a figure that fisheries salmon coordinator Eric Kremer said could reflect both increased effort and increased abundance.

Coho catches to the same date were 614,300, also close to the 696,000 mark at which conservation measures could be imposed. Kremer said the department was very close to curbing the coho fishery.

Troll chum catches to July 5 were 64,100 and the Gulf troll catch had hit 36,250.

Sockeye non-retention regulations remain in effect.

Warnings of new difficulties in chinook markets were issued June 13 in *Friday*, the publication of the Pacific Coast Federation of Fishermen's Associations. Even before the season opened, some purchasers refused to sign market contracts.

According to the PCFFA, the California, Oregon and Washington fleet had to return to port in the second week of the season to negotiate a lower price. The prices were slashed from U.S.\$2.65, \$2.35 and \$2.05 to \$2.30, \$2 and \$1.75.

Sales were good until the first week of June when rumors of Norwegian farmed salmon being dumped on the market slowed sales. The story was false but the PCFFA quoted reliable reports indicating that Norwegian sellers dropped prices 50 to 75 cents a pound to retain a market share after the fresh salmon season began.

Toxic chemical detected in farm salmon

A spokesman for B.C.'s ministry of the environment confirmed Nov. 7 that there are no controls in this province on the use of a toxic anti-fouling agent that has been detected in farmed salmon.

The substance is called tributyltin, or TBT, and is one of the most toxic substances known to man. Popular as an anti-fouling paint for boat bottoms, it has been banned in a number of European countries because of the damage it inflicts on the environment.

Now TBT has been detected in pen-reared salmon sold in U.S. seafood markets. According to *Friday*, the publication of the Pacific Coast Federation of Fishermen's Associations, aquaculture products from Puget Sound and Norway purchased in public markets contained concentrations of .28 to .9 micrograms per gram of TBT.

TBT, sometimes used to treat netting used in salmon pens, can be toxic in levels as low as five parts per trillion. Two scientists working for the National Marine Fisheries Service found the substance in baby coho sold in public markets.

"We have no controls on the use of anti-fouling agents," B.C. environment ministry spokesman Michael Coon told *The Fisherman* Nov. 7. "We're in the process of collecting samples. We're trying to assess the problem. It's something we don't know very much about."

Evidently the pan-sized fish are not exposed to the TBT for long enough to die from its effects. The chemical concentrates over time in certain parts of the body.

Coon said the toxic effects of anti-fouling agents are a concern. "It's in everyone's interest to make sure fish aren't contaminated."

UFAWU secretary-treasurer Bill Procopation said the threat of TBT's is another example of the chaos surrounding the B.C. fish-farming issue. "We'll need more than a 30-day review to establish regulations to prevent this kind of damage," he said.

The two American researchers also studied the effect of low concentrations of TBT on juvenile salmon, concluding that exposure to low doses may increase susceptibility to disease.

Norway's salmon farms face tight regulation

Is B.C.'s aquaculture industry as tightly regulated as Norway's?

A day-long seminar on Norwegian fish farming sponsored by the Norwegian Trade Commission June 2 provided the answer: a resounding no!

Among regulatory programs now in place in Norway but barely under consideration in Canada:

- a ban on the use of hormones;
- controls on the use of antibiotics;
- compulsory quarterly inspection for disease;

• limits on corporate concentration, the proximity of farms to each other and the density of fish;

• clearcut quality control standards;

• regulations to ensure safe construction and mooring of pens with environmental controls now being codified in Norway;

• regulation covering the location of farms.

During the 1970s the government actually slowed development and halted the issuance of licences to allow the Norwegian industry to consolidate.

National aquaculture policy claims to protect wild fish

Canada moved a step closer to national aquaculture policy April 28 with an agreement by provincial and federal fisheries ministers to establish interlocking aquaculture legislation.

In a meeting in Winnipeg fisheries minister Tom Siddon told his provincial counterparts that the agreement "is an important step in furthering the development of aquaculture's great potential in Canada."

Although B.C. has no fisheries

minister, the province has begun developing similar federal-provincial agreements as a result of a First Ministers' Conference in Halifax in 1985.

The first federal-provincial arrangement, signed between Ottawa and Nova Scotia in March, gives the province the sole licensing authority for aquaculture enterprises as long as federal requirements pertaining to fisheries and related matters are satisfied.

The Winnipeg meeting adopted a statement of national goals and principles for the development of commercial aquaculture. The seven goals include:

• to encourage the development of commercial aquaculture in Canada in a manner that is complementary to the continuing development of the wild fishery;

• to increase the economic returns from "intensified production and harvest of high value, marketable species of fin fish, shell fish and marine plants";

• to improve the quality and expand the variety of Canadian fish products; and

• to encourage long-range stability in the country's fish production through diversity and continuity of supply.

The agreement gives the lead to the private sector in aquaculture development, but pledges government support in economic development and research.

Farm fish to hit wild salmon market

Salmon farmers will be training their guns on traditional wild salmon markets by the end of the decade, say Norwegian experts, and dropping prices could move the date even closer.

Growing production of farmed salmon both in Norway and B.C. has sparked fears among commercial fishermen that existing markets will be undermined by the new production.

This year buyers are predicting a sharp decline in troll chinook prices because of a glut in European smoker markets caused by Norwegian production. The Norwegian product already competes effectively on restaurant tables in Seattle and Vancouver, the heartland of wild salmon production.

But Norwegian marketing expert Karl Johan Ringstad told a Vancouver fish farming seminar June 2 that farmed production of coho and chinook will outstrip wild fish catches by 1990.

Production of farmed Atlantic salmon has already hit 42,000 tonnes, well above the worldwide production of 27,000 tonnes of chinook in 1985 and 43,000 tonnes of coho.

Virtually all Norwegian pro-

duction is exported, 30 percent of it to the United States. By the end of the decade, Ringstad predicted, farmed production will dominate the quality "white table cloth market" and take 15 percent of the fresh market.

"The challenge is to get into other segments of the market," he said. "In the last few months a price drop has reduced profitability in Norway. As the price of farmed salmon decreases it will open new markets. It can be delivered year-round."

In 1975 the smoked salmon market was dominated by wild production, he noted, but now the tables have turned. In the future, farmed salmon may be marketed alongside fresh meat and poultry. "I leave it to you to speculate how many tonnes are required to supply retail outlets even in California alone."

How low will the price go? "I wish I knew," Ringstad said, "but look at the price of chicken."

Farmed salmon is going head to head with chinook already. A later speaker quoted prices in Seattle of \$4 to \$4.25 a pound for chinook between six and nine pounds. Atlantic salmon was being delivered for between \$3.97 and \$4.37.

Ireland freezes foreign fish farms

Ireland has slapped a ban on foreign ownership of salmon farm leases to head off what officials feared could be a take-over of the country's industry.

"We could fill every bay on the Irish coast with salmon cages within two years if we allow the Norwegians in without restriction," a local official told *Fish Farming International*. He later corrected himself and said "non-nationals" rather than Norwegians.

The Irish Fisheries Department has announced that no further licences will be issued for salmon-farming projects in which nationals of countries outside the European Economic Community have a major stake.

A policy review is under way.

By contrast, there is absolutely no curb on foreign investment or control in B.C.'s salmon farming industry, which has a

large Norwegian element. Norwegian investors are attracted to B.C. by much looser regulation than they face at home.

Opponents of outside investment in the Irish industry claim that Norwegians control 60 per cent of the fishing farming industry in Scotland and have starved locally-owned farms of smolts from Norwegian-controlled hatcheries.

Angry fishermen are reported to have rammed salmon cages in Scotland in frustration.

Fishermen in Ireland are concerned about the implications of a Scandinavian proposal to raise farmed salmon in converted oil tankers. Even other farmers are fearful of its impact on the environment and markets.

Smolts for the scheme would come from Iceland, posing the threat of importing kidney disease to Ireland.

DFO aquaculture subsidy hits \$3 million in '85

Fisheries department expenditures in support of the aquaculture industry totalled \$3 million nationwide in 1984-1985, says fisheries minister Tom Siddon.

In reply to a query from Skeena NDP MP Jim Fulton, Siddon said June 2 that DFO "has been the lead federal department in fostering the development of aquaculture in Canada, focussing particularly on research and experimental development, the protection of fish from communicable diseases and the transfer and application of research results to industry."

In the year ending March 1985, the department spent \$2.5 million on aquaculture research,

a period when salmonid enhancement spending was frozen. A further \$300,000 was spent to assist aquaculturists to use the latest methods in rearing and harvesting.

The amount spent on research has increased to \$2.5 million up to March 1985 from \$2.3 million during the previous year.

Siddon told Fulton that fish farmers are eligible for interest-free loans under the Canada B.C. Subsidiary Agreement on Small Business Incentives. More than \$9 million of \$50 million loaned under the program went to fish farmers.

Siddon could not provide a breakdown on how much of the research money was spent on the Pacific coast.

fish farming

INTERNATIONAL

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MONTHLY £1.50

DECEMBER 1986, VOL. 1

SURPLUS SALMON WARNING

A NEW estimate of farmed Atlantic salmon production and demand comes from the Irish Sea Fisheries Board (BIM).

In a research study of international production and market trends, it finds that the market is expected to grow to 153,000 metric tons by 1990 — with Norway providing 190,000 tons, Scotland 25,000 tons and Ireland 10,000 tons.

For Ireland alone, this could mean farm earnings of IRE32 million, exports of IRE44 million and 1200 jobs.

According to the report of this study, Europe's technical maximum of farmed salmon production is around 250,000 to 300,000 tons. Norway, says the report, can produce 200,000 tons a year, Scotland up to 30,000 tons and Ireland up to 15,000 tons.

The market will determine

Production may exceed demand by 23,000 tons

Atlantic salmon farming has also been greatly assisted by recent major developments in feed compounding and stock improvement programmes have been underway for some time.

But, with the prospect of rapidly increasing supplies, there will be a need for increasing emphasis on marketing with effective performance making the difference between success and failure.

With the growth in production, falling real price trends for fish and frozen salmon are already evident in most European and North American countries. If continued, they should induce greater consumption. And growing awareness of salmon's health value will add to its marketability.

However, total world demand for Atlantic salmon

demand by 1990 could cause reductions in price and margins greater than farmers and traders presently envisage.

Lower margins will force the least efficient producers out of the industry and will deter potential small-scale new entrants.

The emphasis on greater efficiency will stimulate high standards of technology and training, and a larger minimum-volume production unit.

Salmon farms based on integrated smolt and sea cage production are unlikely to be less than 500 tons a year capacity, notes the BIM report.

Investment needed for such a project would be around UK£22 million and would be payable at interest

payments would reduce this return to zero.

● We shall be looking at this BIM report and its conclusions in more detail in our January 1987 issue.

FROM THE CLEAR WATERS
OF IRELAND



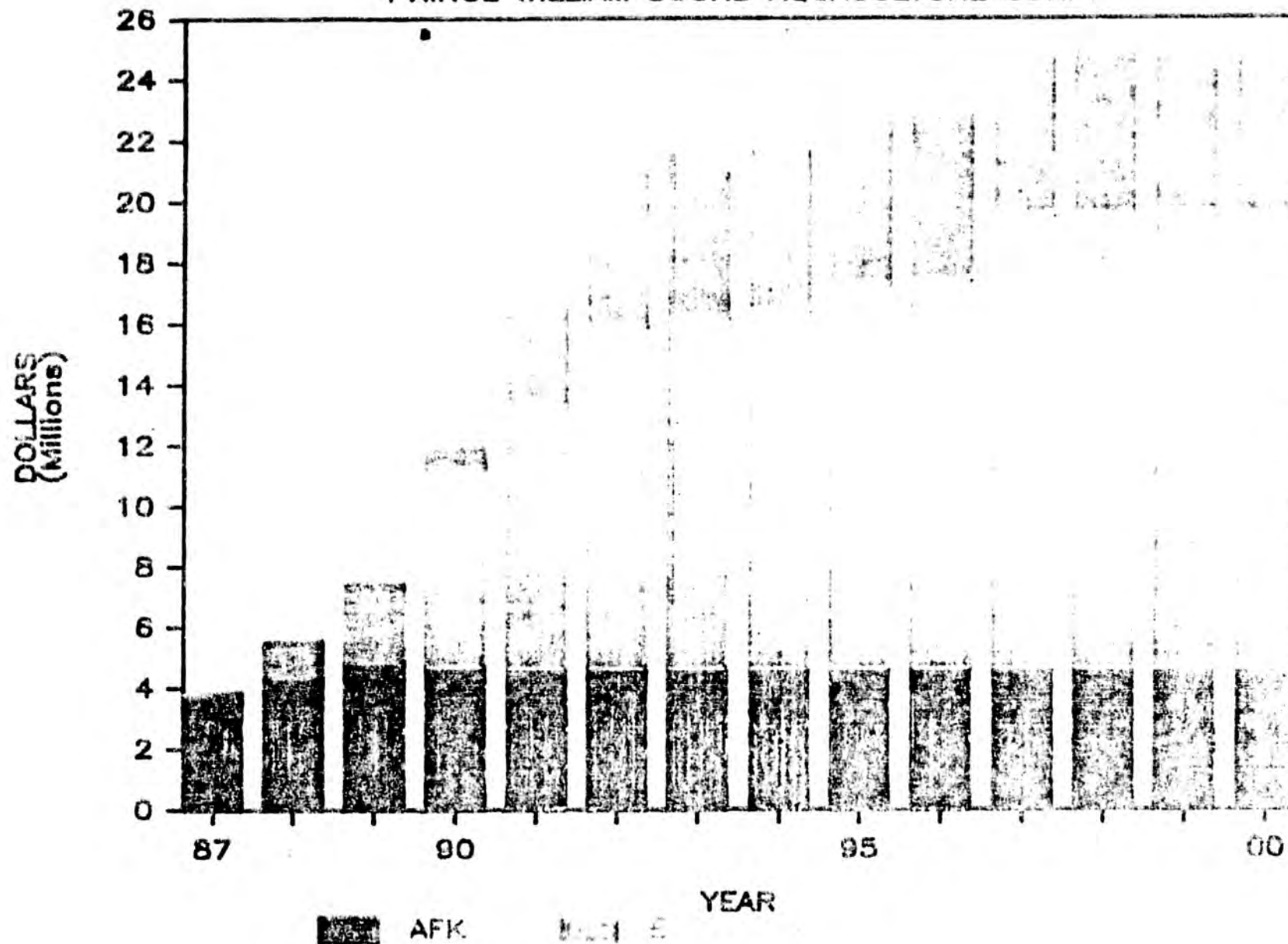
A NEW colour brochure in English, says that the salmon's natural habitat location for developing Irish salmon, by the Irish Sea Fisheries Board (BIM) notes that the first crop of farmed salmon harvested in 1977. Production is projected to reach 100,000 tons in 1990.

Bridgestone "Hi-Seas" Fish



TOTAL COMMERCIAL FISHING REVENUE

PRINCE WILLIAM SOUND AQUACULTURE CORP.



PRINCE WILLIAM SOUND SALMON HATCHERY PRODUCTION

HATCHERIES	1986 BROOD YEAR EGG NUMBER (millions)					FINAL EGG CAPACITY (millions)				
	Pink	Chum	Coho	Chinook	Sockeye	Pink	Chum	Coho	Chinook	Sockeye
Armin F. Koernig	126	--	--	--	--	137	--	--	--	--
Esther Island	78	40	1.0	0.12	0.9	211	111	1	4.0	30.0
Solomon Gulch	64	4	1.3	--	--	136	18	1	.3	--
Main Bay	3	85	--	--	--	25	100	--	--	--
Cannery Creek	39	--	--	--	--	111	--	--	--	--
Gulkana Springs	--	--	--	--	30.0	--	--	--	--	30.0
TOTAL	310	129	2.3	0.12	30.9	620	242	2	4.3	60.0

ARMIN F. KOERNIG HATCHERY
PRINCE WILLIAM SOUND, ALASKA
PINK SALMON PRODUCTION DATA

BROOD YEAR	FRY RELEASE	FISHERY HARVEST	HARVEST RATE	BROOD STOCK	HATCHERY HARVEST	TOTAL RETURN	TOTAL MARINE SURVIVAL
1975	1,000,000	4,000	10%	15,155	24,845	44,000	4.4%
1976	11,010,577	--	--	40,432	114,188	154,620	1.4%
1977	16,950,784	275,000	50%	54,207	223,748	552,955	3.3%
1978	22,774,739	1,038,700	70%	108,061	346,728	1,493,489	6.6%
1979	21,500,000	1,358,907	60%	198,901	707,037	2,264,845	10.5%
1980	69,787,000	3,615,086	70%	164,545	1,354,732	5,134,363	7.4%
1981	70,118,000	2,990,225	80%	124,278	607,999	3,722,502	5.3%
1982	87,384,533	2,226,423	80%	186,431	387,146	2,800,000	3.2%
1983	76,746,000	3,772,962	75%	271,513	986,141	5,030,616	6.6%
1984	103,531,000	3,872,222	78%	277,706	814,072	4,964,000	4.8%
1985	112,527,515	--	--	--	--	--	--



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 collection either, and even if they are closed, 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 FALD and FNP hatcheries for supplementing existing user group fisheries. All the salmon 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 intervention costs. They would have to develop a disease control and management program and provide all types of associated services. What is the funding for these additional costs going to come from? The F.R.E.D. Division is faced by the proposed FY88 budget to close down some 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 environments, research and monitoring. While this agency's budget isn't proposed to be cut this year they simply don't have enough funding to monitor existing problems (even the Alaskan Pipeline Terminal).

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

D.C.E.C. 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.

THESE ARE THE MAIN REASONS WHY THE UNITED STATES GOVERNMENT HAS BEEN FORCED TO TAKE SUCH RADICAL MEASURES AS TO INCREASE THE DEBT AND TO INFLATE THE CURRENCY. THE GOVERNMENT HAS BEEN FORCED TO TAKE SUCH MEASURES BECAUSE THE PRIVATE SECTOR HAS BEEN UNABLE TO FINANCE THE DEFENSE PROGRAM AND THE SOCIAL SECURITY PROGRAM. THE GOVERNMENT HAS BEEN FORCED TO TAKE SUCH MEASURES BECAUSE THE PRIVATE SECTOR HAS BEEN UNABLE TO FINANCE THE DEFENSE PROGRAM AND THE SOCIAL SECURITY PROGRAM. THE GOVERNMENT HAS BEEN FORCED TO TAKE SUCH MEASURES BECAUSE THE PRIVATE SECTOR HAS BEEN UNABLE TO FINANCE THE DEFENSE PROGRAM AND THE SOCIAL SECURITY PROGRAM.

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

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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

SALMON FARMING POSITION PAPER

EXECUTIVE BOARD OF DIRECTORS
PRINCE WILLIAM SOUND AQUACULTURE CORPORATION
P. O. BOX 1110, CORDOVA, ALASKA 99574

Over the past twelve months the Executive Board of Directors of the Prince William Sound Aquaculture Corporation (PWSAC) had debated and discussed the pros and cons of establishing a salmon farming industry in Alaska. These discussions were prompted by the previous administration's apparent desire to explore the feasibility of developing the regulatory, administrative and legislative framework to implement a large scale salmon farming industry in Alaska. Considering the fact that legislation has been introduced to both the House and the Senate specifically for the purpose of legalizing the operation of salmon farms in Alaska, we feel that the time is appropriate to express our opinions and concerns to those individuals and agencies that will ultimately be responsible to formulate statewide policy on this issue. There are two major issues that we feel must be addressed and dealt with before the state takes any further steps towards legalizing the development of a salmon farming industry within state waters.

I. Long Term Social and Economic Impacts - Ocean Ranching vs. Salmon Farming

First of all, it is imperative that a long hard look be given to the relative benefit of ocean ranching vs. salmon farming in years to come. This should be done keeping in mind that success of an industry or undertaking be measured by the sum total of its contribution to the people, communities and industries of Alaska, both in terms of social and economic wealth.

The legislation that created both the private non profit hatchery program and the F.R.E.D. Division of AD&FG charged these programs with the responsibility of enhancing salmon runs statewide so that harvest levels in the common property fisheries would support and industry, meet the desires of sport fishermen, and satisfy the needs of subsistence fishermen. At first glance many people interpreted these programs as a "fish welfare subsidy" by which the state pays the bill and commercial, sport and subsistence fishermen thrive. In fact, after ten years of growing and developing, these programs are on the verge of becoming self-sustaining, cost efficient entities that will represent the backbone of Alaska's second largest industry.

The fishing industry is our largest employer and generates more dollars in ex-vessel value and final product marketing than any other industry in the state besides oil.

The ocean ranching programs in Alaska have undeniably stabilized salmon production in areas where unpredictable fluctuations in wild stock returns has kept the Alaska salmon industry from diversifying and growing due to the lack of a constant, ensured supply of product - a necessity in any resource related industry. Product diversification and progressive marketing strategies for pink and chum salmon have just begun to be explored. These avenues of development, aided by the consistent supply of wild and enhanced salmon we have realized in the early 1980's, have provided the salmon industry with its first long term, optimistic outlook in many years.

