

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE 8672
1889 SCOMM 75: MARICULTURE (FISH FARMING), 1987-1990

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fish farming without spelling out who is going to finance and own the industry here.

On page 18, benefit (a) states that, "for every 25,000 pounds of fish, one job is created." I believe that this is a factual error. All of the information I have seen suggests that the average fish farm will employ from two to four people. Perhaps your figures are based on a scenario where fish farms are established in areas with no existing fisheries infrastructure, and where you could assume that a large number of support services jobs, such as fish processing jobs, would be created. This is simply not the case in Alaska. I believe your numbers are far too optimistic about the number of new jobs that could be created.

Also, if you are going to discuss numbers of jobs involved, it would be more useful to use figures to explain it in terms of actual numbers of jobs per farm, rather than per pound of fish. And how well are such jobs likely to pay?

MARKETABILITY OF ALASKA SALMON

Page 24 (a): The word "only" seems inaccurate. It would be better to say that there are three "major" factors. There are others. For example, marketability is also affected by such things as public perception, the image the consumer has of our fish. This was clearly a concern after the Exxon oil spill and for a period of time after the botulism incident in canned salmon several years ago.

GENERAL FINDINGS AND RECOMMENDATIONS

One final comment: I understand that the Task Force may discuss the possibility of recommending an "incremental start-up" of fish farming in Alaska, a sort of "compromise position." I believe that approach by the state would be a cop out. If we have enough reservations about this industry to fear full-scale development of it, then there is simply too much at stake to even begin to dabble in it.

We have the healthiest natural salmon runs in the world here, and thriving commercial, sport and subsistence fisheries which are vitally important to the economy of the state and the lives of many of our citizens. Why jeopardize all that? Furthermore, even incremental start-up would require huge investments of time and money for regs, siting work, pathology and biology, monitoring, etc. We should have learned from past experiences in such things as agricultural development, that there is a tendency to throw good money after bad once you've ventured into something, even if it is ultimately not viable.

This is not a case where free enterprise can be allowed to simply give something a try on its own without affecting anything else. State money would be spent, new threats of disease and genetic intermingling are introduced, markets are affected, siting conflicts begin. With just one farm here, we would never again be able to advertise that if you buy Alaskan salmon you can be sure it is wild, unadulterated salmon. We stand to lose a lot, and calling it "incremental" does not mask the fact that it has begun.



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Juneau, Alaska 99802

"DEDICATED TO THE PROFESSIONAL FISHERMAN"

December 12, 1989

Alaska Finfish Farming Task Force
P.O. Box AM
Juneau, AK 99811

Dear Task Force Members:

USAG has been participating in the debate about finfish farming in Alaska since the discussion began a few years ago. Your report is a good presentation of the controversial issues.

One omission that we did notice, however, concerned the ocean ranching salmon enhancement program that Alaska has developed to try and stabilize wild salmon production. On page 24 of your report, finding c. reads: "No strategy exists for improving the consistency of supply of Alaska wild salmon." Many millions of salmon have been produced by the ocean ranching program in Alaska. This production has made a major contribution to stabilizing wild salmon harvests in several fishing regions. This error should be corrected in the final report.

When consideration of finfish farming first began, it was in an atmosphere of frenzied growth and assumed high profitability that characterized the boom cycle of this new industry. But how quickly the bloom on this flower has faded. The last couple of years have seen problems in disease control, genetic pollution, user conflicts, and a drop in the level of general profitability in the salmon farms, especially among the newest players.

In 1989, salmon prices dropped dramatically in response to the huge volume of farmed salmon that entered the market. Because of the financial problems of many salmon farms in British Columbia, farmed salmon was dumped on the U.S. market for the first time, just as the season for the harvest of wild stocks was beginning. Despite the price cutting and change in marketing strategy, many farms in British Columbia became insolvent. This eventuality had been predicted by the opponents of salmon

farming in Alaska, but the speed with which events moved surprised even those who had been expecting such consequences to the boom of farmed salmon production.

The Norwegian fish farming industry has significant government assistance, and in order to develop a similar industry in Alaska, it is very likely that equivalent government assistance would have to be provided here. Given Alaska's current and future expected revenue situation, it must be questioned whether this would be a wise undertaking. It would be a long time, if ever, before the new salmon farming industry in Alaska would be able to contribute significant financial resources to assume the cost of the tough regulations that your report lays out as necessary measures to manage the problems involved in site selection, disease testing and farm certification, broodstock production, broodstock selection and allocation.

Right now the management and enhancement of our common property natural salmon resources is being compromised by the developing fiscal problems in Alaska. It is our opinion that the start-up of a competing industry should not even be considered until adequate government resources are available to take care of our natural salmon production, ocean ranching program and the traditional common property industries that they support.

One of the most important concerns of our members is the source of broodstock for the proposed salmon farming industry. The salmon fishing fleets of southeast Alaska, Prince William Sound, Cook Inlet and Kodiak have all voted in salmon enhancement taxes. Together with the state, an ocean salmon ranching program has been developed in the last fifteen years, which economists say has a very high benefit to cost ratio. This program has played a very important role in sustaining Alaska's record salmon production of the past decade.

It is to this program, that private salmon farmers would initially look for broodstock. Since there is no consistent surplus of salmon eggs sufficient to provide a salmon farming industry, difficult allocation decisions would be faced between the common property fisheries and the private salmon farmers. The cost of the government regulating these competing uses is an example of the often unforeseen costs that will have to be paid in order to have a successful salmon farming industry in Alaska.

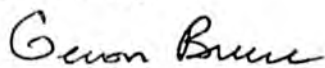
The standard that USAG feels should be finally applied in this case is the one that was heard so often a few years ago: will the benefits, in the broad sense, to the people of Alaska, be above the costs?

The findings of your study show that the net benefit test will come out negatively for a new salmon farming industry. The likelihood of business success from salmon pen-farming in Alaska is small. The successes that might develop are likely to be owned by large corporations and non-Alaskans. Conflicts between the salmon farm industry and other interests will be serious. There will be substantial government cost and little

ability for the fledgling industry to pay the cost of the necessary government regulation. The worldwide supply of salmon will increase further, weakening the markets for the common property fisheries, and the fledgling salmon farming industry. Salmon farming in Alaska will not meet the net benefit test. This should be among the conclusions of your final report.

I have enclosed for your information a recent article in FISH INTERNATIONAL, a European magazine that reports closely on the farmed salmon industry. It shows that the boom has burst for farmed salmon even in Norway with all its advantages. For Alaska to jump on the band wagon now, would be like building ourselves a proverbial sinking ship.

Sincerely,



Geron Bruce
executive director

cc: Senators: Eliason, Duncan, Jones, Sturgulewski, Fahrenkamp, Zharhoff, Adams, Binkley, Kerttula, Pourchot, Pearce, Kelly
Representatives: Ulmer, Hudson, Davis, Goll, Grussendorf, Taylor, Ellis, Davidson, Menard, Jacko, Swackhammer, Larson, Brown, Cotton, Navarre, Foster, Wallis, Koponen



NORWAY

A fish market in Trondheim.
„Superior“-salmon is also sold
in this little Norwegian
seafood-„supermarket“.

Norway's marketing organization
plans to control the salmon boom

»Superior« in the supermarket

When the trough's empty
Even horses will bite one another
(Norwegian proverb)



The situation on the bred salmon market in Norway is becoming desperate. Production has increased by about 80% from 1988 to 1989; about 150,000 tons of bred salmon will be leaving Norwegian farms this year. The result of this rapid development in production has been a drastic price fall. Today it is difficult to find a Norwegian exporter who is prepared to pay the breeder the set minimum price of 35 Norwegian crowns (just over £3) per kilogram. Most of the salmon farmers are in debt, however, and thus more or less in the hands of the powerful banks, who were certainly happy to hand out large loans at the beginning of the salmon boom, but who are now, on seeing that things are not running as smoothly as anticipated, withdrawing their support. Fiskeoppdretternes Salgslag, the Norwegian marketing organization for bred fish, which eight months ago moved into bombastic new headquarters in the harbour area of Trondheim, is now trying to gain control of the difficult situation. Their solution — bred salmon should swim longer, and "superior" quality should be made available to supermarkets.

The Norwegian central marketing organization for bred fish, Fiskeoppdretternes Salgslag, gave a press conference to set the scene for the Aqua Nor'89 in Trondheim this year. Their message was, "Everyone thought we were dead, but, we're alive and well".

Such intentional optimism cannot lead people to overlook the very real problems faced by Norway's salmon-breeding industry for long. Figures were named at the press conference which make the severity of the situation all too clear. Last year Norway's 726 salmon farms produced about 85,000 tons of salmon. Within just one year this level has risen by about 80%.

At present about 150,000 tons of salmon are said to be swimming in Norway's breeding centres. And according to what we heard, they are all to go on sale this year. If the quantity is too large for the recognized sales outlets, then they will have to be sold "unofficially". The first result of over-production of salmon is already apparent — the continual fall in the price paid for it. The latest report from the collapsing price front was of two thick "superior" steaks on sale at a West German retailer's for 6,50 deutschmarks (approximately £2), a price which is below that paid for saithe in the north of Europe.

Political factor

In the meantime the increase in

salmon production in Norway has become a political factor, as Paul Birger Torgues, the secretary of the Salmon Breeders' Association made clear at the conference. Between ten and twelve thousand people are employed on Norwegian salmon farms, and 40,000 further jobs are either directly or indirectly dependent on the success of the bred salmon industry. The number of Norwegians applying for breeding licences continues to grow — they still see salmon-breeding as a quick way to make money.

However, as we heard from Norway's Minister for Fisheries, Bjarne Mørk Eidem, who spoke at the conference, the government is trying to

curb this development by currently refusing to grant new breeding licences. Eidem went on to criticize the salmon farmers, saying that they should see to it that they start paying more attention to quality than to quantity.

He pleaded for more stringent control within salmon production, adding that his administration is prepared to accept an annual increase rate of 10% until the year 2,000. However, closer examination of even this level of increase — one which Eidem seems to consider "healthy" — shows that by the end of this century total Norwegian bred salmon output would be about 400,000 tons.

Incidentally, it must have taken

Bjarne Mørk Eidem a considerable amount of courage to speak against the granting of new licences at the conference, for elections are soon to take place in Norway. He was presumably bearing in mind the fact that about 50 licences which have already been granted are still not being used to capacity.

Buyer's market

Odd Steinsbø is the director of the Fiskeoppdretternes Salgslag. He is certainly one of the small group of experts who have remained realistic with regard to the development of the salmon-breeding industry in Norway. He was open in describing the situation as an extremely serious one, which

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Bjarne Mørk Eidem (above), the Norwegian Fisheries Minister, even sang to the 800 salmon farmers who came to the Pir Centret to celebrate: in future no further farm-licences will be issued by his government.

he must do his best to master. He stated that the biggest problem at present is the change within the market situation, a change which has come about as a result of over-production.

What was originally a seller's market, where supply determines the price level, has turned into a buyer's market, i.e. the consumers have the say. This constellation is a completely new one on the salmon market. In Steinsbø's opinion the industry will have to become accustomed to it before it can be mastered.

Today it is hardly possible for a salmon farmer to achieve the set minimum price for his salmon, i.e. 35 Norwegian crowns (just over £3) per kilogram. The prices are usually well below this. This trend was confirmed by exporters who spoke to at the fair.

This trend is a threat to the very existence of Norway's salmon farmers, who are often up to their necks in debt. The banks who were only too pleased to offer huge loans to eager salmon-breeders only two years ago, and even fought

among one another for the farmers' favour, almost forcing them to accept the money, are now in deep waters themselves: due to the fall in the salmon price, the farmers are often no longer capable of paying back the loans in the agreed installments.

For this reason, some farmers cannot even get hold of the money necessary to buy their smolt stock during the spring — the very basis of their livelihood, or to buy the feed they need to raise them (approximately £2,500 per day on

a middle-sized farm). The only other way for the farmers to get some money is by selling fish, and if they do not do this themselves, the bank usually does.

Competition

At the beginning of the year, the Fiskeoppdretternes Salgslag, Norway's marketing organization, moved into ultra-modern headquarters, Pir Centret, in accordance with the boom in business. They are located within the harbour area of Trondheim. Whether this was somewhat premature or not remains to be seen. Odd Steinsbø, at least, readily admits that Norway is no longer the only salmon supplier on the international salmon market. Large companies from Scotland, in particular, such as Marine Harvest, which belongs to Unilever, are in the meantime serious competition for Norway.

During the past two years international suppliers joined together to form the International Salmon Farming Association, with the aim of trying to maintain the stability of the market by keeping the salmon boom under control. The association consists of representatives from Norway, Scotland, Ireland, The Faroe Islands, Iceland, Canada and recently, Chile too.

Information leaked out that the association is trying to put together sound figures concerning total world salmon production, so that they can come to some sort of agreement concerning quantities. One of the association's participants, however, told us, "We are really preaching to the converted. Those who are already members of the ISFA know what has to be done. But what can we do about the others — about those who are prepared to sell salmon at dumping prices?"



Odd Steinsbø (left) and Odd Berg, the managers of the Norwegian Salmon Marketing Board „Fiskeoppdretternes Salgslag“, have to handle the problem of overproduction and changing markets.

Solutions

The Trondheim marketing organization has already come up with a number of solutions aimed at controlling the currently erratic market. For one, they would like to see the breeding period which the salmon spend in the enclosures lengthened. They also urged the industry to track down and utilize new international sales outlets and to intensify the marketing of the Norwegian "superior" quality standard.

Odd Steinsbø stated that biologically it is no problem whatsoever to keep the salmon in the enclosures for two years rather than one, as is at present the case. The farmer merely has to decrease the feed quantity.

The marketing organization has also already established a number of public relations offices in foreign countries, in order to be in a position to intensify current efforts on the market, and to seek new sales outlets. Steinsbø is expecting a rise in demand on the Spanish and Japanese markets in the near future as a result of these steps.

However, in the face of the excess salmon supply, new marketing forms will be necessary in the long run. Plans are already being made to supply fresh salmon fillets and steaks ready-packaged for

sale in supermarkets. According to Steinsbø this is a particularly promising sales outlet — one which has hardly been investigated until now, let alone exhausted. But wouldn't the introduction of the "superior" quality to supermarkets serve only to exacerbate the expected price-war? In answer to this question Odd Berg, the marketing manager of Fiskeoppdretternes Salgslag, said that the organization does not expect this to be the case, since consumers who shop in supermarkets are as willing as those who shop elsewhere to pay high prices for good-quality products.

Breeders

A whole afternoon and evening of the Aqua Nor '89 was

devoted to the breeders, who came to the trade fair on "Farmers' Day", but presumably more with an eye to looking around than actually buying anything. Gone are the days when they more or less bought up the whole fair.

In the evening they were invited to take part in celebrations in the magnificent Pir Centret, the new headquarters of the Fiskeoppdretternes Salgslag. Tickets cost 300 Norwegian crowns per person (approximately £30) and were paid for by the breeders' own association. About 800 attended. The evening began with a cold buffet — which included 27 different salmon dishes. Speeches held by the Minister for Fisheries and other officials received great applause. Following that, the "Man of the Year" was presented with a silk tie.

Many a salmon breeder who, helped by his family, spends day after day tending his fish in some quiet fjord, appeared somewhat disturbed at the magnificence which the salmon boom seems to have produced. Perhaps he hadn't quite realized the extent of the boom. Whether it will go far

enough to include the breeder is something which only time will tell.

Exporters

Most of those involved in the export of Norwegian bred salmon were present at the trade fair. They seem to have a somewhat rosier picture of the salmon future. According to them, there is enough salmon to go round, the international Christmas market is organized, and what can't be sold fresh will be frozen. Many exporting companies are considering expansion in the near future. They already have customers in various European markets and are now intent on spreading a closely-knit distribution network ready for the 300 million European consumers of the post-1992 years. One of the big companies had consoling(?) words to say with regard to the apparently poor market situation ...of course there will be a wave of low priced salmon at first, which many small breeders will fail to survive. (Apparently with every fall in price of one Norwegian crown, ten breeders fall, too).

...but in the long run the big companies would do better than ever. For once the world market gets used to the continual supply of low-priced bred salmon, and the current overproduction is sold, demand will come of its own accord, and the prices will rise again.

...and really, it's more or less like sitting in a big white Porsche, crawling along at two miles an hour. Fiskeoppdretternes Salgslag has its foot on the brake, and competitors are hanging on to the rear bumper. But they can't hold on for ever...



A great amount of Norwegian PR-material in almost every conceivable language has already been released by the Norwegian Salmon board. Per Hernes, who is responsible for press relations, displays it with pride.

Senate Resources Committee

Senator Bettye Fahrenkamp, Chairman
Senator Jay Kertula, Vice Chairman
Senator Dick Eliason
Senator Steve Frank
Senator Rick Hallford
Senator Artiss Sturqulewski
Senator Fred Zharoff



P.O. Box V
Juneau, Alaska 99811
(907) 465-4907

December 12, 1989

Mr. Ted Merrell, Chairman
Alaska Finfish Farming Task Force
P.O. Box AM
Juneau, AK 99811

Dear Mr. Merrell:

Thank you for sending the draft task force report.

My experience in dealing with the issue of finfish farming in Alaska makes it clear to me that you have been given one of the toughest public policy assignments in years. Judging by the draft report and from observations made by my staff member who has attended many of the meetings, you have made tremendous progress in defining the issues and getting the facts. I commend you for a job well done in obtaining all the available information.

As you prepare to make your report final and form your recommendations, I'd like to restate my intentions and offer a few observations for your consideration. As Chairman of the Senate Resources Committee, the only committee that currently has mariculture legislation before it, I plan to have language drafted for discussion early in session that would implement your recommendations.

All past attempts to resolve the finfish farming issue have bogged down in the committee of first referral, resulting in three years of moratoriums on an otherwise legal activity. As often happens when the legislative process bogs down, lawmakers turn to a citizen's task force for an impartial look at the issue and to provide public policy direction.

Role of the task force

Your role in resolving the finfish farming issue is vital. As you noted on page two, the legislature expects the task force to provide specifics. Otherwise, we could easily wallow around in the same politicized mud we have been wallowing in for past several years. I embraced the task force concept at the urging of opponents and proponents alike, endured its late start, fought for its funding, and specifically refrained from holding hearings on mariculture during the interim. Over the interim all of my public statements have been supportive of the task force and its mission.

Mr. Ted Merrell
Page two

This was all done in the expectation that the task force would recommend whether or not finfish farming should take place and if so, under what conditions. In my opinion, any action short of this would not fulfill the intent of SB 514 and would toss us back into the political arena.

Net pen vs. freshwater or land based fish farming

Most of the debate in the legislature has revolved around salmon farming in net pens, yet the moratoriums have included freshwater finfish farming and land based farms using marine water. The draft report infers that there are few adverse impacts from these operations. As noted on page one, the task force is to address each of these subcategories of finfish farming. I would suggest a separate, more comprehensive section on these options.

Health of the fisheries

Chapter 2 was very thorough and should go a long ways towards resolving those issues. I think it would be useful to compare salmon farming and ocean ranching because the two programs are similar in many respects. Since most legislators understand the hatchery systems, comparison between net pen rearing and ocean ranching would be especially useful.

Permitting Process

Further discussion is needed on the applicability of existing shellfish farming permitting program to finfish farming. Such discussion could lead to needed improvements in the shellfish permit program.

Impacts of Alaskan finfish farms

The report needs to focus more on the impacts of Alaskan finfish farming on the existing fishing industry, rather than the impacts of world wide farming which cannot be controlled by the government of Alaska.

Prioritize Findings and Recommendations

Finally, throughout the report, no attempt is made to rate the relative importance of task force findings and recommendations. Some order of priority would be useful in interpreting the final report.

Mr. Ted Merrell
Page three

Once again, the sheer magnitude of your mission makes your progress to date all the more remarkable. In regards to your final product, I cannot emphasize enough the importance of making specific recommendations to the legislature, whether or not they are unanimous. Unanimity, while a worthy goal, is rarely achieved in public policy decisionmaking and needn't be achieved if the result would be inconclusive or insubstantial.

As you know, I requested the Legislative Research Agency to follow this issue. Their comments on the draft report are enclosed.

I appreciate the opportunity to participate in the review.

Sincerely,


Bettye Fahrenkamp, Chairman
Senate Resources Committee

Enclosure

Southeast Alaska Conservation Council

SEACC • P.O. Box 021692 • Juneau, Alaska 99802 • (907-586-6942)



TO: Board members, mariculture committee, and other interested folks
FR: Laura Dameron, mariculture coordinator

RE: Mariculture and the Finfish Task Force November 13, 1989

Well I'm back, with all sorts of tidbits for you folks.

The Task Force has had 3-2 day sessions of meetings since I last wrote to you. Their next meeting is scheduled for December 17th and 18th. They plan to have their draft report out November 17th, with comments due December 13th. So pencil that into your calendars, because I'm pretty sure you're going to want to put in your 2 cents worth. If you're on the task force's mailing list, you should get one automatically. If you're not already on the list, but would like to be or would just like to receive a copy of the draft, let me know.

Another deadline that has just passed was the end of the shellfish and sea vegetable application period on October 30th. DNR received 55 applications for farm permits in Southeast. All existing farms were supposed to apply as well as new proposals. I don't know when these will be available to the public for comment, but it could be 6 weeks from the end of the application period. That makes it mid-December, with 30 days to comment. It will be going out for coastal district review before then, if any of you are involved in that.

The Division of Parks is still not sure what they should be doing on mariculture. They did drop the controversial aquatic farming language from the regulations that went into effect July 1st and are presently working under the marine park statute that allows aquaculture facilities. They received several letters from legislators originally involved in writing that statute that clarified the law only applied to the state and PNP hatchery system. So until they receive legislative direction they'll lean toward not allowing farming unless it's being done by the state or PNP's. However, for lands that have been selected for parks but are not yet in parks, applications for farming would have to be decided on a case by case basis. The permits for the existing "experimental" farms in Halibut Cove Lagoon in Kachemak Bay State Park are due to expire at the end of this year. It looks like a decision on their fate will happen very soon. I just talked to Jack Wiles of Parks and the plan is to not
Continue the permits and hope they can relocate in the Kachemak Bay area when DNR's Southcentral area has their farm permit opening, perhaps in the spring. We'll see if this has any repercussions in the legislature.
In my last memo I cast doubts on the Task Force's ability to meet with the Marine Environmental Consortium because SEALASKA was setting up the trip. Well, I was wrong. The Task Force did meet with 2 MEC representatives, although I don't know how effective the meeting was.

SEALASKA provided approximately \$1,143 worth of services to the Task Force. I don't know what those services included.

11/14

I have been reassured that SEALASKA does not intend to get into fishfarming in Alaska "in the near future", although they do own 49% share of Swecker Farms in Puget Sound. But it has been mentioned in Task Force meetings several times that SEALASKA and others will be looking for something in which to invest when their trees are gone.

The rumor that 1,000,000 chinook smolts were killed because they weren't worth raising was confirmed by Tim Kennedy, co-owner of the farms that killed the smolts. They couldn't afford to raise them, since the selling price would be below their production costs, and weren't allowed to release them to the wild since they had been bred for captivity.

Senator Bettye Fahrenkamp sounded a bit worried in a recent editorial that another moratorium might be enacted by the legislature. I had figured there wasn't a chance of getting another moratorium (and still feel that way), so I was rather surprised.

Time for the lowdown on the Task Force meetings. There have been quite a few presentations to the Task Force (TF from now on) from economists, geneticists, us, fishing organizations, the AMA (mariculture assoc.) and a fish farmer (Tim Kennedy). One of the overriding themes of the September 28-29 meeting was how poor the economics for fish farming are looking, given an ever increasing glut of fish on the world markets from ever increasing farmed fish production. Tim Kennedy stated that only Southeast would be physically appropriate for fishfarming, given water temperature, weather conditions and transportation networks. When he was asked as a Prince William Sound seiner, how tolerant he would be of fish farming in the Sound, he responded "Just about zero." He feels there's already too little room for fishing. And he wouldn't invest in a fishfarm in Southeast.

The 9/28-29 meeting was to focus on siting issues, and the TF seemed genuinely concerned about siting issues and conflicts. I came away from that meeting feeling generally hopeful that the TF, even though slightly pro-fishfarming, would write a report that elaborated the problems to be expected and a lot of restrictions to protect current uses, the fisheries and the environment. After the 10/16-17 meetings I was not at all happy. The TF seemed pretty much into allowing fish farming to go ahead. They were taking a very free market attitude, that people have a right to try and fail if they want. That's wonderful until you stop and think about our legislature and how they'll do an awful lot to keep an industry going once they've got their initial investments made. I'm convinced that once they've let in fish farming, even if it's without Atlantic salmon or Pacific salmon, when the farmers have invested mega-bucks (like \$1,000,000) and are going down the tubes the legislature will be quite willing to remove restrictions that could make farming more economically feasible.

Ken Castner, the commercial fisherman on the TF, has been putting up a good fight both for the industry and the environmental community. But the votes are against him, although he is getting some concessions by fighting so hard. It sounds like there will be some language about not siting a farm off of a park, monument or wilderness area and a recommendation that farmers not be given ownership of the broodstock gametes, to prevent exportation of our stocks.

After the 11/5-6 meeting, it's unclear whether the TF will be making an overall recommendation or not. If they do it will be to allow at least some fishfarming to go ahead, and it will probably be marine net pens as well as uplands or freshwater systems. Public comments should help strengthen their findings and may help prevent the TF from making a recommendation.

That's about all I can think of for now. I've been working on this memo for several weeks; if I don't get it off soon everything that needs to be commented on will be out before this is. Sorry about that. Thanks for your work on this and let me know if you have any brilliant strategies we should be trying.