To try to express the value of Alaska's ocean ranching programs in terms of a cost benefit ratio is virtually impossible. The production of ocean ranched salmon provides fish to be harvested, jobs in the processing industry, product to be marketed and a consistent supply of product year to year. This assures lending institutions that investment in the industry is well-founded. As well as these direct benefits, there are the infinite number of multipliers of income generated to communities and support services throughout the state as the revenues associated with handling large volumes of salmon filter down.

This past year in Prince William Sound (PWS) the ADF&G estimated that 55% of the entire pink salmon harvest can be attributed to ocean-ranching production. The failure of wild stock returns to PWS was not predicted. Without the private non profit and F.R.E.D. Division enhancement programs, millions of dollars invested by fishermen and processors preparing for the coming season would have been lost. Raw fish tax revenues that supplement the city's operational and capital funding needs would have been greatly reduced. Ultimately the state would have had to deal with these losses in the form of subsidies or at least supplemental funding requests from the city. By 1992 PWSAC alone will generate better than \$20 million dollars in direct revenue to commercial fishermen. State investment and support of these programs to this point has been indispensable and demonstrates a great deal of foresight. To sell these programs short now would be a tragic mistake.

Specifically, it is the long term social and economic benefits that ocean ranching has provided that we feel are lacking within the proposed salmon farming industry. It is an undisputable fact that all ocean ranching production by the regional association and private non profit facilities is carried out on a zero budget level by the corporation involved. Incorporated under non-profit status as required by the enabling legislation and subsidized by commercial fishermen through a mandatory enhancement tax, the sole

purpose of this program is to produce fish for harvest in the common property fisheries. The only money retained by these corporations are used for operational funding and retirement of long term debt to the state's revolving hatchery loan fund.

In contrast, the salmon farming industry would operate as a strictly for-profit venture. According to the House Research Agency report "Aquaculture In Alaska" (H.R.A.-A.I.A.), most likely the major investment base in this industry would come from Scandinavian banks, similar to salmon farming development in British Columbia. Alaska has just begun to turn the tide of foreign investment in its fishing industry. If any one word stands out as a calling card to Alaska's fishing industry in the past five years, it is Americanization and what the implementation of the Magnuson Act has done toward that end. If the investment base in the salmon farming industry is for the most part other than domestic, it is safe to assume that the profits will be realized by other than domestic entities. If this is the case and it seems to be a worldwide trend in the salmon farming industry, why should Alaska invest it's resources (water and land) and it's money (resource agency monitoring and regulatory development) in salmon farming when it already has a program (ocean ranching) that it has funded that directly benefits its people and a thriving established industry.

Salmon farming is not a labor intensive undertaking. According to the House Research Agency Report Aquaculture In Alaska; Norway, the country that pioneered salmon farming directly employed only 2,000 individuals in 1984. This hardly represents an industry that could make a significant contribution to the job market in coastal Alaska. There are that many people employed directly by the salmon industry in the small town of Cordova in any given year.

The December 1986 issue of Fish Farming International reports in an article by the Irish Sea Fisheries Board (BIM):

"BIM's conclusion from this is that the imbalance of projected supply and demand by 1990 could cause reductions in prices and margins greater than farmers and traders presently envisage.

Lower margins will force the least efficient producers out of the industry and will deter potential small-scale new entrants.

The emphasis on greater efficiency will stimulate high standards of technology and training and a larger minimum-volume production unit.

Salmon farms based on integrated smolt and sea cage production are unlikely to be less than 500 tons a year capacity, notes the BIM report.

Investment needed for such a project would be around UK 22 million pounds and would be capable of earning 18 per cent internal rate of return.

But the investment is risky. A drop of ten per cent in real revenues through low prices would halve the rate of return. A stock loss say every five years (through disease or unusual weather conditions) would reduce this return to zero."

If this prediction by experts within the salmon farming industry proves true, it is clear that a developing industry in Alaska has little chance to establish a significant market share for a product that already shows signs of saturating the market for which it produces.

Further, the investment capital and the level of technology necessary to operate at the scale suggested in order to be competitive predicates an industry that holds very little hope for any vertical integration. This scenario is more likely to create high volume production salmon farms financed by large, multinational corporations that do nothing more than create a few local jobs and pass profits on to parent corporations.

Taking these facts into consideration is is hard to visualize this state government, confronted with extremely limited funding for existing programs, creating an industry (salmon farming) that will require extensive agency monitoring and regulatory development, while offering negligible long term social or economic benefits to the State of Alaska.

II. Salmon Farming: Funding and Operational Considerations

The House Research Agency report Aquaculture In Alaska suggests in its section on options for financing of salmon farms that repayment of capital construction loans from the private non profit aquaculture corporations to the revolving hatchery laon fund could be used to fund the development of salmon farming. On page 21 of the report the author states "The cornerstone of Alaska's aquaculture industry is the State's system of public (F.R.E.D. Division) and private non

profit (PNP) salmon hatcheries which are designed to augment the state's natural runs. As enumerated in Chapter One, by almost any economic measure (i.e., employment, income, total economic activity), aquaculture is probably the best renewable resource investment the state has made with its oil wealth."

In the preceding paragraph the author speaks of the tremendous, wise investment the state has made in its ocean ranching program. Yet in the next chapter he suggests taking away the only available funding mechanism the PNP hatchery program has to continue investing in its own and the state's future.

This rationale remains a mystery to us. Perhaps the authors need to be reminded that large portions of those loan repayments are made with funds generated by commercial fishermen paying a mandatory enhancement tax. We suggest that if the House Research Agency had held public hearings as recommended by the Fisheries Mini Cabinet Aquaculture Advisory Committee, they would have been informed by the public that fishermen much prefer their enhancement tax funds be used to further the combined effort of the PNP program and the F.R.E.D. Division in traditional enhancement and ocean ranching endeavors rather than financing a fledgling salmon farming industry.

The Regional Planning Team concept, a combined effort of regional aquaculture corporations and the sport, commercial, subsistence and F.R.E.D. Divisions of ADF&G have produced Regional Salmon Plans throughout the state that define the enhancement needs of each individual region. These plans develop a list of priority projects that will help achieve the enhancement needs of their respective regions. The only mechanism for funding available to the private sector to achieve these goals is the revolving hatchery loan fund and it is imperative that it remains in tact.

In the House Resource Agency report Aquaculture In Alaska the authors explain that if salmon farming were to become a reality both the genetics and disease control staff and lab facilities would need to be expanded. This represents only two of the many state programs in which both capital and operational funding would have to be expanded to support the salmon farming industry. From our point of view as a regional aquaculture association charged with responsible and beneficial enhancement development in PWS, this is where we find the greatest conflict between salmon farming and ocean ranching in Alaska.

Consider this fact: in 1987 the F.R.E.D. Division claims it will not operate its Cannery Creek hatchery in PWS. This facility cost the state \$4 million dollars in 1979. The hatchery can rear 111 million pink salmon eggs when filled to capacity. Because of a lack of \$180,000 in operational funding, the Cannery Creek facility will forego producing a return in 1989 of as many as 3.5 million adult pink salmon. It is very unlikely that there is any other situation in which the state could invest \$180,000 and produce direct revenues of \$3.5 million dollars, not to mention associated revenue to local communities through raw fish tax funds, local work force in the processing and shipping industry and support services region-wide that generate their income as large volumes of salmon are harvested in the region.

We are in a time that the state isn't even able to fund ongoing projects that for a relatively small investment can potentially produce significant economic gain. It seems irrational for the state to even consider the development of a new venture (salmon farming) that will not only require considerable state support but further, is most likely not even comparable to existing established programs in terms of its potential long term benefits.

In conclusion, we thank you for taking the time to consider our point of view on these issues. Most importantly, we hope you have gained a better understanding of how crucial the continued funding and development of our aquaculture programs are to Alaska's future.

Matthew Luck, on behalf of the
Executive Board of Directors
Prince William Sound
Aquaculture Corporation
February 24, 1987

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.

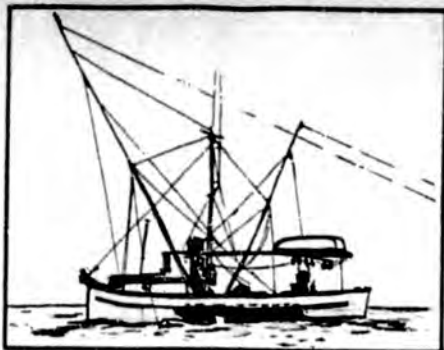
While farmed salmon has had a dramatic impact on European markets for Alaska's premium quality chinook and coho catches, the effect in the United States is very unclear. A 1986 survey of U.S. seafood buyers by the Marine Advisory Program showed that distributors and brokers, by a three-to-one margin, 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."



Alaska Trollers Association

REPRESENTING ALASKA POWER TROLLERS

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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 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

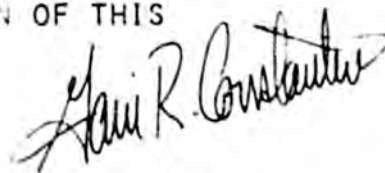
CAPITOL 101

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.)

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 DATE: 03/12/87
 TIME: 14:27:07
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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
 DATE: 03/12/87
 TIME: 14:28:10
 LIONAME: ANCHORAGE LIO

COPIES: REPRESENTATIVES REPRESENTATIVES SENATORS

ADAMS	BARNES	ABOOD
BOUCHER	BOYER	BENNETT
BROWN	CATO	BINKLEY
COLLINS	COTTEN	COGHILL
DAVIDSON	DAVIS	DUNCAN
DONLEY	ELLIS	FAHRENKAMP
FRANK	FURNACE	FAIKS
GOLL	GRUENBERG	FISCHER
GRUSSENDORF	HANLEY	HALFORD
HERRMANN	HOFFMAN	HENSLEY
HUDSON	KOPONEN	JONES
LARSON	MARTIN	JOSEPHSON
MEHARD	MILLER	KELLY
NAVARRE	PEARCE	KERTTULA
PETTYJOHN	PHILLIPS	RODEY
POURCHOT	RIEGER	STURGULEWSKI
SHULTZ	SPRINGER	SZYMANSKI
SUND	SWACKHAMMER	UEHLING
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

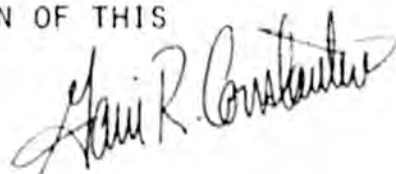
99824

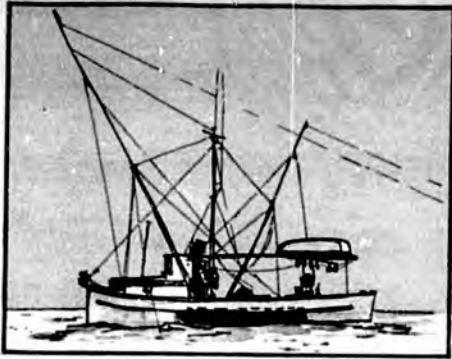
CAPITAL 417
DEAR SEN. ELIASON

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.

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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

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
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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

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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

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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

P.O. Box 020704

Juneau, AK 99802-0704

(907) ~~585-2222~~ 463-3600

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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463-3600

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:

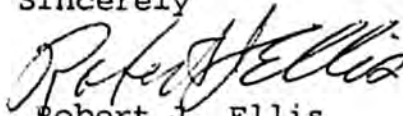
A very important public resource is being lost for lack of planning for the Southeast Alaska Coastal Zone. There is urgent need for a moratorium on issuance of tide lands use permits for lodges and mariculture.

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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PMS

SEN DICK ELIASON

071

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

-4-

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
Commissioner
Department of Fish and Game
Our File No. 366-187-84

January 31, 1965

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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).

Honorable Don Collinsworth
Commissioner
Department of Fish and Game
Our File No. 366-187-84

January 31, 1985
Page 3

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 -
legislation

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,

however, that animals living in degraded environments (which I assume would include under-pen locales) can be seriously disabled by such bacteria. Bacteria that degrade chitin, including *Vibrio*, *Beneckea* and *Pseudomonas*, cause shell disease in a host of crustacea, including spiny lobsters, tanner crabs, king crabs, various shrimp, and others of economic importance (Johnson, 1983). The species of *Vibrio* bacteria that infect crabs and shrimp include those associated with salmon pens or are present in local waters: *V. anguillarum*, *V. parahaemolyticus*, *V. alginolyticus*. (Johnson, 1983). Laboratory experience indicates that animals kept in clean sea water are difficult to infect, but those in the presence of sewage sludge developed shell disease. In addition to causing shell diseases, bacteria invade shrimp, crabs and other crustacea and cause internal infections. Again, the total relation of these infections to stress, to polluted environments, to salmon pen sewage is not resolved (Johnson, 1983), but we believe this relationship needs analysis in relation to establishing fish pens in the vicinity of shrimp and crab populations.

There is a well documented literature demonstrating that molluscan embryos and larvae - some of commercial significance - are subject to serious infection by these same species of vibrio bacteria. Abalone embryos and Pacific oyster (*Crassostrea gigas*) embryos and veliger larvae in hatcheries suffer serious mortalities from vibriosis (Sparks, 1985; Jeffries, 1984; Tubiash and Elston, 1984). It would be prudent to determine carefully the potential damage that may be caused by juxtaposing salmon pens to oyster and abalone culture facilities, and to native bivalve beds.

It would be of interest, also, to determine if vibriosis similarly affects these same kinds of molluscan larvae and embryos in the natural plankton, thereby affecting natural populations. Beyond that, it is important to know if populations of these *Vibrio* species or other pathogens, enhanced by sewage or fish pen wastes, infect other forms of invertebrate larvae or adults. I am thinking of the sponges, sea urchins, starfish and the host of other invertebrates which, though not of direct commercial value, are absolutely fundamental to the ecosystems of these water and to their productivity. Their impairment would sound the death knell for these waters.

Some of these bacteria are pathogenic to man as well. Knowledge of the genus *Vibrio* is expanding rapidly. This genus, which includes *V. cholerae*, includes species that typically live in marine locales (Kelly et al., 1982). *V. anguillarum* appears not to infect humans. However, *V. vulnificus* and *V. parahaemolyticus* do infect humans. *V. vulnificus*, a recently recognized species, is a deadly pathogen that is carried in sea water. It is readily filtered and concentrated from sea water by oysters and clams and it is easily transmitted to humans when these bivalves are eaten. The results are often fatal. Other than through ingestion, humans can contract the disease through simple contact of sea water with open wounds or mucosal tissues. It is predominately a warm water organism, which suggests that our waters may be safe from it, but virulent strains of this species have been found in Oregon associated with fish, crabs and clams and in Japan associated with eels (Tison and Kelly, 1986; Kelly and McCormick, 1981; Tison and Kelly, 1984; Blake, Weaver and Hollis, 1980). A preliminary search for this species in the San Juan Islands has not revealed it, but its presence in warmer bays there, and in the Canadian Gulf Islands, or elsewhere in the Sound cannot yet be discounted (Kelly, pers. com.). *V. parahaemolyticus* is, by contrast, commonly found around the San Juan Islands and doubtless is ubiquitous here (Kelly, pers. com.). It causes acute gastroenteritis in humans (Tison and Kelly, 1984; Blake, Weaver and Hollis 1980). This form of gastroenteritis appears to be transmitted exclusively through food, usually seafood (Blake, Weaver and Hollis, 1980). It can be a very significant infectious agent: in Japan, over a 10 year span, 24% of reported cases of food poisoning were attributed to this bacterium.

V. parahaemolyticus, thus, is present here, is a known pathogen of humans, and is transmitted through filter feeders such as clams and oysters. *V. vulnificus* is found nearby, and with further searching may be found in the Sound and Gulf. Simple contact with infected sea water will lead to serious infection. The former species, and probably the latter as well, thrives in heavy, enriched sediments such as sewage sludge. It can also be expected to grow in salmon pen sludge (Staley, pers. com.; Kelly, pers. com.).

It has been argued by associates of the salmon pen aquaculture industry that human diseases associated with these vibrios have been rarely found in the Puget Sound region, and therefore no danger is posed by them. Thus fish pen aquaculture is justified. It is good that the base line now, before salmon pens are well established, is essentially zero. The water is relatively clean, now, and the populations of these pathogens are within tolerable limits, using customary screening methods for detecting these pathogens. But a further complication is introduced by a recent paper (Grimes, et al, 1986). They find that when such pathogens as I have been discussing are introduced into marine waters, they rather quickly lose their identity as measured by conventional culture methods. They enter into dormancy, but remain viable though not culturable by traditional methods. Failure to find them using these methods could lead to overlooking a substantial, but cryptic source of serious pathogens in the environment.

The important question, then, is not whether these organisms pose a present health threat, or ecological threat. The proper question is: can these organisms, and this ecosystem, and these humans tolerate the eutrophic burden that will be imposed by a full blown fish pen industry? It is our belief that there are many too many questions that need resolution, of a public health nature, and of an ecological nature, before we proceed further.

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Elisson

SUPPLY AND DEMAND CONSIDERATIONS IN THE SEAFOOD INDUSTRY IN THE UNITED STATES

U.S. Imports 65% of Consumption

- The main obstacles to increased consumption in the United States derive from limitations of supply. Fish are primarily caught and supplied from the open seas. Not only does the catch itself fluctuate from year-to year (season to season), but the U.S. is heavily dependent on foreign suppliers. In recent years, imports have accounted for at least 60% of domestic consumption. In 1985, the figure was 64.4%. Our 60% import level reflects the superior organization and equipment of foreign fishing industries, their high commitment to quality, and the fact that some foreign countries developed new, high value products that the U.S. has not yet managed (or attempted) to emulate.
- Numerous opportunities present themselves for expansion in the seafood industry. Moreover, for many important species, that demand appears to be strong enough to offset the higher prices that will follow limited supply.
- Since it is unlikely that domestic supply can meet the increased demand, imports will continue to make up the difference.
- It is clear that aquaculture holds great potential for establishing a steady supply of high quality seafood. Aquatic animals thus reared can be harvested at the optimum time and processed immediately (Seafood Processing & Distribution by Resource Dev. Inc., report 715, Nov. 1986).

Ocean Harvest Static for 20 Years

- The annual harvest world-wide of fishery products from our oceans has remained static for the past 20 years, yet world population has passed 5 billion and is expected to double in 35 years. (August 5, 1986 presentation to National Conference of State Legislators, Dr. James Avault, fishery biologist La. St. Univ.).

\$4.5 billion in Seafood Deficit in 1985

The United States imported \$4.5 billion in seafood in 1985. Fish is our largest food import (Sci. of Food and Agriculture, Nov. 1985).

EXAMPLES

- \$48.2 million in fish analog (surimi) from Japan alone in 1985
- \$1.2 billion in wild caught and cultured shrimp in 1985
- \$80 million in farmed salmon in 1985, primarily for Norway, Canada, Scotland, Ireland, Denmark, Chile and New Zealand (see worldwide Pen Reared Salmon attached)

Per capita Fish Consumption Rising Rapidly

U.S. annual per capita consumption of commercial fish and shellfish has risen from 12.3 pounds in 1982 to 14.5 pounds in 1985. (Washington Seafood Marketing Study, Dec. 1986).

If we are to reach consumption of 20 pounds per capita by 1990, an additional 1.5 billion pounds of seafood are needed to satisfy demand. (Seafood Bus., Jan/Feb 1987).

Prepared by John Pitts, DVM, Washington State Department of Agriculture, January 1987

WORLDWIDE PEN REARED SALMON

Major Producers of Atlantic Salmon (75% of the farmed salmon)

Norway

- 1973 production = 170 tons, 1985 = 27,000 tons, est. 1986 - 40,000 tons.
- "Imports of fresh salmon from Norway totaled 15.8 million pounds Jan-Oct '86, compared with 11.2 million pounds during the same period in 1985" (Seafood Bus., January '87), refers to U.S. imports only.
- Wholesale value of fresh Atlantic Salmon exceeded \$4.00 per pound during the '86 period.
- In 1985, Norway produced 78% of all farmed Atlantic Salmon. In 1985 71.8% of all fresh salmon entering the U.S. originated in Norway, valued in excess of \$60 million.

Scotland

- Farmed production increased from 600 tons in 1980 to 7,000 tons in 1985, and 8,000 tons in 1986. Planned production for 1987 - 14,000 tons.
- Scotland is the second leading exporter of Atlantic Salmon to U.S., \$4 million value in 1985.

Major Producers of Pacific Salmon (25% of the farmed salmon)

Japan

- Currently the largest producer, primarily farmed Coho.
- 1985, 6,900 tons were produced for domestic consumption.

United States

- Washington State production of pan-sized Coho was 1,685 tons (3,369,000 pounds) in 1985, with a wholesale value exceeding \$10 million.
- Production was primarily by one company, on approx. 8 surface acres of marine water.

Canada

- Industry established in British Columbia, New Brunswick and Nova Scotia.
- The 70 currently operating farms in B.C. represent investment of \$75 million, employs 375 directly, and spend \$50 million/yr. on services and supplies.
- B.C. plans to produce 30,000 metric tons of salmon by 1990, primarily for U.S. export market.

Chile

- Exported 0.3 million pounds Coho to U.S., Jan-Oct 85, and 1.4 million pounds during same period 1986.
- Total production in 1986 was 800% over 1985.
- "We imported more Chilean cultured Coho in 1986 than were caught by Oregon fishermen", (Dr. J. Lannan, O.S.U. fishery biologist.)