Farm Fish of the Future

A fish farming candidate to watch is the "walking" catfish which breathes air and can tolerate unbelievable densities. Leo Ray of the Fish Breeders of Idaho said he visited an African farm with densities up to 100,000 pounds per one-acre pond. In a speech at the American Fisheries Society annual meeting in Anchorage, Ray said the "walking" fish appeared to be doing fine despite oxygen levels of about "zero."

EPA and Washington State to Regulate Salmon Net Pens

The recent proliferation of salmon net pens throughout Puget Sound poses many risks to the marine environment, including pollution from antibiotic-laced fish feed, fish feces, and fish carcasses, the spread of disease from crowded pens, and lethal measures used to control marine mammals and other salmon predators. After three years of unsuccessful informal efforts to convince the EPA and the Washington Department of Ecology to regulate these pens under the Clean Water Act, in February staff attorney Stephan Volker served these agencies with a formal notice of intent to sue them unless they promptly agreed to enforce this requirement. On May 25, EPA agreed to our demand and directed Washington's Department of Ecology to establish a permitting program for net pens. Litigation may still be necessary to assure that the discharge permits have teeth.

Alaska Mariculture Report

Sept.-Oct. 1989

Published by the
Alaska Mariculture Association

Summer 1989

Sierra Club Legal Defense Fund
newsletter In Brief

'Catch and Carry' Thwarts Sockeye Virus

Giving sockeye salmon a helping hand during the final portion of their grueling return trip to spawn appears to improve greatly the chances of producing offspring free of a deadly and infectious disease. These disease-free eggs may then be used to safely introduce sockeye salmon into new rivers and watersheds in the Northwest.

Researchers who conducted a recent study say catching sockeye downstream and transporting them to net pens in lakes below the spawning grounds greatly reduced

their chances of becoming infected with the deadly IHN virus.

The findings were part of a broader study conducted by the National Marine Fisheries Service and the Bonneville Power Administration on the feasibility of enlarging salmon populations in the Columbia River Basin. Researchers from Battelle's Marine Sciences Laboratory in Sequim examined fish tissue samples under subcontract to the NMFS.

The IHN virus is often found in

spawning grounds among maturing sockeye salmon. Adult fish which contract and carry the virus usually transmit it to their offspring, causing thousands of young fish to die in their first six months of life. Thousands of eggs are also destroyed each year in hatcheries because the parents are found to be carriers of the virus.

Concern about transmitting the IHN virus to other fish species has prevented the introduction of sockeye into new regions. In Washington state, sockeye salmon runs are primarily limited to the Wenatchee, Okanogan and Quinault Rivers and Lake Washington.

"With the 'catch and carry' method being examined by researchers, it appears that it is now possible to use sockeye offspring to safely restore depleted runs without fear of spreading the IHN virus," said Dr. Lee Harrell of the National Marine Fisheries Service.

In 1987 and 1988, sockeye salmon returning up the Wenatchee River to spawn above Lake Wenatchee were captured at Tumwater Dam and transported upstream about 20 miles to the lake where they were held in net pens. After spawning, egg samples were incubated and hatched in quarantine at the National Marine Fisheries Service's Northwest Center in Seattle. At the same time as the eggs were placed in incubation, Battelle researchers in Sequim examined tissue samples of the parents for signs of the virus.

"In 1987, we examined 226 sockeye salmon that were moved to Lake Wenatchee and found that none were infected with the IHN virus,"

said Dr. Ralph Elston of Battelle's Marine Sciences Laboratory in Sequim. "In 1988, examinations of sockeye that were captured and transported to Lake Wenatchee showed no signs of infection as well. By contrast, 16 of 18 sockeye salmon which migrated all the way upriver and were captured on the spawning grounds above Lake Wenatchee proved positive for the IHN virus.

"We don't know positively why the transported salmon were virus-free, but we suspect that the IHN infection results from exposure to the virus once the fish reach the spawning ground," said Harrell. "By the time they arrive at the spawning ground, many fish are battered, have lower immunities, and are possibly more susceptible to the virus. The virus may exist at relatively high concentrations in the spawning ground water but not in lakes within the watershed."

"The catch and carry method, if implemented, may have a tremendous effect on fish resource management," said Tom Flagg of the National Marine Fisheries Service. "It not only has the potential for introducing sockeye into new rivers and watersheds but it also has the potential for increasing chinook and steelhead runs as well."

Additional studies will be conducted to validate the findings and to examine further the reasons transported fish do not contract the IHN virus.

Battelle's Pacific Northwest Division, with laboratories in Richland, Seattle and Sequim, Washington, performs research and development for industrial sponsors and government agencies.

DECEMBER 11, 1989

TO: MEMBERS OF THE ALASKA FINFISH FARMING TASK FORCE

FROM: RALPH MACKIE; CHAIRMAN, CRAIG FISHERY ADVISORY COMMITTEE

I received your Interim Report dated Nov. 17 on Friday, afternoon, Dec. 8. It was postmarked Dec. 6, from the State Dept. of Fish & Game, Juneau. I regret that I was not informed in time to participate in the teleconference.

After studying your nine findings' concerning Disease, I find your first recommendation puzzling. Finding that pen stress and high fish density increase susceptibility to disease, you recommend that the finfish farming industry be accommodated provided the State controls the disease. Why? Since the specific issue as set forth in ch 145 SLA 1988 is "protecting the health of existing fisheries resources" and since you note that escapement inevitably occurs, wouldn't a more responsible recommendation be to sustain the moratorium on finfish farming until the disease problems in the pens have been eliminated or 100% contained?

Concerning Genetic's; after finding that interaction between farmed and wild finfish can violate the genetic integrity of wild stocks and that fish farmers would practice selective breeding, you make no primary recommendation but rather state that the existing state genetic's policy is adequate to protect the genetic integrity of our wild stocks. Unless the current policy strictly prohibits the selective breeding that would take place, it can not be called adequate.

In short, there is real value in the task force's findings. They are pertinent and speak for themselves. Many of your recommendations, however, appear to be biased in favor of the finfish farming industry.

Respectfully yours,

Ralph
Ralph Mackie

Shawn Sket
P.O. Box 90
Craig, AK 99921-0090
826-3251

SCOMM

75:24

Ocean Products Aquaculture Hearing Attracts Opponents

Neighboring Sea Farmers Cite OPI's Disease Rate

by Fred Hastings

Sea farmers who hold aquaculture leases on sites in Lubec near the site requested by Ocean Products, Inc. (OPI), voiced their objections to the planned OPI expansion during an application hearing sponsored by the Department of Marine Resources in Lubec last Thursday (March 1).

OPI, which currently holds leases on 95 acres split between Deep and Broad Coves in Eastport, and 5 acres off Comstock Point in North Lubec, has applied for an additional 8.54 acres, with some overlap, at its Comstock Point location.

Wallace Stevens, president of Ocean Products, in his opening testimony at the hearing, said that OPI needed the additional lease site in order to accommodate the additional 600,000 smolts that the company's two fish hatcher-

ies would be producing this spring.

Currently, he said, OPI employs some 100 people in the Eastport and Lubec area and between 10 and 15 at its Deblois and East Machias fish hatcheries where approximately 1.5 million Atlantic Salmon smolt are produced annually.

The requested lease, he said, was "only a slight adjustment to the existing site, was very similar to it in terms of environmental conditions, and it met all statutory criteria for an aquaculture operation." In addition, the site was within view and easy accessibility of the present Eastport operations, he said.

James Schmidt, vice president and general manager of OPI's Eastport facility, told the hearing officers that the lease was "vi-

Please Turn to Page 13

Ocean Products Aquaculture Hearing (from page 1)

tally important." It would ensure full utilization of the Eastport plant and full use of the smolts produced. He said that between 20 and 40 cages would be needed next winter for the growout.

In presenting its case, OPI called upon nine witnesses and presented eleven exhibits. The

"THEIR POOR HUSBANDRY is jeopardizing my livelihood," said Rier, adding that "the big guy gets most of the pie."

try standards for the Passamaquoddy Bay area, and that diseases incurred by the company threatened nearby operations.

In response to Rier's query, OPI's Schmidt stated that the success rate at their Eastport site, including "disasters" such as net openings, and those fish lost to disease, was 22%.

[a 22% rate]

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mors

compar

witnesses addressed issues of riparian access along the shore, ecological characteristics of the water and bottom, the cages' potential obstruction to navigation, and the impact the operation would have on commercial fishing operations.

Those who testified in behalf of OPI on these criteria included Tom McDougal, OPI's manager of waterfront operations; Gail Barker, OPI's permit co-ordinator; Charles Lookabaugh, master navigator; Robert Peacock, Jr., master pilot; Jon Calder, owner of Passamaquoddy Towing Services; Robert Bosine, New Brunswick aquaculture expert; Ted Ames, a water quality expert associated with Alden/Ames Lab, Stonington.

Objections Raised

Following the applicant's presentation, public testimony was entertained. Frank Rier, of New England Salmon Co., quizzed OPI on its success to date in raising fish in its salmon cages, suggesting that the company's density rates and mortality rates were higher than indus-

much less, under 5% on Cape Pello and about 10% in Lubec.

Rier also testified that he believed that OPI was understating the density of fish they have placed in their cages, a situation which increases the likelihood of problems.

"Their poor husbandry is jeopardizing my livelihood," said Rier, adding that "the big guy gets most of the pie."

In cross examination, Elizabeth Butler, OPI's attorney, asked Rier where he got his information on industry mortality rates in the area. Rier responded that his information was gathered in his frequent and on-going discussions with people working in the industry in all aspects. Ms. Butler suggested to the hearing officers that such information must be considered hearsay rather than established fact.

In response to a question asked by Ms. Butler about the size of his own aquaculture operations in the Lubec area, Rier acknowledged that he currently holds leases on 10 acres in the area and has applied for an addi-

tional 50 acres.

Berton Blanche, who fish farms a few miles further north of the Comstock Point location and whose pens are within the flood tide of the proposed site, also expressed concerns about OPI's mortality rates. He asked if the company planned to use, in the new location, any of the cages which in the past were found to be diseased, whether these cages first be disinfected, and if the company proposed to move them from Eastport to Comstock Point.

He asked the DMR for guarantees that proper fish densities could be checked as part of the lease permit, if approved. "I understand that OPI is for sale," said Blanche, "it may have new management that isn't as nice as these people are."

Capt. Butch Huntley of Lubec testified that the proposed site would remove one of the last remaining harvest locations for scallop draggers. He admitted that the harvesting wasn't great in the location being discussed, but told the hearing officers: "When pens are everywhere already it becomes one of the last places left" and significant for that reason alone.

Huntley also expressed concerns about the hazard to navigation that the lease would pose. While large craft might not be affected by the placement of the cages, smaller commercial and recreational vessels would. "It's too far out in the channel," suggested Huntley, noting that he had almost collided with buoys which his radar did not pick up.

"I'm not against aquaculture," claimed Huntley, "it's just that you've got to leave something for the [traditional commercial fisherman]."

When OPI attorney Butler informed Huntley that the Lubec Harbormaster had approved of the proposed site, Huntley testified that the Harbormaster "made his living in the Post Office" and might "get out on the water 2 or 3 times a year."

Unforeseen Benefits Possible

Robert Peacock, Jr. of Whitings suggested during his testimony that the placement of the cages further out in the channel might actually have a beneficial side effect. "If anything the site will help identify the shoal for yachting traffic," he said, adding that in his opinion, the placement of the cages would have "no effect on ship's operations as they now exist or are proposed."

Ocean Products Files Lawsuit Against Norway, Charging Illegal "Dumping"

Wallace Stevens, the president of Ocean Products, Inc., announced last week (March 1) that his company has filed a lawsuit against Norway for what it alleges is the "dumping" of Atlantic Salmon on the U. S. market in violation of trade practices and agreements between the two countries.

Dumping is the practice of selling a product below cost to

ative, administrative and marketing offices in Portland, and maintains and operates two fish hatcheries and a fishfarming facility in Washington County, operations employing over 100 people.

OPI's farming facilities are located in Cobscook Bay and Eastport and its hatcheries are in Deblois and East Machias.

Stevens had announced earlier that OPI was reviewing and restructuring its financial situation, noting that the company has been hurt in recent years by the depressed prices in the world Atlantic salmon market even as pressures have mounted to achieve a return on their investment from the venture capitalists who helped launch the company in 1983.

As part of this restructuring, Stevens had earlier said that the company was seeking new shareholders and that the re-financing plan might also include the sale of the business in whole or in part.

In announcing the lawsuit filed last week, Stevens said that while legal attempts to stop dumping practices have been attempted in the past, it has been difficult to do with traditional commercial fisheries. However, he said, since aquaculture is essentially a manufacturing process, the legal route to challenging such practices is easier and OPI's lawsuit is the first such dumping suit filed.

Wallace also indicated that part of the unfairness in competition between U. S. companies such as OPI and those in Norway, stems from the fact that Norwegian firms are heavily subsidized by the Norwegian government whereas in this country such is not the case.

--F.H.



DCP PHOTO

WALLACE STEVENS, president of Ocean Products, Inc. at last week's hearing in Lubec.

the producer in order to reduce the size of the loss that would result by not being able to sell the product at all.

When a market becomes glutted with over supply of a commodity relative to demand, causing prices to tumble, producers in one country will often attempt to lessen the detrimental economic impact by undercutting the prices for the same goods in another country. Japanese automobile producers have been accused of such practices in the past, and now the Norwegians, who are among the world leaders in the production of Atlantic salmon, have been charged.

OPI, Inc. locates its e-recu-

presence of the Town Clerk on Saturday, March 31, from 8 a.m. to 12 noon.

Regular voting hours will be the same as last year, from 9:15 a.m. to 4:15 p.m. on annual town meeting day, Tuesday, April 3. Town meeting itself will begin at 7 p.m. in the Lubec Cafetorium.

The board agreed to discuss at this week's Budget Review meeting the proposed sale of the town's 1973 dump truck. Gray Morrison related estimates of the vehicle's value and a proposed replacement based on inquiries he had made.

In their final action of the night, the selectmen approved a motion to revert to the former

open parking policy in the municipal parking lot at the Town Office. The vote was 3-1 with Selectman Donald Hampton voting in the negative. The present policy had reserved spots next to the building's entrance for transient traffic, but the selectmen noted that most people didn't realize they could park there resulting in little use of it. The inconvenience presented to municipal employees who had to park further away was also noted.

In his report to the selectmen, Laberge noted that the legal fees associated with the action taken against the owner of the American Can Company were estimated at \$1500.

Ted Ames, another witness for OPI and a water quality expert, told the hearing officers that his study of the site came to a "redundant conclusion. It's one of the best sites one could imagine—a great location," noting that the DMR has already awarded a water quality certificate for the existing tract which the application would expand upon.

Ames also suggested that the pens might have a salutary effect on the commercial fishing industry, perhaps even "attracting herring again" to the bay.

The hearing, which was held at the American Legion Hall in Lubec, attracted about 30 people and lasted five hours. The hearing was conducted by Kenneth Honey of the DMR. Tom Hartnett, of the Attorney General's office, served as an adjudicatory officer, and the DMR's Laurice Churchill submitted and presented the state's site review which is also required as part of the lease application process.

Honey indicated that a decision on the application would be made within 100 days.

3/5/88

Seattle Post-Intelligencer

P-I Focus

A HEARST NEWSPAPER

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POLLUTION ISN'T A SOUND POLICY

Should corporations use public waters for private profit?

By John de Yonge

P-I Columnist

Consider these things about floating fish farms:

■ A typical net-pen fish farming operation on Puget Sound produces pollutants "equivalent to untreated sewage from approximately 10,000 persons." That's what a state report says. The pollution comes from fish feces, urine and food pellets deposited in the water and on the bottom of the Sound.

■ There are 13 commercial pens now operating over 69 acres of aquatic lands leased from the state. These 13 operations daily deposit to the bottom of Puget Sound nearly six times as much oxygen-demanding fecal matter and other wastes than does Metro's Renton Waste Water Treatment Plant, which serves 430,000 people. The pollution depletes oxygen can radically change the environment in an unpolluted environment.

■ Siting 27 more fish farms would face opposition from upland residents, environmentalists and county officials. The load to Puget Sound equals the load of new cities the size of Everett.

■ The "... proper siting of fish farms will have significant impact on the environment." So says the state's just-issued environmental impact statement on floating net pens.

Those 100 fish farms would produce 55 metric tons of oxygen-demanding waste per day. That's 13 more tons a day than Metro's Renton and West Point treatment plants together produce from the sewage of 1 million people.

Analysis

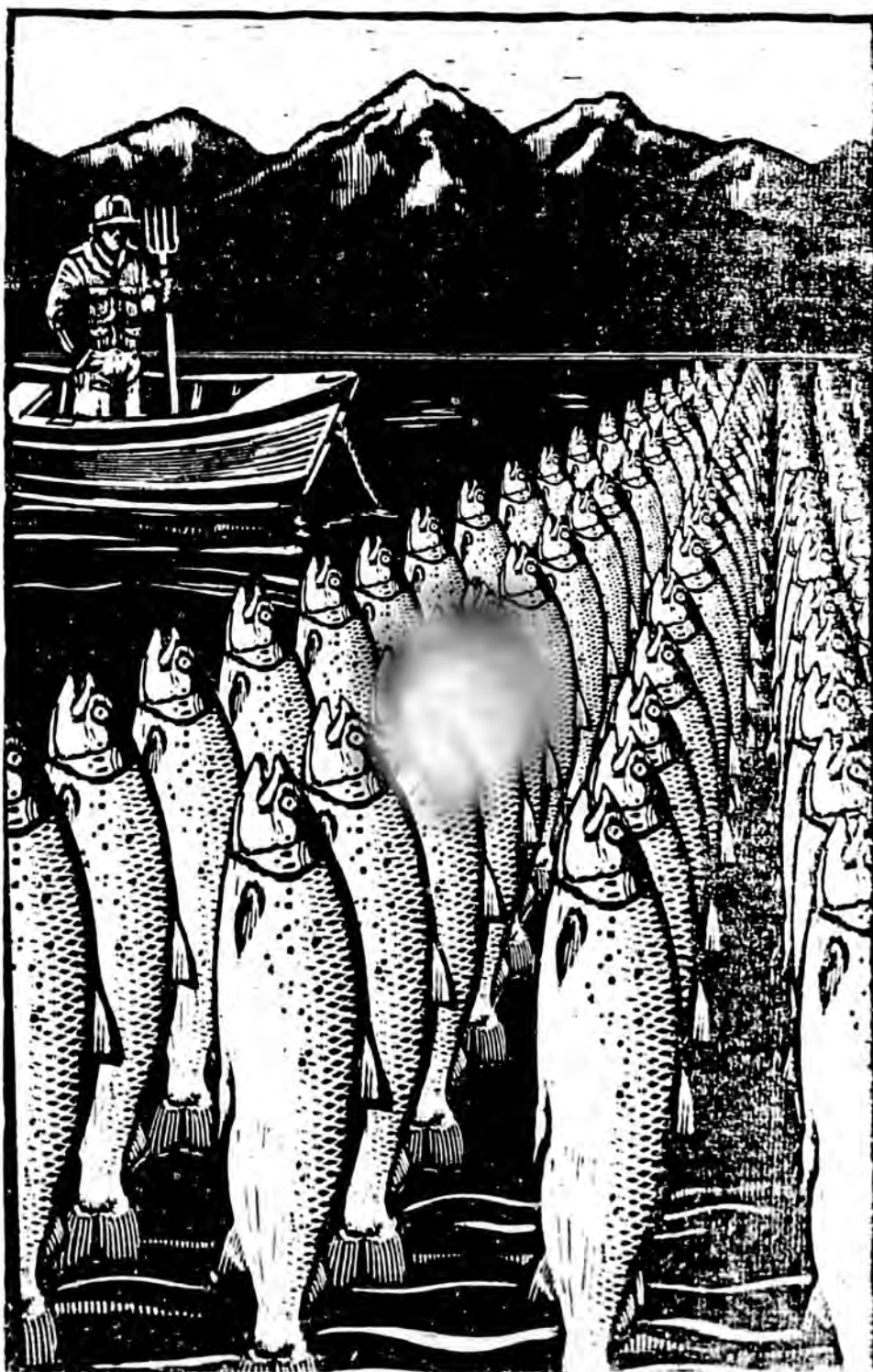
The environmental impact statement was prepared by three private organizations that supply fish-farm companies with paid expert witnesses.

Under Gov. Booth Gardner, state policy is to hush any increase of fish farming in the state's waters and to downplay environmental problems that aquaculture may bring.

The official evangelist is the Department of Agriculture's Dr. John Pitts, veterinarian and former Jefferson County commissioner who appears at meetings and hearings — in one case, as a paid witness for a net-pen applicant — to pooh-pooh environmental objections raised by net-pen opponents.

Opponents are not just those who own shoreline property, who howl against a net pen being erected in their aquatic front yard. They've been fired up by what the state's environmental impact statement confirms: A new, nearby fish farm can give view property a lifetime, financial knock.

Opponents include environmentalists like David



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Opponents include environmentalists like David Ortmann of Friends of the Earth, who says: "Why should we be happy about fish farms that dump tons of fish poop every day into Puget Sound?"

They include commercial fishermen like the Puget Sound Gillnetters, who know something that has largely escaped the notice of sport anglers:

Atlantic salmon, not a salmon but a sea-run trout of the Atlantic seaboard, have escaped by the thousands from net pens here and in British Columbia. The B.C. government booms fish farms with a gusto exceeding even the ta-ra-ra-boom-de-ays from Gardner's men and from Brian Boyle, the separately elected head of the Department of Natural Resources, which manages shore bottoms and other public lands.

What's more, hundreds of thousands of Pacific salmon have also escaped from the pens, especially in British Columbia.

So what does that mean?

The state environmental impact statement points out that escaped exotic fish like the Atlantic salmon "could establish self-sustaining populations and compete with indigenous fish," such as steelhead trout.

That may not be far off.

In the North Puget Sound last year, commercial and sports fisherman caught hundreds, probably thousands, of Atlantic salmon weighing up to 10 pounds.

More dangerous by far is that for the first time ever at least three sexually mature Atlantic salmon showed up miles from the sea in the Nooksack River last year, near Bellingham, and one in the Nisqually, near Olympia. Rumor has a fourth Atlantic netted in the Skagit River at Sedro-Woolley.

What's the worry about four fish, though they may be forerunners of thousands to come?

The environmental impact statement warns that accidental importation of "exotic" fish diseases associated with fish farms in Europe could devastate existing salmon and trout runs in state rivers.

Just in the past two weeks the public has learned that such a disease, viral hemorrhagic septicemia or VHS, has shown up at two hatcheries in state waters. It is the first time ever that VHS has been found in North America.

VHS, state fish-disease experts say, has never been found to occur naturally in Atlantic salmon. They say that the chance that Atlantic salmon in pens here are the source of the disease is "virtually zero." The disease was found in chinook and coho salmon, species raised extensively at federal, state and tribal hatcheries and at commercial net-pen operations.

The impact statement does not dwell on what has happened in Norway, where other diseases associated with that country's extensive net-pen industry have ravaged wild Atlantic salmon runs in 32 rivers. The government was forced to poison some streams, set up a salmon sperm bank to preserve wild genes and consider banning any new net pen within 12 miles of a river mouth, an obvious rule not yet under consideration here.

Nor does the statement dwell on the possibility of migrating wild fish catching indigenous fish diseases from net pens here or of net-pen escapees spreading such diseases into our river systems.

Fish farmers themselves helped call state attention to fecal build-up beneath pens, a build-up that kills clams, oysters and other bottom dwellers and can release poisonous hydrogen sulfide gas, which



can kill all fish in a pen in minutes.

In 1986 Commissioner of Public Lands Boyle limited new net pens to sites where the water is at least 40 feet deep at low tide, a mile away from other pens and with enough current to flush away food and fecal deposits. He also limited the surface area of new pens to two acres or less.

These requirements ended up in "Recommended Interim Guidelines" written for the departments of Agriculture, Ecology, Natural Resources and Fisheries, which share regulation of the fish-farm industry, with Agriculture and Pitts calling most of the shots.

With no force of law and offered to help county commissioners site pens under state law, the guidelines deliberately do not talk about navigation problems, use conflicts and, most important, esthetics.



If the two sides could stop feuding and start talking about necessary standards, we could have a safe, considerable industry.

—Peter Katz, fish farmer

Commissioners have learned that if they turn down a net-pen proposal, the applicant will seek a full rehearing before the state's Shorelines Hearings Board, with Pitts certain to show up to put the stamp of Gardner's administration on having the permit granted.

Dwain Colby, an Island County commissioner, put the matter thus in a 1987 letter:

"While there may be legitimate reasons for denying a permit to locate a salmon net pen, local government has been placed in the position of being able to say 'yes' to such a proposal but not 'no.'"

Under Gardner, the Department of Ecology has refused to require net pen operators to get pollution-limiting discharge permits under the federal Clean Water Act.

The Sierra Club Legal Defense Fund has announced it will sue the U.S. Environmental Protection Agency if necessary to force EPA to force Ecology to force every net pen operator have such a permit.

The state's draft environmental impact statement declares that the major impacts of net pens can be cured by "proper farm siting to assure dispersion of wastes, flushing of the site and protection of sensitive areas."

It's a view that one can come to easily while talking to such eloquent fish farmers as Peter Katz, a marine architect running the Paradise Bay Co. net farm at Port Townsend, and John Forster, a Ph.D. in aquaculture running Sea Farm Washington's similar

operations at Port Angeles.

Both pen systems, clean, low in the water, full of fat, bright Pacific and Atlantic salmon, are barely noticeable in the working waters they contain them.

But that's quite different than sitting a pen in Frenchman's Cove on the west side of Horn Island, as International Marine Farms Inc. proposes.