The United States imported \$80 million in farmed salmon in 1985. The 1986 figures are not yet available, but will be much higher. The U.S. Market for farmed salmon is estimated to be worth \$130 million by 1990.

EMPLOYMENT STATISTICS FOR SALMON

FARMING

Scotland: 1983 - 372 jobs at 103 farms
1984 - 515 jobs at 129 farms
1985 - 721 jobs at 194 farms

Support industries such as fish processing, net making, feed production, cage construction, etc., create a multiplier of 1.5 to 2.0 for upland employment. (source: Highlands and Islands Development Assoc., 1986).

Norway: 1984 - 2,000 jobs at 500 farms
1986 - 2,700 jobs at 700 farms
1987 - 150 new farms permitted (Ministry of Fishery, Norway, pers. comm., Oct. 1986).

Total jobs related to Norwegian salmon industry expected to go from 4,000 in '84 to 12,000 in '90. (Water Farming Jour., Nov. '86).

Canada: December, 1986 - 75 farms in British Columbia
23 farms in Bay of Fundy

Average employment is 5.5 jobs/farm - 539 jobs total. Upland support not included.

Puget Sound: January, 1987

Domsea, Manchester, employs an average of 140 people at 3 farms and 2 hatcheries, and their processing plants. 1985 Coho production was 3,369,000 pounds with an estimated wholesale value of \$10,107,000.

Sea Farms, Pt. Angeles, 13 jobs at 2 acre farm (will add 6 more in 87-88 as they expand), 2 jobs at Hadlock site, and 5.5 jobs at Rochester hatchery. Additional seasonal employment during harvest and summer. 1987 production est. = 500,000 lbs.

ScanAm Farms, Cypress Island, 11 full time plus seasonal employ. 50,000 pound production '86, est. 700,00 lbs. in 1987.

Prepared by John Pitts, DVM, Washington State Dept. of Agriculture, Jan. 1987

PRIVATE AQUACULTURE PRODUCTION

WASHINGTON STATE - 1985

SPECIES	POUNDS GROWN	PRICE/LB. EX-VESSEL	VALUE EX-VESSEL	PRICE/LB. WHOLESALE	VALUE WHOLESALE
HARDSHELL CLAMS					
BUTTER	18,231	\$0.27	\$4,911	\$0.50	\$9,116
NATIVE LITTLENECK	534,417	\$0.52	\$277,523	\$1.10	\$587,859
MANILA	2,847,558	\$0.53	\$1,500,094	\$1.25	\$3,559,448
SOFTSHELL	405,256	\$0.38	\$155,497	\$1.00	\$405,256
OYSTERS					
OLYMPIA	2,447	\$21.47	\$52,526	\$21.47	\$52,537
PACIFIC	6,020,000	\$1.07	\$6,437,788	\$2.51	\$15,110,200
KUMAMOTO	36,661	\$9.19	\$336,757	\$9.19	\$336,915
EUROPEAN (O. EDULIS)	1,219	\$16.92	\$20,623	\$16.72	\$20,382
MUSSELS	264,000	0.53	140,844	\$1.10	\$290,400
TROUT (RAINBOW, CUTTHROAT)					
EGGS	75,000			\$28.00	\$2,100,000
JUVENILES (LIVE)	12,600			\$25.00	\$315,000
PAN-SIZED	552,000	\$1.60	\$883,200	\$2.00	\$1,104,000
SALMON (COHO)					
EGGS	420			\$120.00	\$50,400
JUVENILES (LIVE)	1,000			\$64.00	\$64,000
PAN-SIZED	3,369,000	\$1.36	\$4,581,840	\$3.00	\$10,107,000
TOTAL	14,139,809		\$14,391,602		\$34,112,511

NOTES:

1) Whole weight is reported for all species except oysters. Oysters are reported as pounds of shucked meat. A gallon of oyster meat weighs about 8.75 pounds and a pound of meat is equivalent to around 5 pounds whole weight (in the shell). If oysters were reported in whole weight like everything else, their total production would be around 30 million pounds and total aquaculture production would be around 38 million.

2) "Ex-vessel" values are those reported to the department. These are consistently below market value. Consequently, I have included a best guess wholesale value (value of finished product including processing, packaging and shipping in most cases). I consider wholesale value to be the best estimate of actual value for the industry and the most consistent.

3) Washington is a major producer of eggs and juveniles for stocking trout farms. These are sold live and are consequently reported as final product (harvested fish) elsewhere.

RECEIVED

JUL 6 1985

PLANNING

DEPT.

NATIONAL AQUACULTURE IMPROVEMENT ACT OF 1985

Food Security Act of 1985

Title 17 -- Related and Miscellaneous Matters

Subtitle D. National Aquaculture Improvement Act of 1985

An Act

To provide for the development of aquaculture in the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Aquaculture Improvement Act of 1985".

FINDINGS, PURPOSE, AND POLICY

SEC. 2. (a) FINDINGS--Congress finds the following:

(1) The harvest of certain species of fish and shellfish exceeds levels of optimum sustainable yield, thereby making it more difficult to meet the increasing demand for aquatic food

(2) To satisfy the domestic market for aquatic food, the United States imports more than 50 per centum of its fish and shellfish, but this dependence on imports adversely affects the national balance of payments and contributes to the uncertainty of supplies.

(3) Although aquaculture currently contributes approximately 13 per centum of world seafood production, less than 6 per centum of current United States seafood production results from aquaculture. Domestic aquacultural production, therefore, has the potential for significant growth.

(4) Aquacultural production of aquatic plants can provide sources of food, industrial materials, pharmaceuticals, and energy, and can assist in the control and abatement of pollution.

(5) The rehabilitation and enhancement of fish and shellfish resources are desirable applications of aquacultural technology.

(6) The principal responsibility for the development of aquaculture in the United States must rest with the private sector.

(7) Despite its potential, the development of aquaculture in the United States has been inhibited by many scientific, economic, legal, and production factors, such as inadequate credit, diffused legal jurisdiction, the lack of management information, lack of supportive Government policies, and the lack of reliable supplies of seed stock.

(8) Many areas of the United States are suitable for aquaculture, but are subject to land-use or water-use management policies that do not adequately consider the potential for aquaculture and may inhibit the development of aquaculture.

(b) **PURPOSE.**--It is the purpose of this Act to promote aquaculture in the United States by--

- (1) declaring a national aquaculture policy;
- (2) establishing and implementing a national aquaculture development plan;
- (3) establishing the Department of Agriculture as the lead Federal agency with respect to the coordination and dissemination of national aquaculture information by designating the Secretary of Agriculture as the permanent chairman of the coordinating group and by establishing a National Aquaculture Information Center within the Department of Agriculture; and
- (4) encouraging aquaculture activities and programs in both the public and private sectors of the economy; that will result in increased aquacultural production, the coordination of domestic aquaculture efforts, the conservation and enhancement of aquatic resources, the creation of new industries and job opportunities, and other national benefits.

(c) **POLICY.**--Congress declares that aquaculture has the potential for reducing the United States trade deficit in fisheries products, for augmenting existing commercial and recreational fisheries and for producing other renewable resources, thereby assisting the United States in meeting its future food needs and contributing to the solution of world resource problems. It is, therefore, in the national interest, and it is the national policy, to encourage the development of aquaculture in the United States.

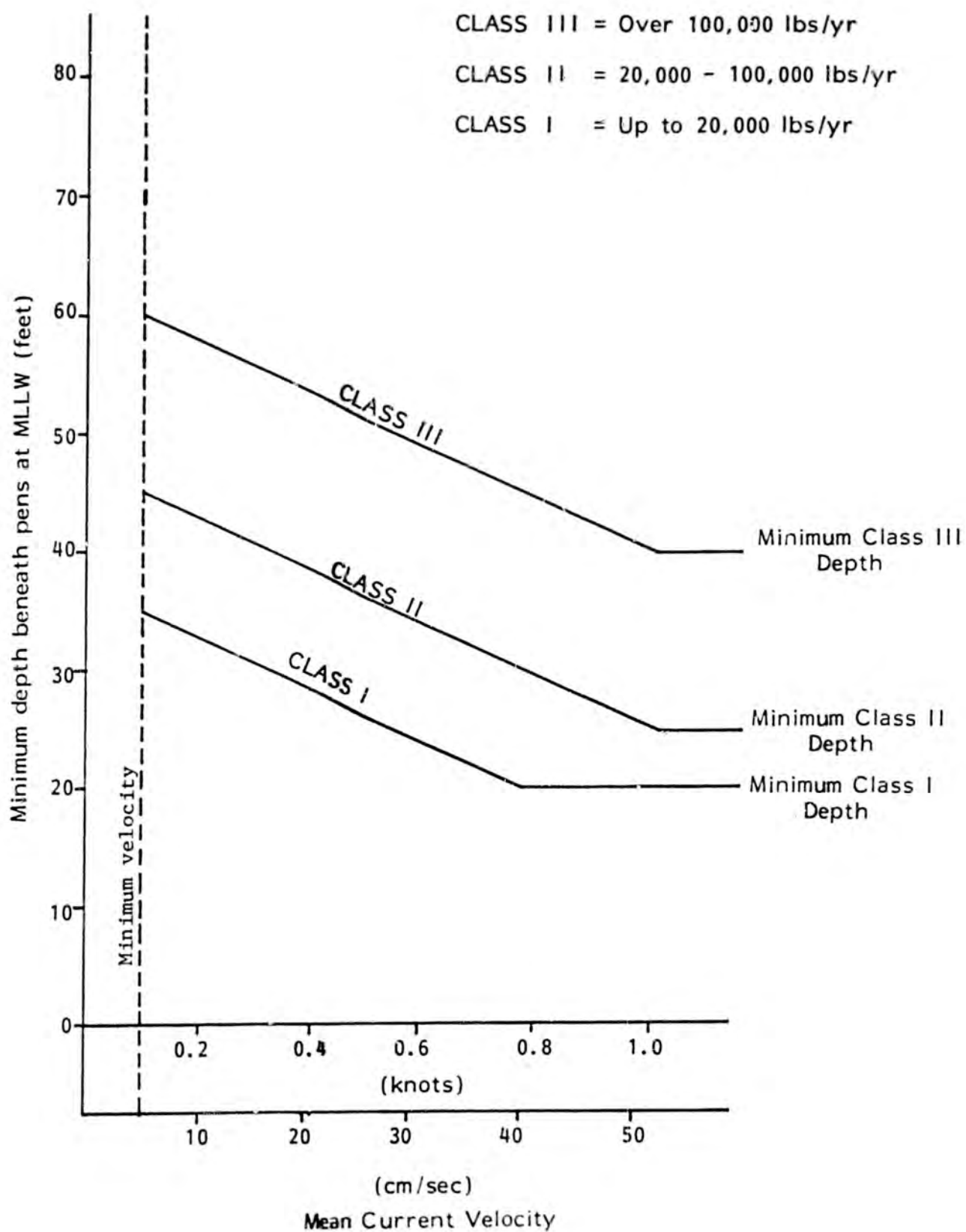
UW to get funds for aquaculture facility

Associated Press

992
The University of Washington will get \$500,000 to establish an aquaculture research facility, following congressional approval of funds for four similar facilities nationwide.

Rep. Don Bonker, D-Wash., said the UW research center will serve a region covering Washington, Oregon, Alaska, Idaho and California. The center will coordinate and support research in the farming of fish and shellfish.

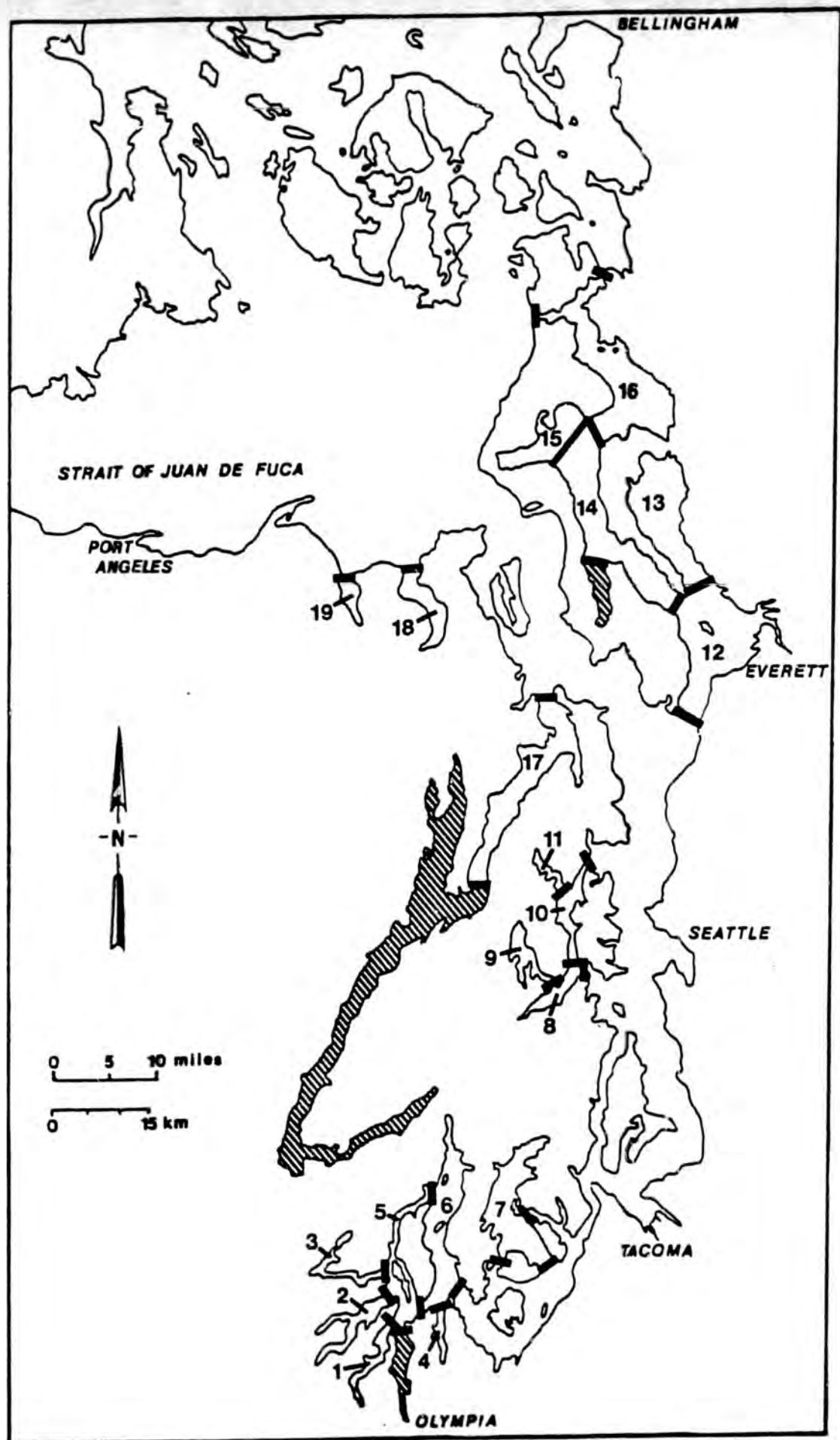
Now \$750,000 for 1987
Nov. 1-'86



MINIMUM DEPTH AND CURRENT VELOCITY FOR NET-PEN SITING

WATER QUALITY CONSIDERATIONS IN NET-PEN CULTURE

- **Dissolved oxygen**
 - Reduced through respiration and decomposition of organic matter
- **Nutrients**
 - Toxicity
 - Stimulation of phytoplankton growth
- **Mitigation strategies**
 - Avoid areas with existing chronic water quality problems
 - Avoid areas with poor flushing
 - Avoid a high density of pens in a small area



OTHER INTERIM GUIDELINES

- **150 to 300 ft from habitats of special significance**
- **1500 ft from critical bird and mammal habitats**
- **Unpelletized wet feed should not be used**
- **Predator control measures must comply with federal and state regulations**
- **Tributyltin should not be used as an antifouling agent**
- **Only FDA licensed antibiotics should be used. They should be used on a short term basis and not administered prophylactically over extended periods.**
- **Transfer and importation of fish in accordance with state and federal regulations**
- **An operations plan must be prepared including project description, and anticipated operational practices.**
- **A site characterization survey should be done before permit approval**
- **Annual monitoring should be performed at all Class II and III facilities**

EXCERPTS FROM:

**Proceedings
of the
Governor's Ad-Hoc
Mariculture
Advisory Committee**

**September 16-17, 1985
Juneau, Alaska**

FOR: MR. DAVE BENTON: OFFICE OF THE GOVERNOR

Coordinated by the Office of Commercial Fisheries Development,
Alaska Department of Commerce and Economic Development
in Cooperation with the Fisheries Rehabilitation Enhancement
and Development Division, Alaska Department of Fish and Game

Project Coordinators: Bill Paulick
Tom Kron

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11/26/85

Introduction

In March of this year, Governor Sheffield requested his fisheries mini-cabinet appoint an ad hoc advisory group to address issues related to development of an Alaskan mariculture industry. Additionally, the group was requested to formulate a public policy ensuring that the industry develop in such a manner as to complement our existing seafood industry and maximize Alaskan participation.

In response, a twelve-member panel representing industry and the public sector was convened in Juneau, September 16-17, 1985. This workbook documents the proceedings of that meeting (tab II) and includes questions, issues and comments from the members (tab III), the preliminary legal opinion from the Attorney General's office (tab IV), socioeconomic and biological data (shrimp and salmon, tabs V and VI), an idea of what forces are driving the development of this industry (tab VII), a reference section to assist in further readings (tab VII), selected news articles on the topic of pen-rearing of finfish (tab VIII), a draft policy statement for discussion (tab IX), and the December meeting agenda (tab X).

This workbook does not attempt to address each individual question or issue, rather, it is designed as a reference workbook to provide the most recent industry-data available on a wide range of topics. Members able to review the articles and information herein should find themselves amply prepared to address individual issues and questions at the December 16-17 meeting. We greatly appreciate the time and effort expended by members in preparing the questions and issues responses. The individual responses can be found under Tab III and will form the basis for discussion at the meeting.

The following points were generally agreed upon by the majority of the members and will, therefore, not be addressed at the December gathering:

- a) Shellfish/Sea Vegetable mariculture is noncontroversial and should be endorsed in our policy statement.
- b) This body does not need to do anything legislatively with the shellfish industry this year.
- c) The idea of a spat hatchery is acceptable and the method of putting it together is a technicality that can be worked out between industry and the State.
- d) We need to speed up analysis for PSP and support the concept of a diagnostic laboratory
- e) We need to develop a policy statement on mariculture that the Governor would endorse and which would give direction for State agency action and communicate clear intentions to the public.

The goal of the December meeting is to provide Governor Sheffield, through his fisheries mini-cabinet, a concise policy statement on mariculture (all forms or specified).

Our hope is that the following material will aid you in attaining this goal!

MEMORANDUM

State of Alaska

TO: Fisheries Mini-Cabinet

DATE: March 11, 1985

FILE NO:

TELEPHONE NO:

FROM: Bill Sheffield
Governor

SUBJECT: Policy Development
Strategy for Mariculture/Aquaculture

Alaska's position in the world marketplace as a producer of seafood products has changed dramatically since statehood. There is every indication that an equally dramatic change will occur in the next decade. A number of world-wide developments, over which we in Alaska have little or no control, have had and will have an impact on our domestic and international seafood markets. The increasing use of aquaculture or sea farming techniques to supplement or complement traditional wild stock harvest strategies stands out among these trends. In my opinion, this trend requires our careful development of a public policy response by the State.

Alaska's abundant, high quality water resources, the close ties between many of our coastal communities and our marine environment suggest that some forms of sea farming may represent an opportunity for economic growth and diversity. However, it is critical that State policy insure that such development complements, rather than conflicts with, our valuable traditional seafood industry. To accomplish the timely formulation of public policy and any legislative or regulatory changes that might be required, I instruct the Fisheries Mini-Cabinet to take the following steps:

1. Appoint an ad hoc advisory group representative of harvesting, processing, mariculture, and community interests to review the mariculture/sea farming issues.
2. In those instances where little or no conflict appears to exist between sea farming and traditional fisheries (e.g. shellfish), develop the legislation or regulations necessary to encourage an orderly development that maximizes Alaskan participation.
3. In those cases where sea farming may be in conflict with our traditional fisheries (e.g. pen reared salmon), move ahead cautiously to examine all facets of the issue, including:
 - a) the effect of sea farming on the markets for our traditional seafood products;

March 11, 1985

- b) the experiences of other nations with sea farming development;
 - c) how such developments might supplement or complement our existing industry, and how maximum Alaskan participation could be encouraged.
4. Report to me regularly on your progress in dealing with these issues.

BS/GB/mst0089g
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cc: Fisheries Mini-Cabinet Staff
Cass Parsons, United Fishermen of Alaska
Rick Lauber, Pacific Seafood Processors Association

00007

MEMORANDUM

State of Alaska

TO: Steve Pennoyer
Deputy Commissioner
Department of Fish and Game

DATE: December 11, 1984

FILE NO: 366-187-84

Norman C. Gorsuch
Attorney General

TELEPHONE NO: 465-3600
276-375

FROM: By: Larri Irene Spengler
Assistant Attorney
Department of Law

SUBJECT: Marine net pen
salmon rearing

Attached is a draft response to your department's request for an opinion on whether marine net pen salmon rearing is currently authorized. I would appreciate any suggestions or comments in the next two weeks, after which time the memorandum will be issued.