Or siting a pen, as Taffin Inc. proposes, on a main salmon and trout-fishing cove between Point and Bells Beach on the west side of Horn Island, where from her home Marjorie Johnston looks out across Saratoga Passage to the Strait of Juan de Fuca. She heads the Marine Environmental Council, made up of 20 citizen organizations and unions and other floating farms.

Katz argues for having the state set standards for siting and operating net pens, to keep the pens do not harm the environment. He offers net-pen operators a clear but "flexible" regulatory framework to live with. But Katz feels the industry is getting a bad rap from people like Johnston, he says, simply don't want a net pen in their aquatic front yard.

"If the two sides could stop feuding and start talking about necessary standards, we could have a safe, considerable industry," he says. "But we're years away from that."

Forster, president of the Washington Fish Growers Association, dismisses esthetic objections as the main drive behind the opposition to what he characterizes as a clean, beneficial industry with vast prospects.

"It's more than esthetics. It's an intrusion into a life style that they don't like and they've got environmental problems as a backdrop. Because of that, the debate is distorted at the moment, terribly dishonest."

Johnston, at a gathering in her home with other members of the Marine Environmental Council, characterizes such comments as unwelcome.

"The net pen issue raises a fundamental issue of public policy that involves more than us, though the environmental questions are real and cannot be brushed aside by the industry or the state. The big question is: Should the public waters of Washington State be turned over to a few corporations for private profit?"

That's a proper question for us all to ask. It must be answered by political action. Gardner's administration has already answered: Yes.

To me it seems stupid to site more pens in pristine salt and fresh waters (yes, an application is pending in Eastern Washington) until we have better, more extensive scientific information about siting than what the draft environmental impact statement supplies.

Until we know if pens can be sited safely anywhere, we would be blind to commit ourselves to putting major sources of pollution in our populated waterways and in waterways we are trying to clean up.

The tragedy of Norway's rivers demonstrates that.

Outdoors

NO SMALL FRY

Andy Wescott has big dreams for Coho Ranch

By KELLY BOSTIAN
Staff Writer

This week, a long-standing debate over finfish and mariculture again rises in Juneau, while reports of a new disease surfacing in coastal mariculture operations in Washington strikes fear into biologists and aquaculturists.

Meanwhile, back at the ranch, Andy Wescott, small time Interior fish farmer, keeps dreaming big and hopes that Mrs. Andy's Coho Ranch won't go belly up.

Wescott lives at Lakeview Terrace, just outside Fairbanks to the south. He is the only licensed finfish farm operator in the state. Two years ago, a moratorium was placed on aquaculture to allow the state to look into the risks of developing such an industry.

Wescott has been an exception because his small operation is enclosed, as opposed to the net pens in open water ocean hatcheries. He uses well water that is recirculated through two 1,200-gallon tanks in his garage.

"It's really just kind of a big aquarium," he said. Wescott and his wife, Pamela, enjoy working with the fish and grow somewhat attached to them, he said. He had about 1,200 fish in the tanks until last weekend, when he dumped about 800 in the lake outside his home. They were part of an experiment and helped prove his system works.

The remaining 200 or so coho salmon will be used to see how large he can make them in a short period of time. He hopes they'll grow to 3 to 5 pounds in four to eight months.

An enjoyable endeavor

He spends his mornings in the garage with the hum of oxygen pumps and heaters, feeding the fish, watching them for signs of change, checking equipment.

The Wescotts also own the Little Eldorado Gold Camp, a tourist attraction off 1 Mile Elliott Highway. "That's basically 120 days of hard work, but what do you do the rest of the time?" he said.

They started their fish farm operation during a time of high in-

terest in pure beef and pure chicken products without steroids. They looked into different fresh products, read about fish farms in Canada, and decided to try it on their own.

"We just kind of put two and two together," he said. "Fish farming has worked well all over the world and there's no reason why it can't work here."

Despite his status as the only operation in the state, Wescott has had a hard time getting a backer. He wants to go big, real big. But he can't do that without money.

Politics, he said, is a big part of what is holding him back.

Politics in fish

The introduction of SB 195, on Monday, promises to spark renewed debate over the mariculture industry in Alaska, and Wescott is in the middle of it.

The bill, sponsored by the Senate Resources Committee, would authorize all forms of finfish farming under a permit system after the moratorium expires July 1, 1990, according to Sen. Bettye Fahrenkamp, D-Fairbanks, committee chairwoman.

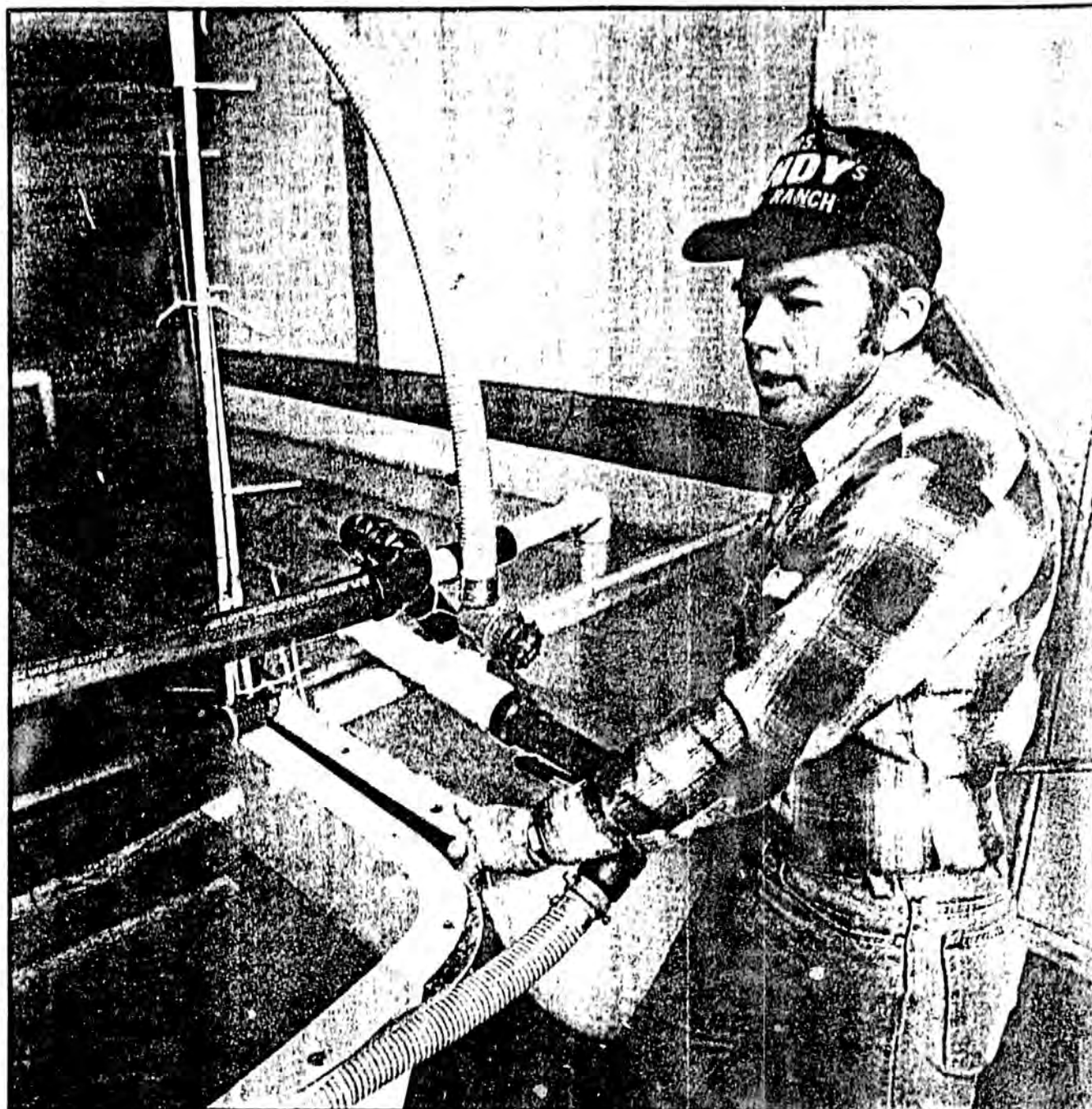
Diseases such as the outbreak in Washington this week are what people who oppose development of mariculture fear most. The Washington virus led two hatcheries to destroy 3.8 million fish and eggs, about one percent of the entire Washington state hatchery production, according to the Associated Press.

There is little if any chance of such an outbreak originating in a project like Wescott's. "It's isolated from any running water," he said. "If we have a disease outbreak, you just shut the whole thing down and that's it. My fish would have to travel through seven miles of sewer pipe before they come in contact with any other fish."

Wescott, who will testify before the resources committee Monday, thinks news of the Washington outbreak will hurt SB 195. No matter what the outcome, however, he will have his say in Juneau and that can't hurt.

Education is a key

"I think we'll see another mora-



FROM LITTLE ACORNS—Andy Wescott discusses politics, fish and economics at Mrs. Andy's Coho Ranch,

a two-tank fish farm he has in his garage. He has visions of one day producing 5 million pounds of fish a season.

Mike Belrose/News Miner

torium, which will mean I'll be the only operation for another couple of years," he said. "I was hoping it would go through. It would help me more if it went through, but it's not going to hurt me if it doesn't."

"People in Juneau don't understand what I'm doing. So what I have to do is educate them and help them understand the difference between net pen farming in the ocean and tank farming in the Interior. The big thing is that we're pioneering something here that could make a big difference in the economy of the Interior."

While in Juneau, he also will speak to the Alaska Board of Fisheries. What's held Wescott back more than anything, he said, is his inability to tell potential supporters that he has a guaranteed supply of new eggs each year. The

board annually decides whether Wescott can take eggs or not.

He hopes that next week he will get the go-ahead to take eggs. "I'm quite sure they'll give me everything I need," he said. "It will be controlled, but we'll probably come out with a law that says my project can take eggs for as long as it exists. Then, it's just a matter of how many and what species each year."

Wescott also hopes his testimony in Juneau will help him gain public awareness and help with his bid for an \$800,000 grant from the Alaska Science and Technology Foundation.

Dreaming big

He has 200,000 coho salmon fry waiting for him at the Alaska Department of Fish and Game hatchery at Clear. Clear hatchery per-

sonnel have been giving him some technical assistance and he has learned quite a lot from helping them with egg-take and spawning operations at their weir, he said.

If he doesn't get the money the hatchery will keep the cohos and mix them in with stocking programs.

It would take \$800,000, he estimates, to get that initial batch to market. Then the operation would be off and running. "We would get about 600,000 pounds of fish," he said. "Selling at \$5.40 a pound, and costing \$2.40 a pound to raise, anyone who knows simple math can see the profit margin."

With the grant money, Wescott would employ 12 people in construction and operation phases of the project, he said. Eventually, he could produce up to 5 million

pounds of fish a season and employ up to 40 Fairbankers.

He's looking to compete in a market with hatcheries in Norway and Idaho, which now are selling their products in Alaska grocery stores. He also talked to a dealer in Korea who said he could take as much as 10,000 pounds of fresh fish a week. "It could be a great export product for Fairbanks," Wescott said.

Until he finds a backer, Wescott said, the grant is probably his only chance for success.

He has talked to major seafood companies to see if they would back him, but has made no progress. "What they tell me is, 'Andy, you're the only game in town. Is it right now it's easier to go sign our name in Canada and go to work and go to Washington or Idaho and buy a farm.' They don't really offer me the why for nots," he said.

POLLUTION ISN'T A SOUND POLICY

Should corporations use public waters for private profit?

By John de Yonge

Consider these things about floating fish farms:

■ A typical net-pen fish farming operation on Puget Sound produces pollutants "equivalent to untreated sewage from approximately 10,000 persons." That's what a state report says. The pollution comes from fish feces, urine and food pellets deposited in the water and on the bottom of the Sound.

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■ Siting 27 more fish farms, now delayed by opposition from upland property holders, environmentalists and county officials, would add a pollution load to Puget Sound equal to that from building four new cities the size of Everett.

■ The "... proper siting of 100 farms would not have significant impact on the aquatic environment." So says the state's just-issued environmental impact statement on floating net pens.

Those 100 fish farms would produce 55 metric tons of oxygen-demanding waste per day. That's 18 more tons a day than Metro's Renton and West Point treatment plants together produce from the sewage of 1 million people.

Analysis

The environmental impact statement was prepared by three private organizations that supply fish-farm companies with paid expert witnesses.

Under Gov. Booth Gardner, state policy is to hush any increase of fish farming in the state's waters and to downplay environmental problems that aquaculture may bring.

The official evangelist is the Department of Agriculture's Dr. John Pitts, veterinarian and former Jefferson County commissioner who appears at meetings and hearings — in one case, as a paid witness for a net-pen applicant — to pooh-pooh environmental objections raised by net-pen opponents.

Opponents are not just those who own shoreline property, who howl against a net pen being erected in their aquatic front yard. They've been fired up by what the state's environmental impact statement confirms: A new, nearby fish farm can give view property a one-time, financial knock.

Opponents include environmentalists like David Ortman of Friends of the Earth, who says: "Why should we be happy about fish farms that dump tons of fish poop every day into Puget Sound?"

They include commercial fishermen like the Puget Sound Gillnetters, who know something that has largely escaped the notice of sport anglers:

Atlantic salmon, not a salmon but a sea-run trout of the Atlantic seaboard, have escaped by the thousands from net pens here and in British Columbia. The B.C. government booms fish farms with a gusto exceeding even the ta-ra-ra-boom-de-ys from Gardner's men and from Brian Boyle, the separately elected head of the Department of Natural Resources, which manages shore bottoms and other public lands.

What's more, hundreds of thousands of Pacific salmon have also escaped from the pens, especially in British Columbia.

So what does that mean?

The state environmental impact statement points out that escaped exotic fish like the Atlantic salmon "could establish self-sustaining populations and compete with indigenous fish," such as steelhead trout.

That may not be far off.

In the North Puget Sound last year, commercial and sports fisherman caught hundreds, probably thousands, of Atlantic salmon weighing up to 10 pounds.

More dangerous by far is that for the first time ever at least three sexually mature Atlantic salmon showed up miles from the sea in the Nooksack River last year, near Bellingham, and one in the Nisqually, near Olympia. Rumor has a fourth Atlantic netted in the Skagit River at Sedro-Woolley.

What's the worry about four fish, though they may be forerunners of thousands to come?

The environmental impact statement warns that accidental importation of "exotic" fish diseases associated with fish farms in Europe could devastate existing salmon and trout runs in state rivers.

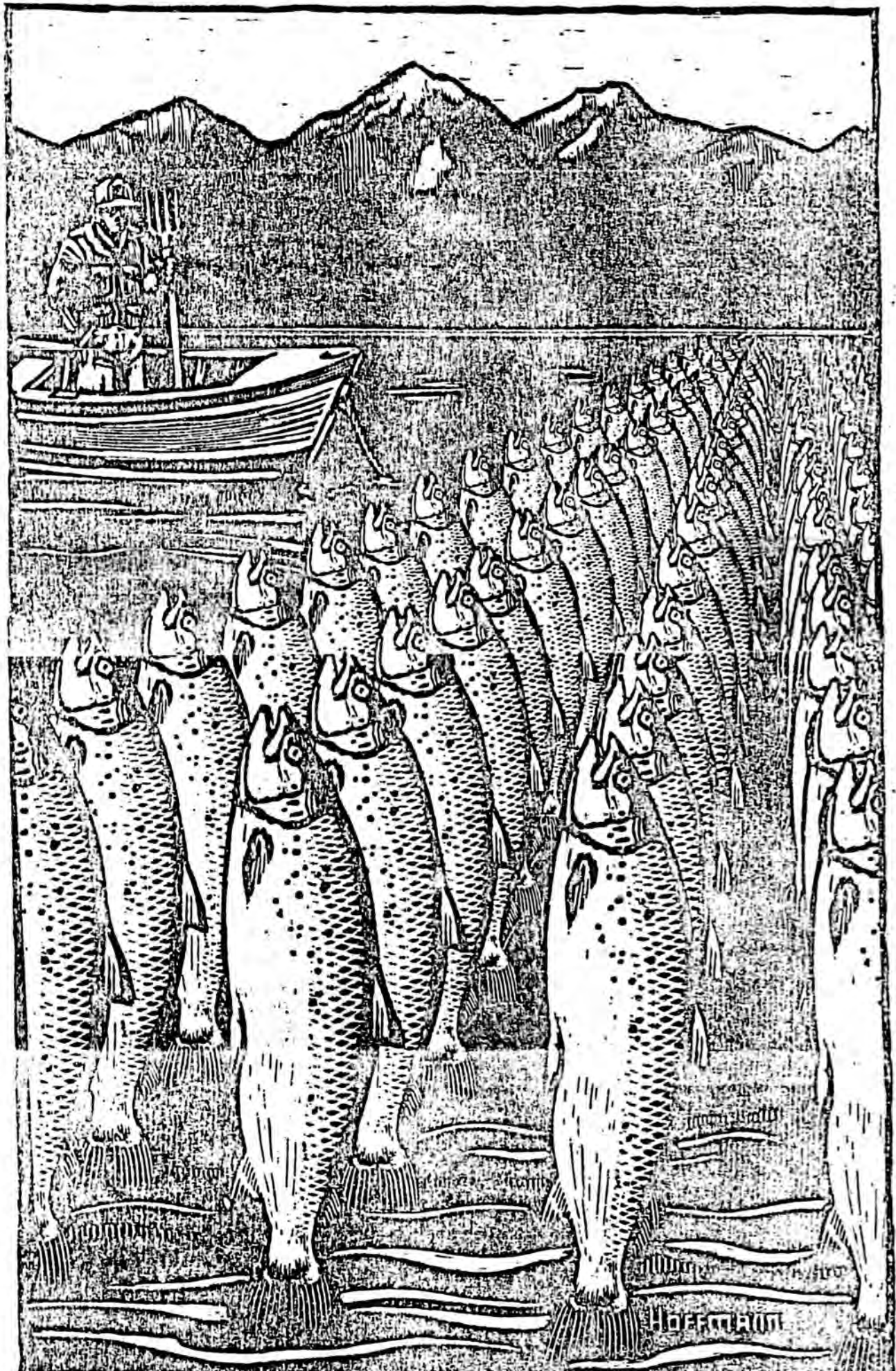
Just in the past two weeks the public has learned that such a disease, viral hemorrhagic septicemia or VHS, has shown up at two hatcheries in state waters. It is the first time ever that VHS has been found in North America.

VHS, state fish-disease experts say, has never been found to occur naturally in Atlantic salmon. They say that the chance that Atlantic salmon in pens here are the source of the disease is "virtually zero." The disease was found in chinook and coho salmon, species raised extensively at federal, state and tribal hatcheries and at commercial net-pen operations.

The impact statement does not dwell on what has happened in Norway, where other diseases associated with that country's extensive net-pen industry have ravaged wild Atlantic salmon runs in 32 rivers. The government was forced to poison some streams, set up a salmon sperm bank to preserve wild genes and consider banning any new net pen within 12 miles of a river mouth, an obvious rule not yet under consideration here.

Nor does the statement dwell on the possibility of migrating wild fish catching indigenous fish diseases from net pens here or of net-pen escapes spreading such diseases into our river systems.

Fish farmers themselves helped call state attention to fecal build-up beneath pens, a build-up that kills clams, oysters and other bottom dwellers and can release poisonous hydrogen sulfide gas, which



DUANE HOFFMANN/P-I

can kill all fish in a pen in minutes.

In 1986 Commissioner of Public Lands Boyle limited new net pens to sites where the water is at least 40 feet deep at low tide, a mile away from other pens and with enough current to flush away food and fecal deposits. He also limited the surface area of new pens to two acres or less.

These requirements ended up in "Recommended Interim Guidelines" written for the departments of Agriculture, Ecology, Natural Resources and Fisheries, which share regulation of the fish-farm industry, with Agriculture and Pitts calling most of the shots.

With no force of law and offered to help county commissioners site pens under state law, the guidelines deliberately do not talk about navigation problems, use conflicts and, most important, esthetics.

66

If the two sides could stop feuding and start talking about necessary standards, we could have a safe, considerable industry.

—Peter Katz,
fish farmer

Commissioners have learned that if they turn down a net-pen proposal, the applicant will seek a full rehearing before the state's Shorelines Hearings Board, with Pitts certain to show up to put the stamp of Gardner's administration on having the permit granted.

Dwain Colby, an Island County commissioner, put the matter thus in a 1987 letter:

"While there may be legitimate reasons for denying a permit to locate a salmon net pen, local government has been placed in the position of being able to say 'yes' to such a proposal but not 'no.'"

Under Gardner, the Department of Ecology has refused to require net pen operators to get pollution-limiting discharge permits under the federal Clean Water Act.

The Sierra Club Legal Defense Fund has announced it will sue the U.S. Environmental Protection Agency if necessary to force EPA to force Ecology to force every net pen operator have such a permit.

The state's draft environmental impact statement declares that the major impacts of net pens can be cured by "proper farm siting to assure dispersion of wastes, flushing of the site and protection of sensitive areas."

It's a view that one can come to easily while talking to such eloquent fish farmers as Peter Katz, a marine architect running the Paradise Bay Co. net farm at Port Townsend, and John Forster, a Ph.D. in aquaculture running Sea Farm Washington's similar

operations at Port Angeles.

Both pen systems, clean, low in the water, quiet, full of fat, bright Pacific and Atlantic salmon, are barely noticeable in the working harbors that contain them.

But that's quite different than siting a pen in Frenchman's Cove on the west side of Hood Canal, as International Marine Farms Inc. proposes.

Or siting a pen, as Tailfin Inc. proposes, in a main salmon and trout-fishing cove between East Point and Bells Beach on the west side of Whidbey Island, where from her home Margaret Johnston looks out across Saratoga Passage to Camano Island. She heads the Marine Environmental Consortium, made up of 20 citizen organizations that oppose fish and other floating farms.

Katz argues for having the state set standards for siting and operating net pens, to ensure that the pens do not harm the environment and to give the net-pen operators a clear but flexible regulatory framework to live with. But Katz feels the industry is getting a bad rap from people like Johnston, who, he says, simply don't want a net pen in their aqueous front yard.

"If the two sides could stop feuding and start talking about necessary standards, we could have a safe, considerable industry . . .," he says. "But we're years away from that."

Forster, president of the Washington Fish Growers Association, dismisses esthetic revulsion as the main drive behind the opposition to what he characterizes as a clean, beneficial industry with vast prospects.

"It's more than esthetics. It's an intrusion into a life style that they don't like and they're using environmental problems as a smokescreen . . . Because of that, the debate is dishonest at the moment, terribly dishonest."

Johnston, at a gathering in her home with other members of the Marine Environmental Consortium, characterizes such comments as unworthy.

"The net pen issue raises a fundamental issue of public policy that involves more than us, though the environmental questions are real and cannot be brushed aside by the industry or the state. The big question is: Should the public waters of Washington State be turned over to a few corporations for private profit?"

That's a proper question for us all to ask. It must be answered by political action. Gardner's administration has already answered: Yes.

To me it seems stupid to site more pens in pristine salt and fresh waters (yes, an application is pending in Eastern Washington) until we have better, more extensive scientific information about siting than what the draft environmental impact statement supplies.

Until we know if pens can be sited safely anywhere, we would be blind to commit ourselves to putting major sources of pollution in our unpolluted waterways and in waterways we are trying to clean up.

The tragedy of Norway's rivers demonstrates that.

TO: Finfish Farming Taskforce November 5-6

FR: Chip Thoma

RE: Cost/Benefits of farmed salmon proposal

A recent Nov. 1 article in the Seattle P.I. describes a report by a public advocacy group in Wash.D.C., Public Voice for Food and Health Policy, describing U.S. marketed shellfish as a "significant public threat" and is calling for a rigorous national seafood inspection program to replace the current hodgepodge of federal, state and local regulations, which the group describes as "lax".

The report quotes U.S. Food and Drug Administration Commissioner Frank Young's testimony in Congress this September that shellfish is 100 times more likely to cause illness and 250 times more likely to cause death than chicken. The most commonly cited dangers are toxins absorbed from pollution and poisoning due to red tide.

I bring this to your attention to spotlight the increasing trend in consumer buying and eating habits; to stay away from raised or harvested foods that are linked with pesticides, toxins, or additives, be they apples, shellfish, beef or farmed salmon.

However, Alaskan seafood, especially sea-run salmon, has the distinct opportunity to be the nutritional food of the 1990's. The marketing done thus far stresses the PURE, COLD, FRESH nature of our products. Yet we will lose this strong market advantage if we are linked as another area that farms its fish, and is subject to the same degree of consumer doubt about product viability; whether toxins are present or have been released nearby, and what kinds and quantities of antibiotic chemicals, hormones, pesticides, and antifoulants have been used to produce the fry, smolts, and pan-sized products of salmon farming.

So this is a strong, cautionary plea to recognize this significant consumer trend in buying and eating. A myriad of nutrition magazines, news articles and features are spotlighting risks to consumer health from ingesting tainted or additive-induced foods. In such a volatile information age, one major incident with farmed salmon in Alaska could begin a decline in consumer purchases of Alaska seafood, because we are too high profile and significant a geographic area to avoid the stigma of such negative news. And we are presently too important an area for world production of wild salmon to jeopardize this distinct market advantage.

Reference articles attached

NOTE: In early January, a 20/20 segment by Barbara Walters went into depth on the toxicity of all shellfish in the U.S. Four speakers recommended that raw shellfish never be eaten because pollution and the high incidences of death relative to chicken and beef.

SUSPICIOUS SEAFOOD

Consumers face
some shell shock

By Jonathan Susskind
P-I Reporter

It's a Friday night at Elliott's Oyster House in Seattle, and Brian and Marcia Claxton are as happy as clams, because they've just polished off a dozen raw oysters for an appetizer.

The couple, vacationing here, usually eats East Coast or Gulf of Mexico oysters back home in Chicago, so Elliott's varied stock of Western oysters was a treat.