Thank you.

LIS:dlm

Attachment

cc w/attachment: Norman Cohen
Stan Moberly ✓
Kevin Duffy

DEC 13 1984

366-187-84 [66DC84] Dorian

Hon. Don Collinsworth
Commissioner
Dept. of Fish and Game

Norman C. Gorsuch
Attorney General

By: Larri I. Spengler
Assistant Attorney General
Department of Law

December 13, 1984

366-187-84

465-3600

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 is not prohibited currently, and that it does not pose any constitutional problems.

As explained by your department, marine net pen salmon rearing differs from a private nonprofit hatchery program authorized and operated under AS 16.10.375-475 in that salmon are not released into the open ocean where they are subject to the common property fishery. The rearing takes place in enclosures that either float or are grounded on the ocean bottom under state or federal leases. The salmon in the enclosures are propagated and 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

Honorable Don Collinsworth
Commissioner
Department of Fish and Game
Our File No. 366-187-84

December 13, 1984
Page 2

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.

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), reversed 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

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Honorable Don Collinsworth
Commissioner
Department of Fish and Game
Our File No. 366-187-84

December 13, 1984
Page 3

grounds should be monopolized ... the 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. 377 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 for propagative purposes under a permit from the Commissioner of Fish and Game pursuant to AS 16.50.340(b) and 5 AAC 41.005 would be raised in water leased by the operator, within "a generally escape-proof barrier." AS 16.05.940(12).

Honorable Don Collinsworth
Commissioner
Department of Fish and Game
Our File No. 366-187-84

December 13, 1984
Page 4

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. 1983 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 1/ 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 in the net pens would have been propagated from fish already legally reduced to possession.

As noted above, the Commissioner of Fish and Game issues permits for transportation, possession, and release of live fish for "scientific, educational or propagative purposes." AS 16.05.340(b); 5 AAC 41.001 and 005. The salmon to be used for propagative purposes in marine fish farms in state waters may not be imported from outside Alaska. 5 AAC 41.070(a); compare 5 AAC

1/ Similarly, the lease of tidelands and submerged lands for shellfish culture involves a property right, not an exclusive right of fishery. 1983 Inf. Op. Att'y Gen. (Sept. 26; 366-119-84).

Honorable Don Collinsworth
Commissioner
Department of Fish and Game
Our File No. 366-187-84

December 13, 1984
Page 5

39.975(13) and 5 AAC 75.995(31) (defining "waters of Alaska").
The decision to issue a permit to transport, possess, or release
live fish is made based on considerations of the continued health
and perpetuation of native, wild or hatchery stocks. See 5
AAC 41.005(c)(1); 5 AAC 41.010(a)(5)(6) and (9); 5 AAC 41.020; 5
AAC 41.030; 5 AAC 41.050, and 5 AAC 41.080.

In summary, marine net pen salmon rearing is not pro-
hibited by current fish and game statutes and regulations, and
would not constitute an exclusive right or special privilege of
fishery.

LIS:dlm

cc: Steve Pennoyer
Norman Cohen
Stan Moberly
Kevin Duffy

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.

00000

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. 1983 Inf. Op. Att'y Gen. (Sept. 26; 366-119-84).

Honorable Don Collinsworth
Commissioner
Department of Fish and Game
Our File No. 366-187-84

January 31, 1985
Page 3

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

MEMORANDUM

State of Alaska

TO: Honorable Bill Sheffield
Governor

DATE: March 6, 1986

FILE NO.:

THRU:

TELEPHONE NO.:

SUBJECT: Aquaculture
Policy Proposal

FROM: Fisheries Mini-Cabinet

Please find attached the final recommendation of the Ad Hoc Aquaculture Advisory Committee to your Fisheries Mini-Cabinet. We have reviewed the recommendations of the advisors and are in concurrence with their suggested approach. Prior to forwarding our recommendations to you we requested the Departments of Commerce and Economic Development, Fish and Game, Natural Resources and Environmental Conservation to review the fiscal impacts associated with full and complete implementation of the recommendations. Although the total cost of full implementation would be substantial, the current revenue situation and the need to maintain existing fisheries management and development programs lead us to recommend the funding of only two portions of the recommendation. We suggest providing \$39,000 for public forums/education and \$50,000 for the proposed socioeconomic impact study. We would recommend that a total of \$95,000 be appropriated in the FY 87 budget, in the form of a C.I.P., to the Department of Commerce and Economic Development.

We collectively recommend acceptance of the basic policy regarding all forms of aquaculture with the exception of pen rearing of fin-fish. After the suggested study and public awareness process have been funded and completed and the public has had a chance to react, we will recommend further action regarding the pen rearing of fin-fish. In our view, a critical component of this policy development and implementation is the need to form and maintain a close partnership between your office and the Legislature as suggested by the Committee. We perceive there is presently a strong difference of opinion among members of the fishing community regarding whether or not fin-fish farming should be allowed. The communication link suggested above would maximize our chances for obtaining an accurate picture of the public desire to allow development of this industry to proceed in Alaska.

WP/sa0348g
30686b

Attachments: A Philosophy For Aquaculture Development in Alaska
Proposed Aquaculture Policy for Alaska

TO: Governor's Fisheries Mini-Cabinet

DATE: January 20, 1986

FILE NO.:

THRU:

TELEPHONE NO.:

SUBJECT: A Philosophy for Aquaculture
Development in Alaska

FROM: Aquaculture Advisory Committee

On July 15, 1985, Governor Sheffield appointed a Mariculture Advisory Committee, consisting of fishermen organizations, fish processors, a Native corporation, governmental agencies, the universities, and individuals in the private sector interested in mariculture development in Alaska. The committee was charged with the responsibility of formulating a workable and effective mariculture policy to guide the State in development of the mariculture industry in Alaska. The committee modified its original charge to include culture of all aquatic plants and animals in both the fresh and saltwater environments. Hence, this consensus document outlining an aquaculture policy is submitted.

The issues confronting the further development of aquaculture have been examined by the committee. These developments include fish, crustaceans, mollusks and aquatic plants. It is important, in light of world aquacultural developments and growing interest in aquaculture potential in Alaska to generate a policy that should enable the orderly development of an Alaskan aquaculture industry. However, many biological, technical and social questions must be resolved before allowing full implementation of any plan. The committee strongly recommends that every effort be made to assure that the developing aquaculture industry:

1. be complementary to, and not in conflict with, the existing fishing industry.
2. be economically viable and self-sustaining.
3. provide opportunities for family and other small scale businesses.
4. provide an overall enhancement to the marketing image of all Alaskan seafood products.
5. give due consideration to wild stocks.

Some shellfish aquaculture projects are currently underway. While we have found a need to tailor the existing permit and lease process in order to promote aquaculture development, and have identified a need to improve dissemination of technological data, it appears that the early success of these projects holds the promise of another positive use of Alaska's resources and should be supported.

January 20, 1986

The culture of aquatic plants may also offer new opportunities. There is a need to further assess opportunities and develop appropriate technology.

The farming of finfish (other than nonprofit ocean-ranching of salmon) has not been introduced, although experimental work has shown promise. We need to continue and expand grant research efforts between the State of Alaska and the National Marine Fisheries Service to gather data on the biological and technical aspects of pen-rearing. The possibility of social and economic conflicts with existing fisheries warrants a more cautious approach than for shellfish and aquatic plants.

The committee recommends that aquaculture be a self-sustaining industry with the exception of public investment in plant and animal health diagnostics, public health and initial biological research. In the meantime, there is a need to develop public policy regarding such issues as a regulation of the aquaculture industry (either as a farm or fishery), size and location of sites, federal land issues, organization of the permitting process, ownership questions, taxation, disease, and so forth.

Attached is our proposed policy document consisting of a generic policy statement followed by a number of comments regarding specific issues. This committee would be available for further deliberations on specific issues stemming from public review and comments to this policy.

AAC/wfs1331M
12086i
Attachments

GOVERNOR SHEFFIELD'S
AQUACULTURE ADVISORY COMMITTEE

PUBLIC MEMBERS

Brian Allee, PWSAC
Jack Cadigan, (Cass Parsons), UFA
Bill Clapp, Pelican Seafood
Nancy Gross, Unalaska
Richard Harris, Sealaska
Jim Hemming, Mussel Grower
Earl Krygier, A.T.A.
Robin Larsson, A.S.G.A.
Rick Lauber, P.S.P.

LEGISLATIVE MEMBERS

Senator Richard Eliason
Representative Peter Goll
Representative Adelheid Herrmann
Senator Fred Zharoff

UNIVERSITY & GOVERNMENT
AGENCY REPRESENTATIVES

Greg, Baker, ADC&ED
Ron Dearborn, U of A, Sea Grant
Bill Heard, NMFS
Ole Mathisen, U of A
Stan Moberly, ADF&G
Dick Neve, Office of the Governor
George Snyder, NMFS

SPECIAL ASSISTANT

Gerald Bowden, UCSC

Proposed Aquaculture Policy

It is the policy of the State to promote the development of a successful aquaculture industry in a manner that will contribute to the economic well-being of the citizens of the State, the commercial fishing and seafood industry, and all communities of the State, particularly the coastal areas.

GENERAL FINDINGS

1. There is an urgent need to inform the public of the potential socio-economic impacts, benefits and opportunities surrounding aquaculture, especially salmon farming, and to solicit public comments through a series of hearings. These efforts will provide necessary information to enable both the public and government to determine the future course of aquaculture and to provide for its orderly development. The process will:
 - A. address the concerns of fishermen, the fishing industry, coastal residents, and the citizens of the State for the development of aquaculture in Alaska;
 - B. serve to educate the public and the State about aquaculture;
 - C. serve as a mechanism to collect ideas and recommendations for the further development of Alaska's aquaculture policy;
 - D. include a review of the aquaculture development options envisioned; and
 - E. enable all concerned individuals to review and comment on any draft laws and proposed regulations prepared in response to public participation and comment.
2. The State, in considering the uses of public lands, water and other resources, should develop procedures to ensure an orderly and controlled use of the State's resources for aquaculture. The procedures instituted by the State should:
 - A. provide maximum opportunity for family and other small scale businesses;
 - B. require that leases be active, thereby avoiding speculation; and
 - C. avoid creating artificial wealth through possession of leases or permits.

State and other land planning programs should include inventories of potential aquaculture sites. These inventories should be responsive to existing State and federal regulatory requirements and establish uses.

3. In light of the growing competition caused by the growth of world aquaculture, the State should increase efforts to enhance the image and value of Alaskan seafood products. We specifically suggest instituting a program that promotes more stringent quality controls in grading and labeling, and further improves the general public perception of Alaskan seafood. Such action encourages promotion of a more competitive product.

SPECIFIC RECOMMENDATIONS

1. Shellfish and Seaweed

The State should review all existing statutes and regulations governing culture of shellfish and aquatic plants, and should, if necessary, institute programs to actively further promote and facilitate the culture of these organisms. There is a clear need to:

- A. tailor the State's permitting and leasing procedures to better accommodate the needs of the industry and to provide broader technological support;
- B. improve programs for testing of paralytic shellfish poisoning (PSP) including inspection and certification time frame;
- C. establish or certify diagnostic labs near shellfish culture areas; and
- D. encourage private oyster spat and other shellfish hatcheries.

2. Ocean Ranching

The success of the existing State and nonprofit salmon ocean-ranching programs is recognized, and efforts in this area should be expanded. Recent developments regarding product form and expanding markets indicate there will be a greater demand for additional salmon in the future.

3. Salmon and Other Finfish Farming

The form of aquaculture that poses the most controversy is the farming of large-sized salmon and trout, because these product forms may compete with the salmon fishing industry for markets.

Salmon farming is currently not allowed in Alaska, however, there is a growing interest to develop the industry. Prior to contemplating salmon farming, the State should initiate an unbiased study to identify and evaluate social and economic impacts and consider various implementation options to determine the greatest benefits for Alaskans.

Some finfish species and product forms such as pan-sized salmon and trout may not be in direct competition with the Alaska commercial fishing industry and, therefore, may not be as controversial as other forms of salmon farming. The State should commence a review to determine if the culture of pan-sized salmon, trout and other finfish are permissible under current statutes. Public comments should be solicited to determine if there is an interest or concern regarding these product forms.

FINAL

To accomplish the public education and research necessary for the orderly development of aquaculture in Alaska, a strong partnership commitment from the executive and legislative branches of State Government, federal agencies, Alaskan universities, industry and interested individuals will be required.

M A R I C U L T U R E I N A L A S K A

An Examination of Government Programs
by the Alaska Mariculture Technical Work Group
December 1986

STATE OF ALASKA /

STEVE COWPER, GOVERNOR

December 16, 1986

Mr. Rodger Painter
Alaska Mariculture Association
P.O. Box 020704
Juneau, AK 99802-0704

Dear Mr. Painter:

As chairmen of our respective technical subcommittees, we are pleased to present the enclosed documents representing the product of our committee's deliberation on a variety of topics relating to development of a mariculture industry in Alaska.

Our purpose is to provide, to the extent possible, an unbiased and accurate analysis of issues relating to a potential mariculture industry in Alaska. We recognize that final decisions must be made by the people of Alaska working through the public process. Because of the complexity and uncertainty of these often new issues, decision makers should find the enclosed documents very useful.

On behalf of the entire technical committee, we would like to thank you for your role in this important effort. We expect that the educational process will continue as Alaska moves forward into this new area of resource development. Hopefully, the information provided here will be of continuing use.

In the interest of public education, we would appreciate the widest possible dissemination of this information.


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Alaska Department of Fish & Game
Co-Chair, Siting and
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Reference Materials

Alaska Mariculture Technical Work Group
Broodstock Development--Bill Heard, NMFS
Feed Development & Research Facilities--Ole Mathisen, UAJ
Investment Incentives/Financing--Kellus Sewell, Nordic Alaska
(These discussion papers are available through the Alaska Mariculture Association, P.O. Box 020704, Juneau, AK 99802-0704.)

The Environmental Effects of Floating Mariculture in Puget Sound
Donald P. Weston, School of Oceanography, University of Washington
August 1986

Marine Net Pen Salmon Rearing
Larri Spengler, Alaska Department of Law, Memo, 1/31/85

DNR Tideland Permit for Shellfish Culture
Bob Palmer, Alaska Department of Natural Resources, Memo, 9/19/86

US Forest Service Permitting of Uplands Use for Alaska Oyster Farmers
Michael Barton, U.S. Forest Service Regional Forester, Letter,
7/25/86

A Philosophy for Aquaculture Development in Alaska
Governor Sheffield's Aquaculture Advisory Committee, Memo, 1/20/86

I N T R O D U C T I O N

Mariculture--or sea farming--is the for-profit captive culture of shellfish, finfish and sea vegetables in the marine environment. This is distinct from Alaska's existing salmon ranching program which involves the release of juvenile fish into the ocean to intermingle with wild stocks. The latter also is non-profit and returning fish are a common property resource.

Food products from sea culturing operations are becoming increasingly important throughout the world as seafood consumption climbs and wild fisheries landings remain relatively static. The world aquaculture production (fresh water and marine culture) was estimated at 22 billion pounds in 1983, and is expected to reach 48 billion pounds by the turn of the century.

The productive, unpolluted waters of Alaska's many sheltered bays and fjords are considered ideal for mariculture operations.

The first mariculture operations in Alaska involved the experimental culturing of oysters near Ketchikan in the early 1900s. Several oyster and mussel farms are now in operation and other farms are underway or are under consideration in Southeast, Southcentral and Southwest Alaska.

The State of Alaska recently began a joint project with Japan to test the feasibility of growing scallops in Kodiak and giant kelp (Macrocystis) in Sitka. The National Marine Fisheries Service also is cooperating with the state in an experimental research station in Southeast dealing with problems related to salmon farming.

A general need for policy and issue clarification was recognized by state and federal agencies, potential fish farmers and industry. The Alaska Mariculture Technical Work Group was formed at the invitation of the Alaska Mariculture Association. This cooperative effort represented here could assist in meeting the need for an information base to be used by policy makers.

EXECUTIVE SUMMARY

Legal Status--The legal status of mariculture in Alaska is unclear. While there is recognition of sea farming in statutes, clear regulatory processes are not available to guide individuals wishing to engage in many mariculture activities.

The Department of Law has said that technically the only species for which an applicant can presently receive a fish farming permit is oysters, a non-indigenous shellfish. However, there are mechanisms that allow individuals to harvest some undersized species and hold the animals in a farming environment until they reach salable size.

Specific regulations must be passed by the Board of Fisheries and Department of Fish and Game before sea farmers can obtain permits to collect and hold most native species of shellfish and finfish. Current statutes do not allow state or nonprofit salmon hatcheries to sell or transfer surplus eggs to private farmers.

Siting--The environmental impacts of mariculture operations are site- and species-specific. When siting mariculture facilities, it is important to consider the water circulation in the area and flushing action in the immediate vicinity. Concerns that water quality would be degraded beyond the immediate vicinity of mariculture operations are generally unwarranted. Such conditions would exist only in areas of extremely limited flushing or if culture density was very great.

Mariculture is one of many potential uses of Alaska's tidelands and adjacent uplands. The current decision-making process for these land use decisions involves weighing mariculture against a host of other potential uses.

Permitting--Mariculture is likely to become a significant use of Alaska's tidelands and adjacent uplands. This has prompted the Department of Natural Resources to work on a new tideland permitting process for shellfish operations that would require permittees to meet certain benchmarks to ensure project viability. The new permitting process also provides the mariculture developer greater security than the present system.

Disease and Genetics--Alaska's existing disease and genetics policies appear to provide adequate safeguards for the protection of native and cultured stocks. Endemic disease agents are ubiquitous in wild stocks and the marine environment. Many are opportunistic, causing disease in fish primarily when they are crowded or stressed. Although it is possible for such disease to be transmitted from cultured to wild stocks, catastrophic mortalities from indigenous pathogens would not be expected because of the lack of stress factors in the receiving populations and the wide environmental dispersion of host animals. Mariculture would produce no further risk to wild stocks than the current salmon ranching program provided state disease and genetic policies are followed.

Public Health--Growth of a mariculture industry presents no special public health concerns as existing state regulatory programs governing sanitary practices and seafood product wholesomeness appear to be adequate to provide proper protections.

Brood Stocks--The availability of brood and seed sources will be a major factor in shaping the initial growth of a mariculture industry in Alaska. Orderly development of mariculture would be enhanced by a policy of allowing access to necessary seed and brood sources from wild stocks, but sea farmers should develop captive brood sources for many species over a period of time. Acquisition of brood stocks for salmon and some other fully allocated species may require changes in statutes and regulations. Proper protection of Alaska's wild fisheries resources will require the cautious development of mariculture brood sources. Brood stock programs for captive culture populations should follow appropriate policy guidelines for disease, genetic and exotic species issues.

Research and Development--The success of mariculture throughout the world is largely due to government research in disease prevention and control, broodstock development, and nutritional requirements, including use of local fish meals. The industry is likely to look at government to continue fulfilling these functions.

Training and Education--One of the best methods for the State of Alaska to encourage a strong resident involvement in mariculture is through training, education and extension service programs. Particularly important to local involvement in mariculture operations is the availability of these programs to residents of rural areas. Education and training programs should (1) provide a novice with enough knowledge to allow him or her to start a mariculture business with a reasonable chance of success and (2) train Alaskans to work as technicians at sea farms or hatchery operations.

Taxes--The Department of Revenue was seeking at the time of this report legal clarification of the applicability of the Fisheries Business Tax on cultured seafood. This issue also is important to municipalities, however, since half of the tax is shared with local governments.

Investment Incentives--There appears to be a number of strategies available to the State of Alaska to encourage mariculture development or to influence the composition of the industry. A clear state policy supportive of mariculture is perceived to be a vital factor, while incentives such as credits on the Fisheries Business Tax may influence growth. Resident participation in mariculture could be encouraged through state loans and other non-conventional financing.

Market Development--Although overall consumer demand for high quality seafood is strong and growing, a critical factor to development of a strong mariculture industry is establishment of specific market channels. Early development could help farmers avoid holding products for which there are no markets. It would be helpful to gather market information in an easily accessible format.

Policy and Administration--Selection of a lead state agency has been recommended by a leading mariculture expert, but much more important is development of a strong and clearly articulated state policy regarding mariculture.

I. SITING

A. Species Requirement Criteria

Each species of cultured plant or animal has a unique and specific set of environmental needs. Consideration of the environmental requirements of the species targeted for a sea farm will help assure that the site will be suitable for the proposed operation. Conditions, such as salinity, temperature, flushing action, depth of water at the site and other factors may vary from species to species. For example, oysters are tolerant of salinity changes and exposure to air, while scallops are quite sensitive to those factors.

This procedure could allow for evaluation of permit applications to assure that the site is suitable for the proposed farming operation.