"We thought they were great," says Marcia Claxton. "We love oysters."

She looks puzzled when asked about recent warnings of possible illness from eating raw shellfish. "I haven't heard about it," she says, although she knows that, closer to home, it's not a wise idea to eat Great Lakes fish often, because of pollution.

Brian Claxton has heard the warnings about shellfish but isn't concerned. "There's a lot of danger living along a fault line, too," he says. "We weren't worried about it tonight."

The Claxtons are just the kind of people that the shellfish industry loves and that public health groups are trying to reach. Last month, a consumer interest group published a report claiming that one out of 250 people who eat raw shellfish will get sick from it.

The report, released at a food journalists convention in Seattle, contained little information that was new and some that was inaccurate. But it added fuel to a debate over the safety of the seafood we eat.

People have known for centuries that shellfish — especially oysters, clams, mussels and other mollusks consumed raw — can sicken, even kill. In this country, six to 20 people a year die from tainted shellfish,



Such people should never eat raw shellfish, or any raw animal products at all, officials in industry, government and the lobbies agree. "We don't want those people to eat oysters," says Tim Smith, executive director of the Pacific Coast Oyster Growers Association based in Olympia.

FOR MOST PEOPLE who eat raw mollusks — perhaps 20 percent of all shellfish eaters — an effective system is in place that minimizes the risks, industry officials claim.

But Public Voice for Food and Health Policy, a Washington, D.C., advocacy group, isn't convinced. Its report claims that shellfish as it's marketed today is "a significant public threat," and that the regulation system supervised jointly by state, federal and industry officials is "lax." The group calls for a rigorous national seafood inspection system to replace or overhaul the current programs run by a diffuse network of local, state and federal agencies.

The report, quoting Food and Drug Administration commissioner Frank Young's testimony to Congress in September, says that shellfish is 100 times more likely to cause illness, and 250 times more likely to kill, than chicken.

But Dr. John Liston, a University of Washington microbiologist who is chairman of a national panel studying seafood safety issues, cautions that numbers "ignore a lot of data."

Liston, former director of the UW Institute for Food Science and Technology, heads a panel that is examining the scientific data on seafood safety. The committee was created by the National Academy of Sciences and the National Research Council. Another federal agency is working with the seafood industry to develop hazard-control programs for processors.

Reports from the two efforts likely will be guides for a national seafood inspection program, which Congress is considering creating through six bills now before it.

ALTHOUGH Public Voice claims that seafood-related illnesses are on the rise, FDA Commissioner Young told Congress that only 5 percent of all food-borne illness cases are traced to seafood, and that four-fifths of those are from two toxic conditions in some fin fish.

Most sources admit that the data of seafood-borne illness, apart from death, is inadequate and open to interpretation.

Public Voice's report cited Centers for Disease Control estimates that 61,000 people may become ill from eating raw or partially cooked mollusks in a

caused illnesses tend to be "non-booyant" in their effects — diarrhea, vomiting, chills, tingling limbs — and thus get reported by doctors to government health agencies. Illnesses from other contaminated foods may not be as severe and may not be reported.

No matter the numbers, Liston said, "I would recognize as a consumer that anytime I eat raw shellfish, I am running a risk, and I might choose not to eat raw shellfish, but that should be my choice, I suspect."

WASHINGTON shellfish growers are depending on the right of choice. The state is the second-largest producer of oysters, after Louisiana, harvesting one-quarter of the nation's crop — nearly 9 million pounds last year.

The growers, whose industry dates back to the last half of the 19th century, say their cultivated products are being unfairly lumped together with Southern and Eastern mollusks, almost all of which are harvested wild.

Are West Coast shellfish safer? "That's an inflammatory statement, but it's probably true," said Liston. "The degree of control is less in many East Coast systems."

Cultivated shellfish are monitored more closely, he said. Locally, they are less subject to disease organisms common to warmer waters, Liston said, although even here there is the danger of paralytic shellfish poison during outbreaks of red tide. Harvesting in an affected area is halted when state monitoring officials detect the organism.

SOME OF THE DANGERS from shellfish that Public Voice cited stem from illegal harvesting from waters polluted or closed by red tide, particularly in Louisiana. State and industry officials here say "bootlegged" shellfish is rare here, although the potential exists because of the state's long coastlines and the regional custom of shellfish gathering.

But consumer eating habits also are different here, says Harry Yoshimura, co-owner of Mutual Fish Co. in Seattle. "On the West Coast, raw shellfish has never been a popular item" as much as in the East, Yoshimura says.

Moreover, Easterners commonly eat raw clams, including the viscera where toxins and germs can accumulate, Yoshimura said. Clams here are almost always cooked or only the muscle meat is eaten, he said. Also, elsewhere raw mussels are eaten, a practice almost unheard of here.

Liston said that if you are really worried about getting sick from eating raw or partially cooked shellfish, just don't. For those who won't stop, he noted that some species are more dan-

gers than others, and you should protect yourselves of it, Liston said. Butter clams, however, store the toxin in their flesh long after the bloom has past. Larger butter clams in some areas may be tainted almost all the time.

Geoducks are not believed to harbor the organisms, Liston said. The giant clam's deep digging habits may protect it, and the fact that humans eat only the muscular breast and siphon — not organs that concentrate the poison — may protect us.

Dungeness crabs have been tested for infection by potentially fatal *Vibrio vulnificus* bacteria, after the germs were found in Chesapeake Bay blue crabs, but none was found. The germ is present in local waters, said Sue Hutchcroft, Food and Drug Administration spokeswoman in Bothell, but has not been found in crustaceans or shellfish here.

Safe seafood needn't be a shell game

By Jonathan Susskind

P-I Reporter

Short of deciding not to eat any seafood — a move a vegetarian might applaud but most nutrition experts would deplore — consumers may take specific actions to reduce the chance of becoming ill from fish and shellfish.

Sources include the National Fisheries Institute, Public Voice for Food and Health Policy, Dr. John Liston, microbiologist and former director of the Institute for Food Science and Technology at the University of Washington.

Know the seller: Getting to know your seller, and making sure he or she knows you, is a step toward assurance of getting safe, high-quality seafood every time.

Generally speaking, if one buys shellfish or fish from a reputable retailer, then there's a very high assurance that the material is safe," said Liston.

Buy younger or smaller fish that have had less time to accumulate chemical residues and natural toxins, and choose leaner species because contaminants can sometimes be stored in fat.

Don't buy seafood from someone selling from a truck on the roadside who says it's "fresh" dug or caught. You cannot know if it came from closed polluted waters, if it was stored properly, even if it is the type of product claimed.

In a restaurant, don't be shy about sending back seafood that doesn't smell or taste good to you or that is not thoroughly cooked, if that is how you ordered it.

If you dig or fish: Even if no warning sign is posted at a beach, check with the state or local health department before digging for mollusks to be sure the area is approved. Do not dig in unapproved areas.

Never fish for edible catch in unapproved areas or near industrial sites, such as the Duwamish River or Commencement Bay.

Buy raw shellfish cautiously: Mollusks — clams, oysters and mussels — must come from certified shippers when sold to stores and restaurants. If in doubt, ask to see the tag that comes with shell-on products, or check the shipper number on containers of shucked oysters. These are the numbers state health officials use to trace the origins of shellfish suspected to have caused illness.

Do not buy raw oysters harvested from the Gulf of Mexico in summer months.

Store it right: Keep fish cold (32 to 38 degrees F.) or frozen (0 degrees F.) until ready to use. Thaw frozen fish in the refrigerator or in a sink full of cold water.

Refrigerate live shellfish in a moist, ventilated container, not a plastic bag or closed container. Don't cover them with fresh water or bury them in ice.

When cooking seafood: Don't cook shellfish that have died during storage, and don't eat mollusks if their shells don't open after cooking.

Fish is cooked when it reaches an internal temperature of 145 degrees and is just starting to flake. Unfortunately, at that stage the flesh may still harbor disease-causing micro-organisms. And many people enjoy fish, particularly meaty types like tuna, only seared on the outside and a rosy medium-rare at the center.

For the best assurance of safety, fish and shellfish should be cooked to an internal temperature of 160 degrees F., according to Liston. However, this may result in well-done and possibly dry fish and likely will toughen mollusks. Usually there is no problem achieving a high enough temperature with fried seafoods unless there is a very thick batter, he said.

Steaming clams for 5 minutes at 212 degrees F. (the boiling point of water) is considered adequate for safety, Liston said.

Handle raw and cooked seafoods separately — preferably in distinct, clean work areas. Clean knives, containers and cutting boards in hot soapy water before using them for anything else.

If you eat seafood raw: Do not eat raw or partially cooked oysters if you have AIDS or ARC, cancer, liver disease, diabetes mellitus, chronic kidney disease, inflammatory bowel disease or achlorhydria (low or absent stomach acid); if you are a chronic alcohol abuser; or if you are taking anti-cancer drugs, radiation treatment or immunosuppressive drugs; or if you are dependent on steroid drugs.

Persons with AIDS or ARC, cancer, medically suppressed immune systems and some other diseases are warned against eating any raw seafood because of the increased risk of bacterial contamination in uncooked flesh foods. HIV-infected people should be very careful about working with uncooked food if they have cuts or sores on their hands.

Follow the above precautions on purchasing and storing seafoods.

If not previously frozen, freeze fish intended for sashimi, sushi or

seviche for seven days at 0 degrees F. or three days at -20 degrees F. to kill parasitic worms.

See a doctor at the first sign of stomach upset or other illness after eating raw seafood.

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December 12, 1989

TO: Finfish Farming Taskforce

FR: Chip Thoma, observer

RE: Final comments

After a close review of the Taskforce findings and attending two of your meetings, I am very encouraged by the substance of the research and discussion on this important issue of salmon farming in Alaska. Neither Washington nor British Columbia made such an effort prior to establishing farms and I feel the result would have been different had they done so. Your report gives a full measure of caution and the implications of permitting such facilities in Alaska, and you are to be credited for your efforts.

As a final comment on salmon farms, I have become even more convinced that Alaska's role in fostering wild salmon stocks and habitat is paramount, to the exclusion of farmed salmon. Suitable and productive habitat for wild salmon is diminishing rapidly, worldwide, and consumers are increasingly aware that it's steady elimination by dams and the assaults by logging, pulp mills, and pollution are causing great concern for the survival of a major protein foodsource.

Yet the destruction of natural habitat for salmon does not mean that consumers will switch and stay with farmed fish. The issues of chemical additives have also become reasons to avoid this product, and seafood in general. That is the real threat we face; total consumer rejection of any water-raised product because of increasing bad publicity over carcinogens, pollution, red tides and chemicals.

The issue of salmon farming in Alaska is not a progressive policy alternative. Rather, it is an acknowledgement that since consumers will buy and eat cheaper versions of the real thing that we should join areas that raise these products. It ignores the fact that we are joining to encircle consumers with only two alternatives to tainted fish from natural habitat; farmed products and abstinence.

The better course, I am convinced, is to vehemently preserve the wild habitat that remains, almost entirely in Alaska, and preclude any lessening of that

commitment. I am confident that in a very few years consumers will highly value the knowledge that Alaska seafood products, especially salmon, are wild, pure, nutritious, and even expensive. But sometimes you get what you pay for.

Recent newspaper articles attached.

Lake's businesses struggle to survive as salmon die off

By PAIGE St. JOHN
The Associated Press

TRAVERSE CITY, Mich. — One of the customers on Denny Grinwald's Lake Michigan charter boat this summer put the hard times facing the lake's sport-fishing businesses into painfully clear perspective.

"He said, 'Captain, I understand there's bad news and good news on the lake. ... The bad news is I can't eat the fish I catch. The good news is I'm not going to be able to catch one.'"

Grinwald, president of the Michigan Charter Boat Association, isn't laughing.

What was, by U.S. Fish and Wildlife Service estimates, the cornerstone of a \$1.6 billion Great Lakes fishery for Michigan in 1985 has weakened dramatically.

A bacterial disease seems to be decimating the lake's bread-and-butter sport fish, chinook salmon. And this summer, the National Wildlife Federation issued a controversial warning that chemical contamination was making the fish a risky meal.

Low catches and fish-consumption warnings drove 140 Michigan charter boats off the lake this year, leaving 876 operators where two years ago there were more than 1,000, Grinwald said Wednesday.

More are expected to leave by spring.

"I know at least six boats from Ludington that will go to New York next year," Ludington charter captain Jim Lacko said. "That's bad. When you lose charter boats,

you start losing motel rooms."

Lacko estimates he lost half of his business in the past two years. "The fishing is just not there," he said.

Wisconsin's creel surveys show a 50 percent drop in the number of chinook salmon caught, said Mike Hansen, a Wisconsin Department of Natural Resources fish specialist in Madison.

Michigan surveys map a drop in the amount of time sport fishermen spent on the lake — down from 3.5 million hours spent at nine ports in the mid-1980s to an estimated 1.8 million hours this year, said Gerald Rakoczy, Michigan Department of Natural Resources biologist in Charlevoix.