B. Requirements for Aquatic Environmental Protection

Mariculture facilities have several possible environmental impacts on areas adjacent to their location. These effects include changes in water current circulation, an increase in sedimentation and various changes in water quality. These environmental impacts are species- and site-specific, depending on the size of the operation.

When siting mariculture facilities, it is important to consider the water circulation in the area and flushing ability in the immediate vicinity. The placement of mariculture facilities in the water (either rafts with suspended mesh bags or trays for shellfish, or net pens for finfish) will alter the water-current patterns. These structures will decrease water movement which may in turn result in an increase in sedimentation from food particles, feces, and shell debris. The concentration of ammonia-related compounds generated from decomposing organic material may increase, and the amount of dissolved oxygen may decrease. All of these factors may combine to effect the quality of the seafood product being cultured.

Generally, floating facilities have less problems with sedimentation than bottom-culture operations. One way to alleviate a water circulation problem is to place multiple net pens or rafts in a line parallel to the direction of water flow. Proper spacing between nets or rafts should be maintained to allow adequate water circulation. Choosing a site with adequate flushing capabilities will eliminate much of the sedimentation problem. The culture structure should be far enough off of the bottom to allow normal water flow beneath it.

The effects of finfish culture and shellfish culture on water quality of surrounding areas are quite different. Shellfish cultures feed on indigenous phytoplankton and so do not introduce any 'new' nutrients into the area. As much as 40% of the total nutrients can be removed from the water column by these shellfish. Shellfish excrete relatively small amounts of ammonia and related compounds. Finfish cultures may increase the concentrations of ammonia, organic and total nitrogen, phosphate, and total phosphorous and Biological Oxygen Demand (BOD) in the surrounding area. Surrounding concentrations of dissolved oxygen may decrease. Generally, this phenomena is not a problem in culture areas with good water circulation because the metabolic wastes are diluted over a short distance.

The culture of finfish and shellfish results in the release of nutrients and the consumption of dissolved oxygen. A net increase in environmental nutrient levels may be expected in salmonid culture because of nutrient input in the form of feed. Culturing molluscs requires no addition of feed, so no input of "new" nutrients to the marine ecosystem results. However, molluscs do enhance the recycling of nutrients in the water column as they ingest phytoplankton and return a portion of the nutrients to the water column and sediments, making those nutrients available to primary producers again. The filter-feeding activities of the molluscs also serve to concentrate nutrients from a wide area into the area of the sea farm.

Concerns that water quality would be degraded beyond the immediate vicinity of mariculture operations are generally unwarranted. Such conditions would be anticipated only in areas of extremely limited flushing or if culture density was very great. In the few cases where measurable water-quality changes have been noted, the effects have been largely confined within the culture structure.

C. Site-Use Determination

Mariculture is one potential use among many of Alaska's tidelands and the uplands. The current decision-making process for these land-use decisions involve weighing mariculture against a host of other potential uses, including recreation, subsistence, personal use, log transfer sites, commercial fishing, and wilderness, as well as social, political, and economic factors associated with these uses. The most logical procedure to determine site usage is to have potential mariculture locations identified (using a set of predetermined, proven site criteria) and then included in the State Land Use Plans, such as the Prince of Wales Island area and

the Prince William Sound area plan. These plans attempt to balance many disparate and sometimes competing interests. If the potential mariculture sites were included in such a plan, site decisions would be straightforward and timely. While these area plans would be developing mariculture policies within the planning areas, statewide mariculture policies could result from these efforts. Another option is the development of a new plan similar to the ones generated by the Private Nonprofit Hatchery Program, which are presently working quite well. The development of a new plan does not seem currently possible because of the time and resources needed to develop such a plan. The inclusion of potential sites into state plans also seems unlikely due to the present lack of state funding for future plans. Thus, it seems that the present and future basis for the site decision making will be made on a case-by-case basis by all state and federal agencies involved with either permitting or resource review. These decisions will involve, for example, on federal public lands, wilderness capability analyses using the Alaska National Interest Lands Conservation Act (ANILCA) Sections 507(a) and 1315(b and d), and subsistence evaluations using ANILCA Section 810. Subsistence, as defined by ANILCA, provides for the customary and traditional consumptive uses of fish, wildlife, and other wild renewable resources by rural Alaska residents on federal public lands. It does not preclude the use of other resources but requires that an evaluation of effects be made. In Section 804, the nonwasteful subsistence uses of fish and wildlife shall be accorded a priority over the taking of fish and wildlife on public lands for other purposes. Another determination, which may be and probably will be required, is a cumulative effects analysis. This determination will probably be the result of legal actions and the expected large number of mariculture sites. These two determinations, and especially the case-by-case determinations, will necessitate more work by all the agencies involved as well as time delays for the applicants.

II. PERMITTING

A. Statutory/Regulatory Status

The legal status of mariculture in Alaska is unclear. While there is legal recognition of sea farming in statute, clear regulatory processes are not available for applicants to engage in many mariculture activities. Unclear are issues such as the ability of individuals to gather brood stock in limited fisheries, use of gear not authorized in the commercial fishery, and the harvesting of juveniles for culturing in fisheries with size limitations.

The Department of Law has determined that private, for-profit mariculture is covered by existing statutes. However, the department said, the Board of Fisheries and ADF&G must enact specific regulations before sea farmers can obtain permits to hold live fish or shellfish. To date the board has approved the farming of a non-indigenous species--oysters. Current statutes do not allow state or private nonprofit hatcheries to sell surplus salmon eggs to private salmon farmers.

There is no clear regulatory structure supportive of the development of a mariculture industry, although there are mechanisms to allow some activities. For instance, it is legally possible to obtain a permit to commercially harvest some undersized species and to hold the animals in a farming environment until they reach salable size. This method would appear to be most suitable in fisheries where there are no size and sex restrictions and little competition for the resource, such as mussels. There also is provision in law (AS 16.05.050 (11)) under which the Commissioner of ADF&G can authorize interim-use permit holders to engage in the experimental taking of fisheries resources. This statute may be a vehicle to allow the collection of brood stock for farming purposes in some fisheries.

ADF&G and the Department of Commerce and Economic Development are conducting a joint project with Japan to test the feasibility of culturing scallops in Kodiak. Local "cooperators" participating in the experiment have been issued scientific/educational permits for the collection of spat, and will be allowed to hold scallops for experimental purposes. However, the cooperators are not allowed to engage in "commercial" activities such as the sale of spat, juvenile or adult scallops.

B. Agency Coordination

Oyster farmers follow the established permitting path for use of state tidelands, and production and sale of shellfish products. The most critical permitting process is physical aquatic siting. This generally involves the Departments of Natural Resources, Fish and Game, and Environmental Conservation, the Army Corps of Engineers, and the Environmental Protection Agency. Permits for uplands usage at individual sites may require the additional involvement of the U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, National Park Service, or other federal agencies.

Coordination of state and federal agency responses to the physical siting process is handled by the Division of Governmental Coordination (DGC) in the Office of Management and Budget. The DGC's review process is designed to

coordinate federal, state, and local review of projects in the coastal areas of the state. It is oriented to address any land management or resource regulatory issue related to physical siting and design of proposed projects. A key component of the process is review of the "consistency" of the proposed project with the standards of the Alaska Coastal Management Plan. Mariculture projects will be reviewed for their consistency with recreation, subsistence, habitat, and with air, land, and water quality standards. Applications for mariculture projects are reviewed on a 50-day schedule, which means the DGC will complete its review within 50 days unless non-consistency or other problems are raised.

New permitting systems required for mariculture development should fit within the existing DGC review process and timetable.

C. Project Development

Based on the growing interest in sea farming, mariculture is likely to become a significant use of Alaska's tidelands and adjacent uplands. As such, land managers and upland owners are interested in ensuring that sites are utilized for permitted activities and do not result in speculation. At the same time, these land managers have interest in developing a system that responds to the needs of the individual grower and results in a strong, diverse mariculture industry. ADNR currently is working on a new tidelands permitting process for shellfish operations that would require permittees to meet certain benchmarks to ensure project viability, while providing greater security for the mariculture developer than the present permitting system.

The characteristics and the scope of a mariculture project will be determined during the permit process. The applicant's development plan will become a part of the permits and they will describe: (1) what species will be raised; (2) size and location of the project; (3) type of structures used for growing; (4) whether upland support facilities will be allowed; (5) environmental safeguards that will be implemented; and (6) a timetable that will be used to monitor the progress during construction and development.

During the early stages of development, ADNR will be using these permits and develop a plan to monitor the progress of a project. ADNR will be emphasizing the need to use the land for its intended purpose within a specified period of time. The intent of this monitoring is to ensure the land speculation is not occurring and that approved sites are available to create a land base large enough to support a self-sustaining industry.

As the project gets into the production phase, the monitoring by ADNR will become less important and the roles of ADF&G and ADEC will become more important in regulating water quality, protecting public health, and certifying brood sources.

To ensure mariculture develops into a self-sustaining industry, ADNR is considering modification of land-use permits and leases to meet the need of a grower. At the present time, there is no guarantee for the grower that starts out with a land-use permit and then requests a lease with a term of more than ten years. The site will be put up for bid at a public auction and the grower may lose the site if he is outbid. A lease term of less than ten years may be negotiated if the director finds it in the best interest of the state.

III. FIN/SHELLFISH HEALTH AND GENETICS

A. Fin/Shellfish Health

1. Importation of exotic diseases

Current regulations (5AAC 41.070) prohibit importation of exotic finfish or shellfish species into Alaska except Pacific Northwest-cultured, Japanese oysters and ornamental fish for non-release only. Oysters can be imported only after disease certification by the ADF&G, Division of Fisheries Rehabilitation, Enhancement and Development's Fish Pathology Section and only after the importing party obtains a Fish Transport Permit (5AAC 41.005), which must also be evaluated by the Fish Pathology Section. Adequate control to prevent importation of exotic diseases is in effect.

2. Potential dissemination of indigenous aquatic animal diseases within the State of Alaska by movement of mariculture species

Possession or transport of any live fish or gametes thereof requires a Fish Transport Permit, as above, the application of which is evaluated regarding various concerns, including finfish or shellfish disease within the stock or brood source on which the permit is approved or denied (5AAC 41.020; 41.030). The definition of a fish includes all invertebrates and amphibians (AS 16.05.940). In addition, disease control is required at hatchery or rearing facilities (5AAC 41.080) through disinfection procedures and yearly hatchery inspections by a qualified fish pathologist. Disease outbreaks must be reported to the Fish Pathology Section which is governed by these

regulations in recommending to the Commissioner the disposition of said diseased fish. Current regulations appear adequate to control movement of finfish and shellfish diseases affecting mariculture practices.

3. Transmission of diseases from cultured finfish or shellfish species to wild stocks

Future mariculture practices would produce no further risk to wild stocks than practices currently employed. Certain disease agents are already ubiquitous in the environment and opportunistic, infecting fish only when they are crowded or stressed artificially by aquaculture practices. Other disease agents which are obligate pathogens could possibly transmit from cultured finfish/shellfish to wild stocks. Although this would be undesirable, most generally clinical disease or catastrophic mortalities do not result in the receiving wild populations due to the lack of stress factors and wide environmental dispersion of host animals.

Although some risk is present now and will be present in future mariculture endeavors, there are adequate, current regulations cited previously for monitoring cultured fish/shellfish stocks for disease, and control of such diseases to protect both wild and other cultured stocks.

4. Environmental contamination by therapeutic drugs or chemicals used in mariculture practices

There are no data on which to evaluate this possibility. However, certain premises suggest that this is an unlikely concern: (1) The great magnitude of dilution of such drugs in the water column would make the final exposure concentration so far below efficacious levels that natural fauna and flora should be unaffected; (2) the infrequency of use would prevent chronic exposure of natural flora; (3) in most instances, a systemic chemotherapeutant is the only practical method to treat a disease affecting thousands of captive fish. Consequently, the drug is administered in the diet and metabolized with very little of the medicated feed left to allow leaching of the drug into ambient water.

Circumstantial information suggests that drugs used in mariculture operations present a negligible risk to the environment.

5. The increasing demand on state pathology laboratories to conduct disease surveillance for private enterprise

will incur additional costs that must be borne by the state in order to maintain control of disease occurrence within cultured and wild stocks of finfish and shellfish.

B. Genetics

ADF&G has a detailed policy statement developed dealing with the issue of genetics, including transportation of stocks and importation of non-indigenous species. Exceptions to this genetics policy will be made on a case-by-case basis. While it appears that there is considerable opportunity for genetic engineering as part of mariculture activities, that field is largely unknown.

IV. PUBLIC HEALTH

The Alaska Department of Environmental Conservation (ADEC) is responsible for ensuring sanitary control and product wholesomeness of all phases of the seafood industry. This responsibility is addressed in 18 AAC 34, the Fish Inspection Regulations.

With regard to the shellfish industry, ADEC certifies all shellfish waters for harvesting on the basis of sanitary quality and public health safety, regulates the harvesting of shellfish, makes laboratory examinations of shellfish and shellfish waters, and restricts the harvesting of shellfish from particular areas in public health emergencies.

Processing of other mariculture products also would be dealt with through existing ADEC regulations to protect the sanitary quality and public health safety of the particular mariculture product.

A. Water Quality

Water quality of a shellfish growing area must meet minimum standards established by the federal Food and Drug Administration, "National Shellfish Sanitation Program (NSSP)." Prior to harvesting a shellfish growing area, ADEC conducts a sanitary and biological survey of the area before approving it to allow shellfish harvesting for sale for human consumption.

The examination is verified by laboratory findings when needed to indicate that pathogenic microorganisms, radionuclides, pesticide chemicals, harmful industrial wastes, and sewage wastes do not reach the area in dangerous concentrations and do not pollute the shellfish in the area.

Laboratory water samples from the sanitary survey are analyzed by the ADEC Palmer Laboratory to ensure that the samples do not exceed standards established by the NSSP.

Factors which may affect water quality are location of nearby pollutant sources, other users of the growing site, vessel traffic, freshwater streams, float houses, human habitation, and point source pollution.

The use of nets treated with tri-n-butyl tin (TBT) has been extensive in Norway and other countries involved in sea farming. This compound is used as an antifoulant to reduce labor costs associated with cleaning nets. Public health concerns have been raised over the use of TBT, a heavy metal.

However, the use of TBT in connection with mariculture in Alaska is not likely to be a problem since the ADEC presently is not approving permit applications for aquaculture operations using TBT-treated nets.

For information on requirements of the "National Shellfish Sanitation Program", refer to the program's Manual of Operations, Part 1. Sanitation of Shellfish Growing Areas, U.S. Department of Health and Human Services, Food and Drug Administration, 1986 Revision.

B. Food Quality of Mariculture Products

ADEC is responsible for ensuring that all seafood products intended for human consumption are wholesome and uncontaminated.

Shellfish (clams, mussels, and oysters) possess the ability to filter and concentrate pathogenic microorganisms and toxic substances from the water. Furthermore, shellfish are packed whole and alive and are often consumed raw or lightly cooked. For these reasons, the public health significance of consuming shellfish for food is very important.

Other mariculture products intended for sale for human consumption would need to be evaluated and protected from potential contamination or adulteration that could result from pathogenic microorganisms and toxic substances.

1. Paralytic shellfish poisoning

Paralytic shellfish poisoning, or "PSP", is a very serious illness caused by poisons concentrated in some varieties of dinoflagellates, a kind of microorganism. Since shellfish feed on these organisms, they can absorb and store the PSP toxin. The presence of PSP in Alaska has been well documented, and shellfish intended for commercial markets must be quarantined and tested for the toxin before being released for sale for human consumption.

Currently, testing for PSP is done through the ADEC laboratory in Palmer. The only test currently certified by the Food and Drug Administration is a mouse bioassay. Research is ongoing at several universities to establish other testing methods for PSP, but none have been certified to date.

2. Coliform testing

The National Shellfish Sanitation Program has minimum coliform standards for shellfish meat that must be met before shellfish can be commercially marketed. The need for actual coliform testing of the meat is determined by an ADEC review of the sanitary survey to see if actual or potential pollution may be present.

3. Sanitation

Harvesting and processing areas must meet state and federal regulations currently in existence to guarantee proper sanitation and product wholesomeness. This includes, for example, separation of raw and finished product, transporting under refrigeration, and holding shellfish during PSP and/or bacterial testing.

V. BROOD STOCKS

Development of dependable, high quality brood stock sources in sufficient quantity to meet initial and long-term needs will be a critical step in providing a strong foundation for mariculture. During the initial phases of growth, general availability of brood and seed sources will likely be a major factor in deciding which species are developed and where development occurs.

Proper protection of Alaska's wild fisheries resources will require the cautious development of mariculture brood sources. Brood stock programs for captive culture for profit populations should follow specific policy guidelines for disease, genetic, indigenous and non-indigenous species issues.

Orderly development of mariculture would be enhanced by adoption of a policy by the State of Alaska to assist in initial access to necessary seed and brood sources from appropriate wild stocks. Over the long term, however, sea farmers should develop captive brood sources for many species. This will be particularly important in brood sources secured from fully allocated common property resources.

Acquisition of brood stocks and seeds also may require changes in statutes and regulations. For instance, the sale of surplus eggs from existing hatcheries to private farmers appears to be prohibited by state law. Legal issues also are raised by the capture of under-sized juveniles, use of gear not authorized in the commercial fishery, captures when the commercial fishery is closed and ability to capture wild brood sources in limited fisheries.

A. Salmon

Most interest in salmon farming in Alaska revolves around chinook and coho stocks. Alaska now has well developed public and private hatchery programs releasing large numbers of smolts of these species. Many of these programs achieve large enough returns to satisfy brood needs, provide catches to common property fisheries and allow terminal area cost recovery harvests. Present performance and estimates of survival rates and other factors suggest that these hatchery programs could provide large enough surpluses of chinook and coho eggs to satisfy the initial needs of a salmon farming industry in Alaska.

The food quality of returning hatchery salmon deteriorates rapidly, and many fish harvested in terminal areas for cost recovery would be more valuable as egg sources for salmon farming. A higher value for cost recovery catches could mean more fish are made available to the common property fisheries. It is estimated that 10 to 20 million surplus chinook and coho eggs per year could be made available for farming purposes under a strategy of allowing cost recovery

egg sales. Statutes would have to be amended to allow surplus egg sales from private or public hatcheries for salmon farming.

B. Trout, Char, Steelhead

There are no current brood stock surpluses in Alaska's hatchery programs for these species. Farming brood stock development for these species probably would be modeled after the conservative, carefully controlled egg take schedules from wild stocks taken already for our existing salmon ranching programs. These salmon egg takes are conducted on the healthiest wild stocks on varied schedules to ensure protection to the donor populations.

C. Non-indigenous Salmonids

Atlantic salmon is the most intensely farmed salmonid in the world. Some British Columbia and Washington State farms are now growing Atlantic salmon, partially because of limited sources of Pacific salmon brood stocks. The State of Alaska's disease and genetics policies and regulations currently prohibit the importation of live salmon or eggs.

D. Black Cod

Present interest in black cod (sablefish) farming is based upon the concept of capturing early life-stage juveniles from wild populations, and growing the fish to marketable size. Farming of black cod is being conducted on an experimental basis in British Columbia. High market prices have created strong competition for Alaska's black cod, and the state's only in-shore fishery already has been limited. Knowledge of this species is somewhat limited, suggesting that black cod farming should proceed cautiously.

E. Oysters

Several oyster farms are presently operating in Southeast with seed spat being imported primarily from Washington. Logistical problems in importing this spat have resulted in significant losses to many operators and remain a primary concern of existing farmers. While it may be necessary to develop an oyster seed hatchery in Alaska to ensure continuous dependable supplies, present sources of spat appear adequate to meet foreseeable demand.

F. Mussels

Mussel farming is based upon the collection of wild spat. In this case, Alaska has an abundant, widely distributed and unutilized resource, and there does not appear to be any biological need for constraints upon collection of wild spat.

G. Scallops

Interest in scallop farming has grown rapidly, particularly in the Kodiak area where a feasibility study is being conducted on collection of weathervane scallop spat using Japanese techniques. The distribution of natural populations is limited, but scallops produce enormous quantities of gametes and continuous collection of wild spat for farming probably won't pose biological or allocation problems.

H. Abalone

Abalone farming in Alaska probably would follow the development of culturing programs in Japan and California where hatcheries are used to produce spat for brood purposes. Competition is strong for Alaska's relatively small abalone resource open to commercial harvest.

VI. RESEARCH AND DEVELOPMENT

The success of mariculture is largely due to progress in three areas: (1) controlled breeding of domesticated broodstock; (2) understanding of the nutritional requirements of cultured organisms; and (3) control and prevention of disease. All three elements are involved in development of any mariculture operation, including shellfish, finfish and sea vegetables. Even if mariculture development is industry-driven in Alaska, there's a major role for government to play in research and development.

A. Broodstock Development

The biggest initial problem facing shellfish farmers in Alaska is location of dependable sources of spat. Indeed, the collection of spat is a major concern of established shellfish farming industries throughout the world. For the short term, the farming of indigeneous shellfish probably will rely upon the capture of wild spat or juvenile animals. Hatchery production of shellfish spat is an option for development of dependable sources for farming operations, but technical obstacles must first be overcome for some species.

The Norwegian success in salmon farming can be partially linked to the establishment of an experimental government genetics laboratory. A variety of salmon stocks were tested for growth characteristics, food conversion, fecundity, disease resistance, maturity schedules and other desired characteristics. The few stocks selected form the basis of an ongoing selection program. The University of British Columbia is undertaking a similar broodstock development program for Canadian farmers using coho hatchery stocks.

Development of salmon farming in Alaska would pose similar needs involving chinook and coho. Broodstock development using hatchery stocks would help guide farmers to the most suitable brood stock sources. Selection of the right broodstock could be critical to the success of fish farming.

B. Fish Nutrition and Dietary Requirements

Since about 60 percent of the production cost of farmed fish is procurement of food and feeding, a successful fish farming industry creates a demand for local production of food. An important research need is experimental work to develop the proper diet for Alaska conditions using ingredients that can be procured locally. While there is substantial agreement to the ratio of fish meal, dry ingredients and the fresh fish components of a diet, it is desirable to utilize stocks of local fish which aren't currently harvested in a commercial fishery. This would create new fishing opportunities and provide raw product to feed mills at low cost. Some waste products from processing plants also can be utilized in fish food.

C. Experimental Facility

A variety of fisheries research programs exist in Alaska, but no single agency has the resources to undertake the research outlined in this document. One potential solution is a coordinated approach to mariculture research involving a number of state and federal programs, resulting in a pooling of talent and financial resources under a single program. An important potential source of operating funds for such an experimental facility could be proprietary research for individuals and companies.

D. Database

Orderly development of a mariculture industry will be assisted by the gathering and organization of solid statistical data on the growth and performance of the industry. This database will be particularly helpful in market development and the growth of in-state support industries. The state could incorporate reporting requirements for quantities of brood or seed, production and product on hand into licensing programs.

VII. TRAINING AND EDUCATION

One of the best methods available to the State of Alaska to encourage a strong resident involvement in mariculture is through education, training and extension service programs. A special effort should be undertaken to make these programs available to residents of coastal communities to ensure local involvement.

Education and training programs should focus on two separate objectives: (1) provide a novice with enough knowledge to allow him or her to embark upon a mariculture business with a reasonable chance of success; and (2) train Alaskans to work as technicians at sea farms or hatchery operations.

A. Components of a Comprehensive Program

The most effective program would provide education and training at all levels: high school, post-secondary, vocational and extension services. High school technical training will serve to inform young Alaskans about jobs and career opportunities in mariculture. Post-secondary mariculture education helps ensure a resident pool of expertise, while vocational-technical courses provide focused education aimed at providing local residents with operational job skills needed by the industry. Extension services are particularly important to residents desiring to develop small scale mariculture operations and support services.

B. Coordination

Components of this comprehensive program are likely to be located throughout Alaska's diverse educational system, including local school districts, University of Alaska, Marine Advisory Program, community colleges, private institutions (Sheldon Jackson College), vocational education programs, and services offered by various governmental agencies (Office of Commercial Fisheries Development, FRED Division). Coordination of these programs could help avoid duplications and identify gaps in programs.

C. Training Areas

Education and training should cover the spectrum of planning, operational and regulatory concerns, including but not limited to physical operations, biological operations, economics, regulatory programs and technology.

1. Physical operations--site selection, physical plant design, equipment, utilities, support services, chemicals, transportation, processing, product quality
2. Biological operations--brood stock acquisition and development, disease management, nutrition, environmental quality
3. Economics--business management, operational costs, supply and demand, marketing, cash flow, financing, short- and long-term financial and operational planning
4. Regulatory--explanation of the regulatory process involving training and applicant manuals, helpful agencies and nonprofit organizations

5. Technology--dispersal of information regarding technological advances in equipment, nutrition, disease and other operational concerns

VIII. TAXES

Development of a clear and stable taxing policy is an important ingredient of governmental response to a developing industry such as mariculture. While municipal taxing authority over locally raised mariculture products appears clear, the applicability of existing seafood taxes levied by the state is uncertain. Clarification of this issue will be important to the state, local governments and prospective farmers alike.

A. Fisheries Business Tax

The Fisheries Business Tax currently imposed on commercially processed or exported seafoods ranges from one to six per cent of the product value at its first point of sale or export. Except for limited circumstances, the tax is based upon the amount paid a harvester by a processing company or broker. If mariculture products were to be taxed under the current structure, most mariculture farmers would be taxed at three per cent of the export product value. In-state sales of fresh product probably would not be taxed.

After studying the statutes and regulations, the Department of Revenue decided it should seek a legal advice from the Department of Law concerning the applicability of the Fisheries Business Tax on mariculture products. The Department is uncertain whether the tax was designed as a severance or product tax. Since state law provides municipalities with 50 percent of the collections of the Fisheries Business Tax within their jurisdiction, the issue is important to local governments.

B. Local Taxing Authority

Recent revisions to Title 29 broadened the taxing authority of local governments. All municipalities appear to have the authority to impose local sales taxes on seafood products purchased or sold within their taxing jurisdictions. Several local governments currently levy such taxes ranging from one to three percent of the initial purchase value.

C. Seafood Marketing Assessment

The Alaska Seafood Marketing Institute is partially funded through the Seafood Marketing Assessment which is a tax applied to processing operations and round fish exports or in limited cases to seafood brokers or distributors. This tax currently is fixed at .2 percent of the initial purchase

or export value. It appears to be applicable to mariculture products.

IX. INVESTMENT INCENTIVES

There appear to be a number of strategies available to the State of Alaska to encourage mariculture investments or influence the composition of the industry. In crafting these strategies, social and economic objectives should be carefully weighed. For instance, local employment and resident ownership may be achieved through divergent policies, and economic stability may come through involvement of a blend of corporate and family farming operations.

Large corporations or companies desiring to develop mariculture operations generally have access to venture capital through existing collateral bases or established relationships with financial institutions. These investors also can afford to hire experienced professionals to craft a financial prospectus, deal with difficult regulatory processes or manage a farm. Individual Alaskans interested in small to moderate farms generally lack the collateral base, trust of financial institutions and operational experience. These competitive disadvantages can be partially offset through non-conventional financing and other incentives designed to encourage resident investment.

Important to note is that other countries with developed mariculture industries have used combinations of incentives and regulatory devices to achieve socio-economic goals. Examples can be found in Norway where the government has restricted production size of salmon farms and extended licensing preference to local residents to encourage small operations in rural locations. These policies are directed at reversing population migrations to urban areas. The Japanese government has actively encouraged the development of cooperative farms involving local residents of coastal communities who often combine fishing and farming activities.

A. Regulatory/Political Climate

A clear policy supporting and encouraging mariculture development throughout the state's regulatory structure is perceived to be extremely vital to the growth of sea farming. A strong governmental policy supporting salmon farming has been critical to the rapid development of pen-rearing operations in British Columbia. This also has been true in Hawaii, Japan and Norway. Conversely, the growth of salmon farming in Washington State has been hampered by confusing and conflicting policies between various state agencies and county governments.

B. Taxes

A major attraction to venture capital in the British Columbia salmon farming industry has been a government program allowing tax-free profits up to \$500,000 (Canadian currency) from qualified farming investments. This policy helped attract millions of dollars in investment capital. This avenue would be open to the State of Alaska through amendments to its corporate tax laws.

If the Fisheries Business Tax is applied to mariculture products, another potential incentive available to the state would be tax credits or a temporary moratorium on Fisheries Business Taxes on new facilities. A model for a tax credit program could be found in legislation approved by the 1986 Legislature. The legislation (House Bill 58) was designed to encourage the building of new shore-based processing facilities, expansion of existing plants, diversification of product lines, and improvement of product quality. This incentive also could be accomplished by a moratorium on the Fisheries Business Tax during the first years of production of a new farming operation.

C. Non-conventional Financing

The state could encourage resident involvement in mariculture through establishment of a state loan program or loan guarantee fund. These non-conventional financing arrangements could be geared toward small to medium sized projects to qualified Alaskans. This program could potentially be targeted to assist residents of economically depressed rural communities. Non-conventional financing could be particularly important to family-sized mariculture operations.

Another option could be to focus on amendments to national agricultural loan funds to include financing for small-scale mariculture projects.

D. Non-cash Incentives

Another method to entice investment capital is through long term tideland leases, water rights and lease or grants of state-owned uplands for staging facilities. These non-cash incentives and tax advantages could be offered to firms which meet certain state objectives, such as employment of residents from areas of high unemployment or with commercial fishing backgrounds, or providing equity participation by Alaskans.

X. MARKET DEVELOPMENT

Although overall consumer demand for high quality seafood is

strong and growing, a critical factor to development of a strong, diversified mariculture industry is establishment of specific market channels. This market development ideally occurs before farms reach the production stage, so farmers don't end up with products at the marketing stage that cannot be sold. Failure rates in mariculture can be affected by the early establishment of market development programs.

A. Market Information

A large body of knowledge exists concerning seafood quality and marketing of Alaska products. While most is directed at products of wild origin, much of the information also will be applicable to cultured seafood. The information has not been gathered in an easily accessible format that could benefit prospective sellers of cultured--or wild--seafood products. Consequently, each interested individual must invest significant amounts of time and energy into essentially duplicative research.

B. Market Research

A good market research program would focus on development of specific market-related information on target species prior to commercial production. Critical market problems and opportunities should be identified for each species on a priority basis.

C. Alternative Markets

Cultured seafood products may not follow existing marketing channels, forcing farmers to focus on development of specialty or select markets. In analogous situations this need has led to the creation of private marketing entities conducting common promotion and assuming direct involvement in the sales process.

D. Quality

A primary benefit of cultured seafood is the relative ease of providing consistently high quality products. The early development of minimum and target quality standards for each product would benefit pioneering farmers and prevent problems as the industry grows and operational patterns are developed.

E. Transportation

The cost of moving product to market will play a significant role in siting of farms and market price of the finished product. Concentration of Alaska's mariculture activities or development of innovative transportation systems will help allow economies of scale in shipping and make Alaska cultured seafood price competitive.

F. Generic Promotion

The Alaska Seafood Marketing Institute's programs are designed to promote the benefits of all Alaska seafood products and do not make such distinctions as "troll-caught" or "net-caught," and "wild" or "cultured." However, some differentiations are possible under ASMI's enabling statutes but must not create competitive advantages for specific companies or regions of the state. ASMI promotions are determined by its industry board of directors which generally allocates the promotional budget in proportion to the value of Alaska's seafood production sold in U.S. markets. These amounts are adjusted to reflect market conditions and other factors.

XI. POLICY AND ADMINISTRATION

As outlined in this document, government will play a major role in the development of an Alaska mariculture industry. The specific roles of state agencies in that process will be determined through policy direction from the governor and legislature. One critical policy decision will be the determination of how the various agencies involved should interact, and whether a lead agency for mariculture should be designated. In determining the appropriate governmental structure, it might be useful to view the primary functions of agencies in terms of development advocacy and regulatory functions.

A. Lead Agency

A leading U.S. aquaculture law specialist brought to Alaska in early 1986 to discuss mariculture development strongly recommended the designation of a lead agency. The lead agency should be a development advocate with the ability to pull together state, local, federal and private resources to ensure success. The goal for this lead agency would be to streamline the permitting process and strengthen advocacy programs, while the objective would be to put Alaskans to work and create new wealth with the sale of a finished product.

While this concept is sound, the present structure of state agencies do not easily facilitate a lead agency with both advocacy and regulatory functions. The Department of Commerce and Economic Development has a strong advocacy program, but lacks regulatory jurisdiction and staffing. This also is the case with the Department of Community and Regional Affairs. At the same time, the resource agencies (DNR, ADEC and ADF&G) and the Division of Governmental Coordination in the Office of Management and Budget have strong regulatory and permitting functions but lack economic development staffs.

The present structure of state government might be more easily adapted to a cooperative approach with lead advocacy and permitting agencies. This concept would have prospective farmers making initial contacts at the lead advocacy agency which would in turn provide permitting road maps directing applicants to the proper lead permitting agency.

B. Policy Development

Regardless of which agency is considered lead, the parade should be led by a strong, clearly articulated state policy regarding mariculture development. This policy should give clear guidance to the agencies for making such value judgments as:

- (1) The balance between creation of jobs and the maximum amount of industrial capital.
- (2) Balance of environmental protection and economic development.
- (3) The importance of mariculture as a use of state tidelands and uplands.
- (4) Role of mariculture in efforts to diversify Alaska's economy.
- (5) Weight of specific social objectives (local employment, Alaska equity, tax revenues, etc.).
- (6) Recovery of private wealth created from common property resources.

Resource Development Council for Alaska, Inc.

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Senator Frank Murkowski
Congressman Don Young

March 2, 1987

The Alaska Legislature
Juneau, AK 99811

re: Mariculture legislation

Dear Alaska Legislator:

The Resource Development Council supports HB 108 and SB 106 as a means of diversifying the seafood industry and creating resident employment through mariculture development. It is important that we have legislation in place which addresses all types of mariculture projects.

Existing law bans many forms of aquatic farming in Alaska. We must legalize all shellfish, sea vegetable and finfish operations if we are to take advantage of the market opportunities that mariculture presents.

Mariculture products compete in markets completely separate from commercially caught and processed seafood products. By penetrating these new markets and introducing consumers to new, high-quality Alaska seafood products, all Alaska seafoods will benefit from a more positive image.

Mariculture operations require full-time, year-round labor forces. Not all regions of the state will be suitable for mariculture, but where it is feasible, it can provide a much-needed expansion and stabilization of local employment. For some communities where traditional fisheries are declining and little or no opportunities exist in other industries, mariculture may be the brightest spot on the horizon.

HB 108 and SB 106 provide a framework within which all areas of mariculture can be developed with concern for the environment and existing fishery activities. The Resource Development Council supports passage of these bills to help diversify and stabilize Alaska's economy.

Sincerely,

RESOURCE DEVELOPMENT COUNCIL
for Alaska, Inc.


Paula P. Easley
Executive Director

**SOUTHERN SOUTHEAST REGIONAL
AQUACULTURE ASSOCIATION, INC.**

1621 Tongass Ave., #103

(907) 225-9605

Ketchikan, Alaska 99901

Senator Dick Eliason
Alaska State Legislature
P.O. Box V
Juneau, AK 99801

March 4, 1987

Dear Senator Eliason:

I am writing to encourage you to oppose those portions of Senate Bill 106, "an act relating to aquatic farming" that address the private pen rearing of salmon. The Board of Directors of the Southern Southeast Regional Aquaculture Association (SSRAA) urges you to exempt salmon from this act. The reasons for opposing this act are:

- (1) The state of Alaska is already actively and successfully practicing salmon mariculture and, therefore, the proposed legislation for salmon is not needed.
- (2) The act will create limited economic and user benefits for Alaskans.
- (3) The act will create negative competition with private nonprofit aquaculture corporations and commercial user groups.
- (4) The act will place the current nonprofit aquaculture program at risk.
- (5) The net effect of the act would have a negative impact on state employment opportunities.

The Alaska legislature passed an act in 1974 that authorized the private ownership of salmon hatcheries by qualified nonprofit corporations. Following legislation in 1976 that authorized the formation of Regional Aquaculture Associations, SSRAA as well as other Regional Aquaculture Associations, incorporated and initiated projects to contribute, by artificial means, to the rehabilitation of the state's depleted and depressed salmon fishery. A common practice in operating salmon enhancement

PRIVATE NON PROFIT HATCHERIES

S.S.R.A.A.

projects is to short-term rear the salmon in marine net pens before releasing them to migrate to the sea. The major difference in pen farmed salmon and those produced by private nonprofit corporations (PNP) is that salmon produced by PNP corporations are grown in the open ocean and harvested by the common property fishery; whereas, those produced by pen farming are never released and are grown to harvest size in the net pens.

Those salmon produced by PNP corporations are harvested by the common property fishery providing economic benefit to all user groups, including recreational fishermen, commercial fishermen, processors, subsistence fishermen, the visitors, and all segments of the community. This program is just ten years old and is still developing. The benefits are now being realized and there is still much growth potential. Pen culture of salmon, however, will benefit just a few individuals and mostly large corporations. Experience from Oregon and Washington has shown that most small operations will fail.

If netpen culture of salmon becomes part of the mariculture bill, it will create competition with the PNP corporations for sites. The availability of suitable sites for further expansion of the PNP corporations will be reduced because they will be occupied by the netpen farmers.

Salmon farming would also compete for the available broodstock. Chinook salmon have been determined to be the most desirable. Currently, these broodstocks are being used to supply the expanding enhancement programs of the state and PNP corporations as well as for the rebuilding of the Alaskan wild stocks. Further demand for chinook eggs or other salmon eggs by salmon pen farmers would reduce the current production levels or come from the reduction in harvest in our wild stocks. This would result in fewer salmon being released or harvested to provide the broodstock for salmon farmers. This is undesirable in view of the U.S./Canada treaty and the quota imposed on Alaskan fishermen. This current situation exists in Canada in which the rush for salmon farms has created demand for 38 million chinook eggs from a surplus supply of only 1.3 million.

At present, the PNP programs are providing the broadest economic benefit to all Alaskans and the potential exists for further expansion. The state has already made a financial commitment of over \$40 million in the enhancement loan fund to help assure the success of the PNP corporations, and now that the PNP corporations are becoming established they are investing large amounts of their own funds for further growth. Why should the state risk the success of the current PNP program for a questionable unproven salmon farm program? Where is the most benefit to Alaskan residents?

It has been proposed that salmon farming will provide year-round employment. The current PNP corporations are already doing this and are capable of expanding. Just how many new jobs will salmon farming create and how many will be lost from the current user groups? Where is the net benefit?

S.S.R.A.A.

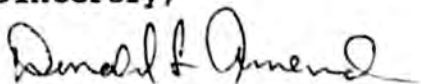
It has been proposed that farmed salmon are superior to commercially harvested salmon because farmed salmon can be provided all year long. It has also been argued that Alaska should enter this market because it is already happening around the world. Technology has vastly improved the frozen products, and the commercial fishermen and processors have made considerable improvements in handling salmon to keep them fresh. Continued improvements will diminish the argument about freshness; furthermore, Alaska has a developing winter king salmon fishery which will continue to provide year-round fresh salmon. The solution for Alaskans is to maintain a high volume of salmon to remain competitive, not more farm raised salmon which will directly compete in the market place with our commercial salmon. The PNP corporations are in the best position to provide a continued high harvest level which contributes to the economic benefit to the most Alaskans. Alaska is not going to lose its productivity for salmon as other countries have.

If it is desirable to pen rear salmon, why must it be by profit corporations? Alaska determined ten years ago that salmon production should be nonprofit. What has changed in the last ten years? If absolutely necessary, the PNP corporations are already capable of salmon farming. Salmon farming by PNP corporations could be used to help offset cost recovery needs and help repay the state loans. There is no need to have profit salmon farming.

The enclosed tables show the production record of SSRAA since 1984 and forecast the harvest through 1992, assuming the current production capabilities. SSRAA started operations in 1978 and released the first production in 1980. In this short period, the harvest has had a significant impact on the commercial fishery and the recreational benefits near Ketchikan have improved dramatically. The future promises even more benefits and this is the record of only one PNP corporation.

In conclusion, I again emphasize that Senate Bill 106 is not needed for salmon farming and salmon should be excluded from the bill. The potential for salmon farming already exists in the PNP corporations and, in fact, private salmon farming could negatively impact the future success of the existing PNP program which has a broad economic benefit to Alaskans. Your help to exempt private salmon farming from Senate Bill 106 would be greatly appreciated.

Sincerely,



Donald F. Amend
General Manager

Enclosures

cc: Alaska Trollers Association
Southeast Alaska Seine Boat Owners and Operators
United Southeast Alaska Gillnetters Association

1986 ADULT RETURNS

16-Feb-87

Species	Location	Brood	SSRAA Harvest	SHA Harvest	Sport Harvest	Commercial Harvest	Total
Chinook	Neets Bay	2,500	1,282	590	1,500	5,700	11,572
	Whitman Lake	559	0	0	100	100	759
	Subtotal	3,059	1,282	590	1,600	5,800	12,331
summer chum	Nakat	10,100	540	0	0	81,103	91,743
	Neets Bay	16,000	15	430	0	21,503	37,948
	Subtotal	26,100	555	430	0	102,606	129,691
fall chum	Neets Bay	47,885	94,218	49,677	0	40,550	232,330
coho	Whitman Lake	6,227	28,823	0	2,556	107,700	145,306
	Neets Bay	22,530	41,568	4,613	4,047	158,000	230,758
	Subtotal	28,757	70,391	4,613	6,603	265,700	376,064
TOTAL		105,801	166,446	55,310	8,203	414,656	750,416
PERCENT		14.1	22.2	7.4	1.1	55.3	

	TERMINAL	COMMON PROPERTY
Number	272,247	478,169
Percent	36.3	63.7

SSRAA FRY/SMOLT RELEASE

	1980	1981	1982	1983	1984	1985	1986	1987 GOAL
COHO								
W.L.	196,000	224,300	219,400	208,000	300,500	856,600	234,200	150,000
N.B.	280,000	560,000	340,000	980,000	950,000	2,153,000	2,356,000	2,300,000
E.W.C.	0	0	0	94,000	0	0	100,300	200,000
NAKAT	0	0	0	0	0	0	99,000	90,000
SUBTOTAL	476,000	784,300	559,400	1,282,000	1,266,500	3,009,600	2,789,500	2,740,000
CHINOOK								
W.L.	0	0	145,500	0	0	27,200	119,000	90,000
N.B.	0	0	0	135,000	144,000	231,400	930,000	750,000
C.I.	0	0	0	0	0	0	51,000	800,000
E.W.C.	0	0	0	0	0	0	97,500	300,000
SUBTOTAL	0	0	145,500	135,000	144,000	258,600	1,197,500	1,940,000
S. CHUM								
NAKAT	1,342,000	3,145,000	5,078,000	6,240,000	0	4,840,000	4,100,000	4,000,000
N.B.	0	0	0	1,146,100	2,844,000	8,300,000	9,500,000	9,000,000
E.W.C.	0	0	0	0	0	0	1,219,000	1,500,000
SUBTOTAL	1,342,000	3,145,000	5,078,000	7,386,100	2,844,000	13,140,000	14,819,000	14,500,000
FALL CHUM								
NAKAT	0	0	0	0	0	10,040,000	2,360,000	3,500,000
N.B.	1,348,000	15,437,200	8,272,900	14,600,000	24,500,000	31,900,000	17,015,000	33,000,000
SUBTOTAL	1,348,000	15,437,200	8,272,900	14,600,000	24,500,000	41,940,000	19,375,000	36,500,000
SOCKEYE	0	0	0	0	0	0	102,000	100,000
GRAND TOTAL	3,166,000	19,366,500	14,955,800	23,403,900	28,834,500	58,356,200	38,283,000	55,780,000
ZEROS								
COHO								
W.L.	0	0	0	0	153,000	0	0	0
N.B.	0	0	0	0	754,000	0	0	0
TOTAL	0	0	0	0	907,000	0	0	0
CHINOOK								
W.L.	0	0	0	0	0	12,600	0	0
N.B.	0	0	0	0	205,900	407,200	2,300,000	1,500,000
C.I.	0	0	0	0	0	0	290,000	250,000
TOTAL	0	0	0	0	205,900	419,800	2,590,000	1,750,000

NUMBER OF FISH - ALL SPECIES

GEAR GROUP	ACTUAL			05-Mar-87					
	1984	1985	1986	1987	1988	1989	1990	1991	1992
TROLL	45,294	73,600	196,603	137,650	155,018	180,234	202,273	210,092	210,092
SEINE	372,451	185,412	136,042	209,969	296,242	287,651	468,934	660,016	675,841
GILLNET	90,300	128,200	116,505	131,891	227,748	278,563	455,842	651,965	692,891
SHA-NEETS BAY	465,142	145,826	138,060	494,165	647,377	573,857	857,271	1,006,649	984,009
TOTAL	973,187	533,038	587,210	973,675	1,326,385	1,320,305	1,984,320	2,528,722	2,562,833

*SSRAA ONLY

SHA OTHER SITES	5,000	3,000	35,050	23,378	99,585	92,871	195,302	240,606	257,818
GRAND TOTAL	978,187	536,038	622,260	997,053	1,425,970	1,413,176	2,179,622	2,769,328	2,820,651

VALUE OF ALL GEAR GROUPS

GEAR GROUP	ACTUAL			05-Mar-87					
	1984	1985	1986	1987	1988	1989	1990	1991	1992
TROLL	\$706,400	\$788,100	\$2,057,882	\$1,584,202	\$1,944,104	\$2,865,645	\$3,801,123	\$4,148,740	\$4,200,000
SEINE	\$1,361,000	\$794,700	\$796,397	\$1,153,555	\$1,596,739	\$1,630,651	\$2,616,512	\$3,659,142	\$3,749,561
GILLNET	\$464,900	\$647,800	\$691,067	\$752,034	\$1,393,784	\$1,457,485	\$2,123,129	\$3,176,287	\$3,455,539
TOTAL	\$2,532,300	\$2,230,600	\$3,545,346	\$3,489,791	\$4,934,627	\$5,953,781	\$8,540,764	\$10,984,169	\$11,405,100

SSRAA PRODUCTION ALL S.E. ALASKA

TROLL-2	28%	35%	58%	45%	39%	48%	45%	38%	37%
SEINE-2	54%	36%	22%	33%	32%	27%	31%	33%	33%
GILLNET-2	18%	29%	19%	22%	28%	24%	25%	29%	30%



JOSEPH W. GELDHOF

ASSISTANT ATTORNEY GENERAL

STATE OF ALASKA
DEPARTMENT OF LAW
CIVIL DIVISION

(907) 465-3600 POUCH K
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JUNEAU, ALASKA 99811

IN THE SUPERIOR COURT FOR THE STATE OF ALASKA
FIRST JUDICIAL DISTRICT AT JUNEAU

WILDERNESS ACQUISITIONS, INC.,)
an Alaska corporation,)
Appellant,)
v.) No. 1 JU 86-2429 Civ.
ALASKA DEPARTMENT OF NATURAL)
RESOURCES,)
Appellee.)

AFFIDAVIT OF SERVICE

STATE OF ALASKA)
: ss.
FIRST JUDICIAL DISTRICT)

JEAN FEAKES, being first sworn, deposes and says:

I am a citizen of the United States of America, over the age of 19 years, and not a party to this proceeding; I am a legal secretary in the Office of the Attorney General, Juneau, Alaska; on April 15, 1987, I personally gave a correct copy of the BRIEF OF APPELLEE, DEPARTMENT OF NATURAL RESOURCES (with attachments, Appendix A and AFFIDAVIT OF STEVEN PENNOYER (An unsigned copy of Mr. Pennoyer's affidavit is being filed as he is out of town. The original signed affidavit will be submitted to the court and Appellant's attorney on April 16, 1987 when Mr.

/////

/////

/////

/////

1 Pennoyer returns to Juneau.) in this proceeding to the
2 following: Jan Van Dort, 603 East 4th Street, Juneau, AK 99801
3

4 Jan Feakio

5 SUBSCRIBED AND SWORN TO before me this 15th day of
6 April, 1987.

7 Lance L Baker

8 Notary Public, State of Alaska
9 My commission expires: 5/9/87

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ATTORNEY GENERAL, STATE OF ALASKA
STATE CAPITOL
P.O. BOX K, JUNEAU, ALASKA 99811
PHONE 465-3600

IN THE SUPERIOR COURT FOR THE STATE OF ALASKA
FIRST JUDICIAL DISTRICT AT JUNEAU

WILDERNESS ACQUISITIONS, INC.,)
an Alaska corporation,)
Appellant,)
v.) No. 1 JU 86-2429 Civ.
ALASKA DEPARTMENT OF NATURAL)
RESOURCES,)
Appellee.)
(DC))

APPEAL FROM THE DECISION OF THE STATE OF ALASKA,
DEPARTMENT OF NATURAL RESOURCES

BRIEF OF APPELLEE, DEPARTMENT OF NATURAL RESOURCES

GRACE BERG SCHAIBLE
ATTORNEY GENERAL

By:

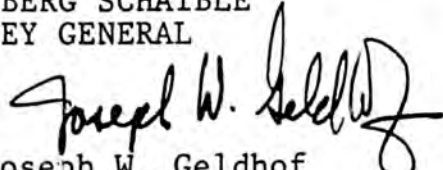

Joseph W. Geldhof
Assistant Attorney General
for Appellee
Department of Law
P.O. Box K
Capitol Building
Juneau, AK 99811

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STATUTORY AND OTHER PROVISIONS PRINCIPALLY INVOLVED

AS 46.15.010. DETERMINATION OF WATER RIGHTS. The Department of Natural Resources shall determine and adjudicate rights in the waters of the state, and in its appropriation and distribution.

AS 46.15.020. AUTHORITY AND DUTIES OF THE COMMISSIONER.

(a) The commissioner shall exercise all those powers and do all those acts necessary to carry out the provisions and objectives of this chapter. The commissioner may

(1) enter into contractual agreements necessary to carry out the provisions of this chapter including agreements with federal, state and local agencies;

(2) apply for, accept, administer and expend grants, gifts, and loans from the federal government and any other public or private sources for the purposes of this chapter, and adopt procedures and do acts not otherwise restricted by law which are necessary to qualify the state to receive grants, gifts and loans;

(3) establish a division of water in the Department of Natural Resources and assign to that division the responsibility for carrying out the provisions of this chapter.

(b) The commissioner shall

(1) adopt procedural and substantive regulations to carry out the provisions of this chapter, taking into consideration the responsibilities of the Department of Environmental Conservation under AS 46.03 and the Department of Fish and Game under AS 16;

(2) keep a public record of all applications for permits and certificates and other documents filed in his office; and shall record all permits and certificates and amendments and order affecting them and shall index them in accordance with the source of the water and the name of the applicant or appropriator;

(3) cooperate with, assist, advise and coordinate plans with the federal, state and local agencies in matters relating to the appropriation, use, conservation, quality, disposal or control of waters and activities related thereto;

(4) prescribe fees or service charges for any public service rendered.

AS 46.15.030. WATERS RESERVED TO THE PEOPLE. Wherever occurring in a natural state, the waters are reserved to the people for common use and are subject to appropriation and beneficial use and to reservation of instream flows and levels of water, as provided in this chapter.

AS 46.15.040. RIGHT TO APPROPRIATE. (a) A right to appropriate water can be acquired only as provided in this chapter. No right to the use of water either appropriated or

1 unappropriated shall be acquired by adverse use or possession.

2 (b) A right to appropriate water shall be obtained by
3 first making application to the commissioner for a permit to
4 appropriate. The commissioner shall by regulation prescribe the
5 form and contents of the application and the procedure for
6 filing the application. If a permit is granted and the means of
7 appropriation is constructed, a certificate of appropriation may
8 be obtained.

9 (c) All applications to the commissioner for a permit to
10 appropriate water, filed subsequent to July 1, 1986, shall be
11 considered as having been simultaneously filed with the
12 Department of Fish and Game under AS 16 and the Department of
13 Environmental Conservation under AS 46.03.

14 (d) The commissioner's issuance of a permit under
15 AS 46.15.080 or of a certificate under AS 46.15.065 or 46.15.120
16 does not represent a guarantee by the state in the permittee or
17 certificate holder that water will be available for
18 appropriation at a certain volume, quality, artesian pressure,
19 or cost. This subsection does not, however, alter the right a
20 permittee or certificate holder may have against a later
21 appropriator, including a government agency.

22 AS 46.15.050. PRIORITY. (a) Priority of appropriation
23 gives prior right. Priority of appropriation does not include
24 the right to prevent changes in the condition of water
25 occurrence, such as the increase or decrease of stream flow, or
26 the lowering of a water table, artesian pressure, or water
level, by later appropriators, if the prior appropriator can
reasonably acquire his water under the changed conditions.

(b) Priority of appropriation made under this chapter
dates from the filing of an application with the commissioner.

(c) Priority of appropriation perfected before July 1,
1966, shall be determined as provided in AS 46.15.065.

AS 46.15.080. CRITERIA FOR ISSUANCE OF PERMIT. (a) The
commissioner shall issue a permit if he finds that

(1) rights of a prior appropriator will not be unduly
affected;

(2) the proposed means of diversion or construction
are adequate;

(3) the proposed use of water is beneficial; and

(4) the proposed appropriation is in the public
interest.

(b) In determining the public interest, the commissioner
shall consider

(1) the benefit to the applicant resulting from the
proposed appropriation;

- (2) the effect of the economic activity resulting from the proposed appropriation;
- (3) the effect on fish and game resources and on public recreational opportunities;
- (4) the effect on public health;
- (5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation;
- (6) harm to other persons resulting from the proposed appropriation;
- (7) the intent and ability of the applicant to complete the appropriation; and
- (8) the effect upon access to navigable or public waters.

AS 46.15.090. PREFERENCE IN GRANTING PERMITS. When there are competing applications for water from the same source, and the source is insufficient to supply all applicants, the commissioner shall give preference first to public water supply and then to the use which alone or in combination with other foreseeable uses will constitute the most beneficial use.

AS 46.15.100. TERMS OF PERMIT. The commissioner may grant a permit for less than the amount of water requested, but in no case may he issue a permit for more water than can be beneficially used for the purposes stated in the application. He may require modification of plans and specifications for the appropriation. He may issue a permit subject to terms, conditions, restrictions, and limitations he considers necessary to protect the rights of others, and the public interest. However, the permit shall be subject to termination only as provided in this chapter.

AS 46.15.110. TIME FOR CONSTRUCTION AND COMPLETION. A permit may place a time limit for beginning construction and perfecting appropriation. Reasonable extensions of time shall be permitted for good cause shown.

AS 46.15.133. NOTICES; OBJECTIONS. (a) Upon receipt of an application, the commissioner shall prepare a notice containing the location and extent of the proposed appropriation, the name and address of the applicant and other information he considers pertinent. The notice shall state that within 15 days of publication or service of notice, persons may file with the director written objections, stating the name and address of the objector, and any facts tending to show that rights of the objector or the public interest would be adversely affected by the proposed appropriation.

(b) The commissioner shall publish the notice at the applicant's expense in one issue of a newspaper of general distribution in the area of the state in which the water is to

1 be appropriated. The commissioner shall also have notice served
2 personally or by certified mail upon an appropriator of water or
3 applicant for or holder of a permit who, according to the
4 records of the division of lands, may be affected by the
5 proposed appropriation and may serve notice upon any
6 governmental agency, political subdivision or person; notice
7 shall also be served upon the Department of Fish and Game and
8 the Department of Environmental Conservation.

9 (c) Within 15 days of publication or service of notice, an
10 interested person may file an objection. The commissioner may
11 hold hearings upon giving due notice and shall grant, deny, or
12 condition the application in whole or in part within 30 days of
13 receipt of the last objection or, if the commissioner elects to
14 hold hearings, within 180 days of receipt of the last objection.
15 Notice of the order or decision shall be served personally or
16 mailed to any person who has filed an objection.

17 (d) If no objection is filed, the commissioner may proceed
18 to make his determination upon the application.

19 (e) A person aggrieved by the action of the commissioner
20 or by the failure of the commissioner to grant, deny, or
21 condition an application in accordance with (c) of this section
22 may appeal to the superior court.

23 (f) The commissioner may, by regulation, designate types
24 of appropriations which are exempt from this section and provide
25 simplified procedures for ruling on the applications.

26 AS 46.15.145. RESERVATION OF WATER. (a) The state, an
agency or a political subdivision of the state, an agency of the
United States or a person may apply to the commissioner to
reserve sufficient water to maintain a specified instream flow
or level of water at a specified point on a stream or body of
water, or in a specified part of a stream, through a year or for
specified times, or

(1) protection of fish and wildlife habitat,
migration, and propagation;

(2) recreation and park purposes;

(3) navigation and transportation purposes; and

(4) sanitary and water quality purposes.

(b) Upon receiving an application for a reservation under
this section, the commissioner shall proceed in accordance with
AS 46.15.133.

(c) The commissioner shall issue a certificate reserving
the water applied for under this section if he finds that

(1) the rights of prior appropriators will not be
affected by the reservation;

(2) the applicant has demonstrated that a need exists
for the reservation;

(3) there is unappropriated water in the stream or
body of water sufficient for the reservation; and

(4) the proposed reservation is in the public
interest.

(d) After the issuance of a certificate reserving water, the water specified in the certificate shall be withdrawn from appropriation and the commissioner shall reject an application for a permit to appropriate the reserved water.

(e) A reservation under this section does not affect rights in existence on the date the certificate reserving water is issued.

(f) At least once each 10 years the commissioner shall review each reservation under this section to determine whether the purpose described in (a) of this section for which the certificate reserving water was issued and the findings described in (c) of this section still apply to the reservation. If the commissioner determines that the purpose, or part or all of the findings, no longer apply to the reservation, the commissioner may revoke or modify the certificate reserving the water after notice, hearing when appropriate, and a written determination that the revocation or modification is in the best interests of the state.

AS 46.15.150. PREFERRED USE. (a) An applicant who asserts and proves a preferred use shall be granted a permit and shall be granted preference over other appropriators. A preferred use of water is for a public water supply.

(b) To be entitled to a preference an applicant must show that his use will be prevented or substantially interfered with by a prior appropriation; the use is a preferred use; the applicant agrees to compensate a permit or certificate holder for the prior appropriation for any damages sustained by the preferred use, and other information which the commissioner requires by regulation.

6 AAC 50.060. SCOPE OF PROJECT TO BE REVIEWED. The scope of activities which are to be reviewed for consistency with the ACMP as part of a project will be determined based on statements of the applicant, the information provided in the coastal project questionnaire, and any additional information which DGC or a resource agency finds necessary to request. If there is disagreement among the agencies, DGC will make the final decision. If DGC determines that a project under review by a resource agency is one requiring a federal permit, or the permits of two or more state agencies, DGC will immediately notify the applicant and the resource agency that the consistency review will be coordinated by DGC, and will commence as provided in 6 AAC 50.070 when DGC has received completed applications for all necessary permits and a completed coastal-project questionnaire.

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1 Alaska Const. art. VIII, sec. 3

2 Section 3. COMMON USE. Wherever occurring in their
3 natural state, fish, wildlife, and waters are reserved to the
4 people for common use.
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JURISDICTIONAL STATEMENT

This is an appeal from the decision of the commissioner of the Alaska Department of Natural Resources (DNR), Esther Wunnicke, entered October 14, 1986 (R. 107-114). The decision by the commissioner stemmed from a previous decision by the director of the DNR Division of Land and Water denying appellant Wilderness Acquisitions, Inc.'s (WAI) application for a permit to appropriate water (R. 85-86).

Notice of appeal from the decision by the DNR commissioner was filed on November 14, 1986, within the time prescribed by Alaska Appellate Rule 602. Jurisdiction of the superior court is proper based on Appellate Rule 601-607.

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ISSUE PRESENTED FOR REVIEW

The State of Alaska concurs with WAI's statement that the only issue presented for review in this appeal is whether the DNR commissioner acted in an unreasonable, arbitrary or capricious manner, contrary to law or beyond the scope of administrative authority in denying WAI's application for a permit to appropriate water.

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STATEMENT OF THE CASE

A. FACTS

Appellee, State of Alaska, Department of Natural Resources (Alaska) disagrees with portions of the factual submission contained in WAI's opening brief (Appellant's Brief at 1-5). The facts in this dispute are relatively simple. Unfortunately, many of the facts in the brief submitted by WAI and especially the materials which have implications and overtones pertaining to the legality of mariculture are not germane to the instant appeal. The relevant facts leading to the decision by Alaska to deny WAI's application for a permit to appropriate water are straight forward.

On November 18, 1985 Alaska received an application from WAI for a permit to appropriate water from Baranof Lake (R. 10-19). The application requested water rights for several ill-defined activities, including a king salmon hatchery project, power generation and certain other purposes. This application for a permit to appropriate water was date stamped but never serialized nor assigned a DNR Land Administration System (LAS) case file number (R. 113) prior to WAI's request to amend on December 20, 1985.

This initial WAI application for a permit to appropriate water was made with respect to proposed activities located near the head of Warm Springs Bay, a small bay on the east side of Baranof Island in the Alexander Archipelago. WAI apparently intended to appropriate water from Baranof Lake.

1 This lake feeds the Baranof River which flows in an easterly
2 direction before joining the saltwater at the head of Warm
3 Springs Bay. (R. 100). It was WAI's apparent desire to
4 construct an aquaculture facility in, at, or near Warm Springs
5 Bay. (R. 100-101). Warm Springs Bay has been described by the
6 Alaska Department of Fish and Game as "probably the best
7 undeveloped large-scale hatchery site left in southeastern
8 Alaska" (R. 100).

9 In furtherance of WAI's desire to construct some as
10 yet undefined aquaculture facility in, at or near Warm Springs
11 Bay, a second and third application for a permit to appropriate
12 water were received by Alaska from WAI on December 20, 1985.
13 These additional applications were respectively numbered LAS
14 4068 (R. 28-44) and LAS 4069 (R. 115-131). The new applications
15 were related to various water uses; to increase the amount of
16 water requested; to replace the incomplete November 18
17 application for a permit to appropriate water; and for a power
18 generation facility respectively (R. 112). The first of these
19 new applications for a permit to appropriate water related to a
20 "world class" smolt hatchery was serialized using State of
21 Alaska, DNR LAS 4068 and is the subject of the current dispute. 1/

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23
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25 1/ As background, the various complete and incomplete permit to
26 appropriate water applications pertaining to water from the
(Footnote Continued)

1 LAS 4068 and LAS 4069 were identified as replacing the
2 November 18 application and forwarded (R. 45) to the Office of
3 Management and Budget, Division of Governmental Coordination
4 (DGC), the agency statutorily assigned responsibility for
5 determining whether WAI's proposed activities were consistent
6 with the Alaska Coastal Management Program (ACMP) (R. 112).

7 On June 2, 1986 DGC narrowed the scope of WAI's
8 project proposal and limited the consistency review to the water
9 appropriation issue based on 6 AAC 50.060. This action was
10 taken at the request of WAI in order to expedite decision-making
11 by Alaska. (R. 110).

12 At this point Alaska was required to determine
13 pursuant to AS 46.15.090 among four competing applications for
14 use of a limited water resource. Two of the four competing use
15 applications for a permit to appropriate water pertained to use
16 of water in a hatchery. For biological as well as water
17 availability considerations, the Warm Springs Bay site could
18 only support one such proposed facility. Accordingly, DNR
19 needed to assess which of the two hatchery development proposals
20 would be authorized and permitted to operate by the Alaska
21 Department of Fish and Game.

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25 (Footnote Continued)
26 Baranof River or Baranof Lake are outlined in attached
Appendix A.

1 In assessing the "ability to operate" and use water,
2 DNR turned to the Alaska Department of Fish and Game for facts
3 on the hatchery siting and permitting process.

4 On June 12, 1986 Alaska, through DNR made a decision
5 denying WAI's application for a water rights permit as not in
6 the public interest and because WAI did not have an ability to
7 operate a hatchery and use water (R. 85-86). WAI then appealed
8 to the DNR commissioner who decided against WAI on October 14,
9 1986 (R. 107-109). The DNR commissioner found that Alaska
10 should not issue a permit for water rights as the proposed
11 appropriation was not in the public interest.
12

13 B. PROCEEDINGS BELOW

14 The decision on October 14, 1986 by the DNR
15 commissioner (R. 107-113) was based on the materials submitted
16 by WAI contained in LAS 4068, various materials and comments
17 supplied by other agencies of Alaska and a legal brief supplied
18 by WAI on August 11, 1986 (R. 89-100). The decision by the DNR
19 commissioner was a final agency action. An appeal of the
20 commissioner's decision was made on November 17, 1986 in
21 conformity with applicable appellate rules.
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ARGUMENT

I. INTRODUCTION AND SUMMARY

The Alaska Water Use Act contained in AS 46.15.010-.270 places an affirmative duty on the DNR to review proposals to appropriate water. Alaska, through the DNR is required by statute to review and evaluate requests for appropriation of water based on specific criteria and standards set out in AS 46.15.080. Alaska is given broad discretion to review requests for appropriation of water in order to protect the public interest.

During the course of this dispute, WAI has demonstrated a consistent misapprehension of the standards and procedures for obtaining a right to appropriate water. WAI has submitted vague applications to Alaska for permits to appropriate various amounts of water ranging from 200 cubic feet per second (cfs) in some instances to 1000 cfs. (See generally, Appendix A.) These applications for water rights permits to appropriate water were based on nebulous proposals to engage in various activities ranging from development of hydroelectric projects, water consumption for humans, an appropriation for a fish hatchery, and for "fish farming."

As will be discussed later, Alaska properly denied WAI's request for a permit to appropriate water for use in a hatchery. But before turning to the statutory authority which allows Alaska to deny WAI's application permit to appropriate

1 water, the standard review and other legal matters, a few
2 general comments are in order.

3
4 This case is not related to the current debate about
5 aquaculture or mariculture in the Alaska Legislature. Nor does
6 this controversy pit existing Alaska fishermen against a new
7 marine industry. This case centers on a determination by the
8 DNR commissioner that the application by WAI to obtain a permit
9 to appropriate water did not meet the public interest.

10 Also, this case does not represent an attempt by any
11 of the agencies of the State of Alaska or officers or agents of
12 the state to prevent the principle individuals involved in WAI
13 from engaging in legitimate economic activity. The common
14 thread running throughout WAI's opening brief in this case is
15 the suggestion or perhaps inference that the Alaska Department
16 of Fish and Game harbors a grudge against the principle
17 individuals involved with WAI.

18 This dispute transcends personalities -- whether for
19 the State of Alaska or WAI. The decision by the DNR
20 commissioner was based on the relevant facts contained in the
21 appropriate case file as submitted, reviewed, and briefed by
22 WAI. The decision by the DNR commissioner properly reflected
23 the standards and criteria set out in the statute at
24 AS 46.15.080 and must be affirmed.

25 II. STANDARD OF REVIEW
26

1 There are two standards under which the Alaska Supreme
2 Court has reviewed agency interpretations of statutory terms --
3 the reasonable basis standard and the independent judgment
4 standard. Matanuska-Susitna Borough v. Hammond, 726 P.2d 166,
5 175 (Alaska 1986). The type of issues presented for decision in
6 a particular case determines which test the decision maker must
7 apply.

8 Questions of law and fact which involve the particular
9 knowledge and expertise of the agency must be reviewed under the
10 reasonable basis test. See generally, State, Alcoholic Beverage
11 Control Board v. Decker, 700 P.2d 483, 486 (Alaska 1985); Storrs
12 v. State Medical Board, 664 P.2d 547, 554 (Alaska 1983).

13 The reasonable basis test must be used to review
14 agency decisions which involve "administrative expertise as to
15 either complex subject matter or fundamental policy." Alaska
16 Public Utilities v. Chugach Electric Association, 580 P.2d 687,
17 694 (Alaska 1978), overruled on other grounds in City and
18 Borough of Juneau v. Thibodeau, 595 P.2d 626, 629 (Alaska 1979).

19 As the Alaska Supreme Court stated in United States v.
20 RCA Alaska Communications, Inc., 597 P.2d 489, 507 (Alaska
21 1978):

22 This [reasonable basis] standard is invoked in
23 cases where the agency action involves either
24 questions of fundamental policy formulation or an
25 assessment of technical data related to complex
26 subject matter which requires the particularized
knowledge and experience of the administrative
personnel for their determination.

1 See also, Alaska Public Utilities Commission v. Greater
2 Anchorage Borough, 534 P.2d 549, 558-59 (Alaska 1975).

3 The reasonable basis test is particularly appropriate
4 where the agency decision involves "agency expertise in a mixed
5 law and facts setting." Jager v. State, 537 P.2d 1100, 1107
6 (Alaska 1975). A reviewing court should set aside an agency's
7 determination, findings, and conclusions only upon a showing
8 that either they are not supported by substantial evidence on
9 the record as a whole or that they have no reasonable basis in
10 law. City of Fairbanks v. Public Utilities Commission, 611 P.2d
11 493, 495 (Alaska 1983).

12 Under Alaska law, the issues presented in the context
13 of an application for a permit to appropriate water require
14 application of the reasonable basis test. The reasonable basis
15 test requires judicial deference to an administrative
16 determination if the determination has a reasonable basis in law
17 and fact. Storrs, 664 P.2d at 554. Under the reasonable basis
18 test the reviewing court considers factors of agency expertise,
19 policy, and efficiency in reviewing the agency decision. Id.;
20 RCA Communications, 597 P.2d at 506.

21 The reasonable basis test is similar to the standard
22 of "unreasonable, arbitrary and capricious action" under which
23 actions committed to agency discretion are traditionally
24 reviewed. Storrs, 664 P.2d at 554-55; Jager, 537 P.2d at 1107.
25 The reasonable basis test constitutes the appropriate standard
26 for review in this controversy. All of the relevant factual and

1 legal issues raised in this appeal involve the specialized
2 knowledge and experience of the agencies of the State of Alaska,
3 particularly DNR. The entire permit review process and the
4 decision ultimately made by the DNR commissioner required that
5 agency to apply its administrative expertise to a complex
6 subject matter which also involves fundamental policy
7 considerations. The decision to deny WAI's permit to
8 appropriate water involved an assessment of technical
9 information related to the feasibility of a complex subject
10 matter requiring the particularized knowledge and experience of
11 DNR personnel. Interpretation of the state Water Use Act
12 contained in AS 46.15 and the application of that law to the
13 natural resources in Alaska requires application of agency
14 expertise in a mixed law and fact setting. As the Alaska
15 Supreme Court noted in Chugach Electric, 580 P.2d at 694, "[I]t
16 is difficult, in fact, to conceive of a situation where the
17 reasonable basis test is more appropriate."

18 WAI's unsupported argument that Alaska's refusal to
19 approve the water appropriation permit was arbitrary and
20 capricious (Appellant's Opening Brief at 1) is incorrect and
21 without merit. Alaska decided that WAI's proposal was not in
22 the public interest after properly and thoroughly evaluating the
23 proposal compared to the criteria contained in AS 46.15.080.
24 Alaska, through DNR rendered a final agency decision on
25 October 14, 1986 in conformity with constitutional due process
26 requirements required by the Alaska Supreme Court. See

generally, Ship Creek Hyd. Syn. v. State, 685 P.2d 715, 717-18 (Alaska 1984). The findings of fact and conclusions of law adopted by DNR were not arbitrary, unreasonable, nor an abuse of discretion. Alaska Conservation Council, Inc. v. State, 665 P.2d 544, 548 (Alaska 1983). The review of WAI's proposed water allocation permit did not pass beyond the lowest limit of reasonableness to become capricious, arbitrary or confiscatory. See generally, K&L Distributors, Inc. v. Murkowski, 486 P.2d 351, 358 (Alaska 1971).

III. DNR HAD A REASONABLE BASIS FOR REFUSING TO APPROVE APPELLANT'S REQUEST FOR A PERMIT TO APPROPRIATE WATER

WAI argues that it is in a position to immediately begin construction of improvements which will enable it to beneficially use the water for which it has applied (Appellant's Brief at 7). Finally, WAI states that it is "entitled by law to receive a water use permit" (Appellant's Opening Brief at 7).

WAI is not entitled as a matter of law to receive a permit to appropriate water. The commissioner may only issue a permit based on a finding that

- (1) rights of a prior appropriator will not be unduly affected;
- (2) the proposed means of diversion or construction are adequate;
- (3) the proposed use of water is beneficial;
- and
- (4) the proposed appropriation is in the public interest.

1 AS 46.15.080(a). While the rights of prior appropriators are
2 not an issue in this particular situation, the remaining
3 criteria in AS 46.15.080(a) have or could have a direct bearing
4 on WAI's ability to obtain a permit to appropriate water. 2/
5

6 The DNR commissioner is given broad discretion in
7 determining what constitutes the public interest. When
8 determining the public interest, the commissioner is required to
9 consider:

10 (b) In determining the public interest, the
11 commissioner shall consider

12 (1) the benefit to the applicant
13 resulting from the proposed appropriation;

14 (2) the effect of the economic
15 activity resulting from the proposed ap-
16 propriation;

17 (3) the effect on fish and game
18 resources and on public recreational op-
19 portunities;

20 (4) the effect on public health;

21 (5) the effect of loss of alternate
22 uses of water that might be made within a
23 reasonable time if not precluded or hindered by
24 the proposed appropriation;

25 (6) harm to other persons resulting
26 from the proposed appropriation;

(7) the intent and ability of the ap-
plicant to complete the appropriation; and

(8) the effect upon access to
navigable or public waters.

AS 46.15.080(b). On October 14, 1986 the DNR commissioner
denied WAI's appeal of the findings by the director of the

2/ Alaska did not have an opportunity to review the means or
construction plans for the proposed appropriation under
AS 46.15.080(a)(2) because it found the proposed permit was not
beneficial or in the public interest.

1 Division of Land and Water Mangement (R. 107-113). The decision
2 contains a reasoned discussion outlining why granting a permit
3 to appropriate water to WAI would not benefit the public
4 interest. The DNR commissioner concluded "WAI will be unable to
5 complete the appropriation" (R. 108). This conclusion was based
6 on legitimate and documented statements from the Alaska
7 Department of Fish and Game pertaining to that agency's
8 statutory authority. Thus, the DNR commissioner correctly
9 considered and found that WAI did not have the ability to
10 complete the appropriation based on AS 46.15.080(b)(7).

11 The DNR commissioner, having solicited comments from
12 other agencies of the State of Alaska in accordance with
13 AS 46.15.020(b)(3), concurred with the Alaska Department of Fish
14 and Game that the "best use of the site on Baranof Island '...
15 is fisheries enhancement for contribution to the common-property
16 fishery'" (R. 108). The DNR commissioner went on to point out
17 that "the Baranof Island site is categorized in the regional
18 salmon plan" as a premier site for the production of salmon for
19 the common-property fishery. (R. 108).

20 Accordingly, the DNR commissioner justifiably
21 ascertained that the public interest might be negatively
22 impacted based on the factors set out in AS 46.15.080(b) if WAI
23 was given a permit to appropriate water. These factors require
24 the DNR commissioner to gauge the effect of loss of alternate
25 uses of water that might be made within a reasonable time if not
26 precluded or hindered by the proposed appropriation as well as

1 harm to others resulting from the proposed appropriation. See
2 generally, AS 46.15.080(b)(5) and (6). Based on clear
3 statements of intent by the State of Alaska to develop hatchery
4 facilities at Warm Springs Bay on Baranof Island for the
5 common-property fishery (R. 106) the DNR commissioner was
6 certainly justified in denying WAI's water allocation permit.
7 See also, AS 46.15.145(a)(1). Any other course of action would
8 have created a strong likelihood that the public would be
9 substantially inhibited from designing and constructing a
10 facility calculated to maximize benefits to the common use
11 fishery -- a project the State of Alaska intends to develop (See
12 Affidavit of Steve Pennoyer). See also, Alaska Const. art.
13 VIII, sec. 3.

14 Because it failed to secure a private nonprofit
15 hatchery permit, WAI concedes that it cannot complete an
16 appropriation of water for purposes of hatching and rearing fish
17 to be released into the common-property fishery without the
18 permission of the State of Alaska. And, WAI acknowledges that
19 such permission is not likely to be forthcoming. (Appellant's
20 Brief at 7). However, WAI argues that it does not need to seek
21 authorization from the State of Alaska to engage in fish farming
22 activities. WAI suggests without support that it has an ability
23 to obtain young fish commercially and to transport, hold, feed,
24 and rear them in captive salt water net pens for commercial
25 harvest.
26

1 The critical flaw in WAI's argument lies in the fact
2 that pen rearing slamon in a "fish farm" uses only salt water.
3 WAI's application (LAS 4068) contemplates the use of water in a
4 hatchery facility to propagate and then supply salmon smolts to
5 a salmon ranching operation or a salmon farming operation in
6 Warm Springs Bay.

7 A salmon farming operation possibly requires a small
8 amount of incidental fresh water but certainly not the 200 cfs
9 contemplated in WAI's LAS 4068 application. The continued
10 propagation of salmon in a hatchery facility involves
11 impregnating, hatching, and rearing eggs to smolt size and
12 certainly requires large volumes of fresh water. WAI's argument
13 that it may engage in "ocean farming" is not germane to the
14 question of their ability to appropriate and use water in a
15 hatchery facility.

16 WAI may not successfully argue conflicting positions.
17 If they seek fresh water for propagation of fish then WAI needs
18 a hatchery permit. Currently the only legal way to operate a
19 fish hatchery in Alaska is under the private nonprofit hatchery
20 program or as a public facility. WAI has stated it "does not
21 contest the fact that an Alaska Department of Fish and Game
22 permit is required to operate a fish hatchery (R. 94).

23 WAI, rather than supporting its only contention that
24 "DNR acted contrary to the statutes and applicable
25 administrative regulations when it denied the water use permit"
26

1 (Appellant's Opening Brief at 5) devotes most of its brief to a
2 discussion on the legality of fish farming and other aquaculture
3 ventures. For purposes of the decision now pending before this
4 court these matters are irrelevant.

5 The right to appropriate water can be acquired only as
6 provided in AS 46.15.040. WAI argues that it is the owner of
7 patented tidelands and an easement for a pipeline to the Baranof
8 River and that necessary water is available for appropriation
9 (Appellant's Brief at 14). WAI then suggests that it has done
10 everything which it is able to do and which can be legally
11 required of it at this time and implies that somehow it has a
12 right to the desired water. This is wrong. A right to
13 appropriate water shall be obtained by first making application
14 to the DNR commissioner for a permit to appropriate.
15 AS 46.15.040(b). WAI applied to appropriate water and was
16 denied by DNR.

17 The DNR decision denying WAI's permit to appropriate
18 water was not arbitrary, unreasonable, or an abuse of
19 discretion. Administrative action is accorded a presumption of
20 validity, and the appellant bears the burden of demonstrating
21 its invalidity. Alaska International Industries, Inc. v.
22 Musarra, 602 P.2d 1240, 1244 (Alaska 1979). The DNR
23 commissioner found that WAI's water use application was not
24 beneficial or in the public interest and that WAI did not have
25 the ability to complete the appropriation. To grant an
26 application for a permit to appropriate water in these

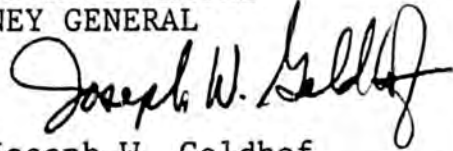
1 circumstances would have resulted in the loss of alternate uses
2 of water more beneficial to the public; possibly lead to
3 negative impacts on important fish resources and caused harm to
4 other persons. This decision and these matters are soundly
5 committed to DNR's discretion. The decision was properly made
6 in light of DNR's statutory duty.
7

8 CONCLUSION

9 Alaska believes the decision by the DNR commissioner
10 is correct as a matter of fact and law and must be affirmed by
11 this court.

12 DATED: April 15, 1987
13

14 GRACE BERG SCHAIBLE
15 ATTORNEY GENERAL

16 By: 

17 Joseph W. Geldhof
18 Assistant Attorney General
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ATTORNEY GENERAL, STATE OF ALASKA
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PHONE 465-3600

1 IN THE SUPERIOR COURT FOR THE STATE OF ALASKA
2 FIRST JUDICIAL DISTRICT AT JUNEAU

3 WILDERNESS ACQUISITIONS, INC.,)
4 an Alaska corporation,)

5 Appellant,)

6 v.)

No. 1 JU 86-2429 Civ.

7 ALASKA DEPARTMENT OF NATURAL)
8 RESOURCES,)

9 Appellee.)
10

AFFIDAVIT OF STEVEN PENNOYER

11 STATE OF ALASKA)
12 : ss.
13 FIRST JUDICIAL DISTRICT)

14 STEVEN PENNOYER, being first duly sworn upon oath,
15 deposes and says:

16 1. Currently I am the Deputy Commissioner for the
17 Alaska Department of Fish and Game. My mailing address at work
18 is P.O. Box 3-2000, Juneau, Alaska 99802. My work phone number
19 is (907) 465-4100.

20 2. In my capacity as deputy commissioner for the
21 Alaska Department of Fish and Game I am generally familiar with
22 the proposal by Wilderness Acquisitions, Inc. to develop some
23 type of aquaculture facility in Warm Springs Bay on Baranof
24 Island and for a water allocation permit which is now the
25 subject of controversy in superior court case number 1JU-86-2429
26 Civil.

1 3. I am generally familiar with the Warm Springs Bay
2 location, particularly with respect to its potential as a
3 hatchery site or for development as an aquaculture facility
4 including possibly salmon pen rearing. I know the term "world
5 class" is currently in vogue and often applied to proposed sites
6 and various proposed activities in Alaska. In fact, the Warm
7 Springs Bay has been described as having "world class" potential
8 as a hatchery site or for aquaculture development.

9 4. I am mindful that terms like "world class" are
10 often used indiscriminately, however, I can say that Warm
11 Springs Bay is one of the best possible sites for a public
12 hatchery or private nonprofit hatchery. The Alaska Department
13 of Fish and Game has every intention of proceeding as rapidly as
14 possible to develop a facility at Warm Springs Bay for purposes
15 of releasing fin fish into the common-property fishery. In my
16 estimation, it is absolutely essential to develop this location
17 in a manner which maximizes availability of fisheries resources
18 for the public.

19 5. Warm Springs Bay hatchery potential has figured
20 prominently in comprehensive fisheries enhancement planning for
21 southeastern Alaska between the public and the Alaska Department
22 of Fish and Game for many years. The development of a private
23 hatchery or an ill-conceived aquaculture facility at this site
24 has serious potential for reducing benefits to the public and
25
26

1 may, depending on the actual activity, cause a negative effect
2 on existing fisheries resources.

3 Further your affiant saith naught.
4

5
6
7
8 SUBSCRIBED AND SWORN TO before me this ____ day of
9 April, 1987.

10
11 Notary Public, State of Alaska
12 My commission expires: ____
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ATTORNEY GENERAL, STATE OF ALASKA
STATE CAPITOL
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BARANOF RIVER APPROPRIATIONS

DATE OF APPLICATION	DNR FILE #/STATUS	NAME	AMOUNT (CFS)	USE
11-2-67	40815 - Cert.	W.A. Inc.	1.0	Hydro/domestic (yearround)
11-18-80	101729- Permit	W.A. Inc.	1.59	Hydro (yearround)
8-13-85	3661 - Permit	Bahovec	2.7	Hydro (May 1 - Oct 30)
8-13-85	6356 - Apln	Bahovec	2.7	Hydro (Nov 1 - April 30)

BARANOF LAKE APPROPRIATIONS

5-24-78	100191 - Closed	ADF&G	104.0	Hatchery/Hydro (yearround)
12-20-85	4068 - On Appeal	W.A. Inc.	200.0	Hatchery (yearround)
12-20-85	4069 - Apln	W.A. Inc.	200.0	Hydro (yearround)
1-14-86	4553 - Apln	ADF&G	110.0	Hatchery/Hydro (yearround)
6-23-86	7343 - Apln	W.A. Inc.	1000.0 42000 GPD	Power Utility (yearround) Pub. Water Supply "