The chinook catch alone in the region from Ludington to Frankfort — along the middle western coast of Lake Michigan along Michigan's Lower Peninsula — dropped from 242,000 fish in May and August of 1986 to 34,000 chinook the same period this year.

Chinook salmon, introduced into Lake Michigan more than 25 years ago to control an alien alewife population, are the dominant sport fish in the lake.

The salmon sport-fishing industry supports not only charter operations but has helped revitalize many coastal towns.

"I've always felt the economic clout of the Great Lakes sport fishery is greatly undervalued," said James Kitchell, a University of Wisconsin-Madison researcher.

State changes attitude on environment

By MARY C. BOUNDS

The New York Times

BATON ROUGE, La. — Gov. Buddy Roemer stepped up to the microphone in the towering Art Deco State Capitol in October to announce that ICI Americas Inc., based in Wilmington, Del., had selected St. Gabriel in southern Louisiana as the site of a new \$100 million plant to produce substitutes for chlorofluorocarbons, bypassing locations in Texas, Kentucky, New Jersey and Canada.

Typically, such announcements are made in a jovial, backslapping atmosphere. But St. Gabriel, where a cluster of chemical plants rises from the banks of the Mississippi, is no longer the trusting, idyllic farming community it once was.

Although a recent study by Tulane University found otherwise, many residents believe their miscarriage rates are unusually high because of chemical pollution.

So, at the news conference, Roemer praised ICI for making a product that could ease the world's ozone problems.

But under forceful questioning from reporters, he made it clear that state leaders believe business and concern for the environment go hand in hand.

"They will have to meet our standards," Roemer said. "If they can't, they can go to Kentucky, Tennessee or God cares where."

For a state where the environment had been viewed for years as something that could be traded off for economic development, it was a stunning statement.

Louisiana's new-found interest in the environment did not offend ICI, however.



AP file photo

Gov. Buddy Roemer

"We know the rules of the game," said Tony Mash, an ICI manager. "If Governor Roemer has to tighten the law in some ways we respect that and will follow those guidelines."

At a time of rising environmental awareness nationwide, environmental and economic issues intersect with particular force in Louisiana, for years viewed as one of the most environmentally degraded states.

For instance, the Environmental Protection Agency said that in 1987, 776 million pounds of toxic chemicals were dumped into state waters, the second-highest total in the nation.

Cleaning up Louisiana would be difficult in the best of economic times, but with unemployment rates that have led the nation for much of the last three years — ranging from 7.6 to 13.7 percent — it requires a lot of nerve and even more diplomacy.

Louisiana is realizing how much its economic health is tied to cleaning up its environment.

The result is a regulatory tightrope aimed at cleaning up existing messes and avoiding new ones without driving away businesses or scaring away new ones.

It is still too early to assess the long-term effects of Louisiana's turnabout on its industrial base, nearly half of which is petrochemicals.

But so far, no major industries have moved out and some are even joining in the cleanup effort.

The link between environment and economy was clear in the case of the Huntsman Chemical Corp.

A year ago it seemed certain that the company would buy and modernize a plant here.

But after being impressed by the state's water and rail routes, supply of raw materials and infrastructure of pipelines, roads and utilities, Huntsman found something less impressive: the soil under the site was contaminated with hydrocarbons.

When Huntsman changed its plans, the state lost 50 to 100 jobs. But it got a vote of confidence from Henry Sullivan, Huntsman's vice chairman.

"The state's attitude toward the whole thing was exemplary," he said.

"We didn't want them to have the feeling that if they cut corners we would stay. Cutting corners environmentally is stupid. Your employees aren't proud of you and it costs money in the long run."

Louisiana's billion-dollar fishing industry has also been badly wounded in the months since state officials issued warnings to consumers on the cancer-causing

chemicals in the Calcasieu River basin's speckled and white trout. And white-collar jobs most often have gone the way of cleaner environments, where executives prefer to live and raise their children.

"We now know that for jobs we must maintain our environment," said Paul Templet, head of the Louisiana Department of Environmental Quality.

For years, the former professor of environmental management at Louisiana State University, was a lonely gadfly, haranguing state politicians with his message that pollution was stagnating the economy.

That he now heads an agency whose budget has more than doubled, in less than two years, to \$62 million is only one sign of the degree to which Louisiana has come to see its environmental crisis as an economic one as well.

One complication in that relationship is the economy's reliance on the chemical industry.

With 27,000 employees, it is the largest employer in the state's manufacturing sector.

No one understands this better than Roemer, whose campaign two years ago was built around the "Four E's," environment, economic development, ethics and education.

"We're not trying to slam-dunk them," he said of industry in general.

"I consider them good neighbors. I'm still pushing like everything for jobs, and if a petrochemical company wants to come in, I encourage them to come. But we're not making the highest bid for polluters."

Californians ready to make sacrifices for environment

By MAURA DOLAN
Los Angeles Times

LOS ANGELES — Could automobile-reliant Southern Californians say goodbye to drive-through fast-food and air-conditioned cars in order to protect the environment?

Eighty-two percent of those polled say that they could. In fact, in a new Los Angeles Times poll, Southern Californians say that they would tolerate significant lifestyle and economic inconveniences to protect the environment but would not pay higher taxes to help save endangered wildlife.

The region gave the environment about the same priority as the rest of the nation and expressed strong inclinations to make sacrifices for environmental protection, including separating their trash and forgoing car air conditioning.

The poll also found that Southern Californians blame public indifference for environmental problems and are more concerned about local issues rather than global ones, such as the greenhouse effect.

They overwhelmingly oppose offshore oil drilling, tend to support policies restricting coastal development and feel wary about swimming in Southern California's polluted waters or eating fish caught from them.

Although the survey reflected respondents' intentions, and not necessarily their behavior, it nevertheless showed strong support for a wide variety of measures now being considered by officials to protect

Southern California's air and other natural resources. Those include the banning of drive-through restaurants and the closing of environmentally fragile public lands.

More than half of those surveyed said that they believe that the environment should be protected even if it costs "a great deal" of money and means that "some people" will lose their jobs. The lower the incomes of the respondents, the less likely they were to give the environment priority over economic concerns.

The Times polled 2,690 people across the country over five days in late November, taking the largest sample from Southern California. The survey has a margin of error of 3 percent, with the results likely to vary by that much in either direction.

In a comparison of the nation's regions, the poll found that New England has the most environmentally committed residents, followed by the Midwest, Mountain, mid-Atlantic and Pacific states. The South was the least environmentally concerned, according to the poll.

The most popular environmental remedy with residents may be the least burdensome: giving up wasteful food packaging that is straining the capacity of landfills. Nearly all of the Southern California respondents said that they would be willing to accept simpler packaging, including a ban on insulated foam cups and restrictions on plastics to reduce waste.

Seattle P.I. 12/8/89 P.A8

Dioxins in fish: The cancer risk

By Joel Connelly
P-I National Correspondent

Scientists warn that some dioxins, such as those found in Columbia River fish, are among the most toxic and cancer-causing substances yet discovered.

According to a September report by the Environmental Protection Agency, the dioxin 2,3,7,8-TCDD "is the most potent animal carcinogen ever tested."

What the scientific community cannot agree on is what quantities cause a public health hazard.

The EPA has found that only 0.07 parts per trillion of dioxin in fish could cause a risk of one cancer death per million people. It has used this yardstick to estimate potential cancers from dioxins in the Columbia.

By contrast, the Food and Drug Administration finds no health concern below 25 parts per trillion. In 1987, it advised that fish containing more than 50 parts per trillion should not be eaten at all, and fish containing 25 to 50 parts should not be consumed more than twice a month.

The FDA set its standard after catfish from Michigan's Saginaw Bay were found to contain dioxin concentrations of 28 to 69 parts per trillion.

Several foreign governments rate the cancer risk from dioxins much lower than the EPA does. The Netherlands says it is 666 times less. Canada rates it as almost 1,700 times less hazardous. Nonetheless, dioxin concentrations led to a recent ban on shellfish harvesting near pulp mills on Vancouver Island and the British Columbia coast.

Dioxins in Columbia fish pose cancer risk

Joel Connelly
National Correspondent

Highly toxic dioxins released from pulp mills along the Columbia River and its tributaries have shown in fish samples and pose a health risk to humans, according to the Environmental Protection Agency's regional office.

The EPA has prepared a chart including that higher-than-normal incidence of cancer may result from dioxin discharges. The agency's information shows that fish collected downstream from pulp mills using

chlorine bleaches accumulated dioxins "at levels which represent significant threats to human health and the environment," Robert Burd, acting deputy regional EPA administrator, wrote in March to Washington and Oregon state environmental agencies.

Since then, the EPA has collected one of the highest dioxin readings in a bottom fish ever recorded in the nation.

The dioxin level was found in a carp taken near the Boise Cascade paper mill at Wallula near Pasco.

The pulp mills include James River Co. plants at Wauna, Ore. and Camas, Wash.; Longview Fiber and Weyerhaeuser mills at Longview; Boise Cascade's mill at Wallula; a Potlatch Corp. mill at Lewiston, Idaho; and a Pope & Talbot Pulp Inc. mill on the Willamette River upstream from Corvallis, Ore.

Dioxin levels from fish taken in the Columbia River system are

From Page 1

from the Willamette River site could produce 378 additional cancers per million people, and fish at levels found in the Columbia River Slough an additional 276 cancers.

The EPA chart says that between 100 and 140 additional cancers could result from eating fish with lower dioxin readings taken at Wallula and Longview on the Columbia River, and Halsey, Ore., on the Willamette River.

The pulp and paper industry, which is about to release its own study of fish samples, argues that pulp mills do not endanger public health. It says EPA health estimates are based on unrealistic "worst case" assumptions.

"I know use of the word 'dioxin' tends to scare people," said Chuck Eudy, Boise Cascade spokesman, "but as a company we do not feel these minute levels pose a health hazard to humans." But Eudy added that the company is taking steps to reduce dioxins going into the Columbia River.

The Columbia and its tributaries in Washington, Oregon and Idaho have seven pulp mills that use chlorine bleaching to whiten paper. The bleaching releases dioxins into rivers.

higher than fish samples from Puget Sound and Grays Harbor waters. The fish sampled were primarily bottom dwellers, including carp, whitefish, sturgeon, channel catfish and crayfish. Dungeness crabs were sampled near the mouth of the river.

"In certain parts of the river there's a low concentration, in other parts a higher concentration," said Robie Russell, administrator for the EPA's Region 10.

State officials appear less worried. "The fish they (the EPA) have gathered haven't been in concentrations people would be prohibited from eating," said Dick Burkhalter, supervisor of the state Department of Ecology's industrial section.

Chris Gregoire, state Department of Ecology director, said she hasn't been shown EPA test results from Columbia River fish.

"Does dioxin pose a health risk? Absolutely," said Gregoire. "... The question is what the ratio is we are looking for in health risk."

In taking fish readings, the EPA uses what is called a toxic equivalency consideration, or TEC, which measures both dioxins and furans, another compound used in pulp production.

In its reading from a carp taken near Wallula, the EPA found a TEC of 92.89 parts per trillion, including 56 parts of a particularly hazardous dioxin, called 2,3,7,8-TCDD. Two previous fish samplings at Wallula were lower, yielding TECs of 2.71 and 9.47 parts per trillion.

Other recent EPA findings included a toxic equivalency reading of 19.02 in a carp caught in the

Columbia River Slough near Portland, and a concentration of 26.11 in crayfish caught in the Willamette River at Portland.

Scientists differ as to what levels are considered safe. The Food and Drug Administration believes that fish with readings under 25 per trillion are safe, while the EPA has much more stringent standards.

Llewellyn Matthews, executive director of the Northwest Pulp & Paper Association, said the industry will release its data on dioxins in Columbia River fish on Dec. 19.

Matthews said preliminary readings show "non-detectable" levels of the most dangerous dioxin - 2,3,7,8-TCDD - in salmon and sturgeon fillets taken near the mouth of the Columbia. Data is not yet available for such upriver sites as Wallula and Longview.

Eudy of Boise Cascade said his company is moving voluntarily to reduce dioxin emissions. He said the mill is trying to minimize its use of chlorine, and has run some trials using chlorine substitutes.

"It's a long process of trial, error and evaluating," he said. "While it's too early to tell, based on what we have done so far we are seeing some significant improvement in the production process."

Dioxin controversy has not been limited to effluent from pulp mills. The FDA has voiced concern about levels of dioxins from bleached paper milk cartons. And studies have shown that white coffee filters release minute quantities of dioxins.

Consumer and environmental groups argue that one conclusion

Fish: Chlorine bleaching at pulp mills releases dioxins into Columbia system

Richard Albright, a biologist and regional EPA toxic coordinator, added: "I think there is higher risk than there should be in some places on the Columbia River."

Albright has prepared an analysis showing that up to 1.3 additional cancers per million people could result from eating fish as contaminated as the carp taken near Wallula.

According to Albright's calculations, consumption of fish contaminated as those sampled

See FISH, Page A8

- Food firms resist a call to curb health claims on labels/D6
- The FDA chief denies cozying up to drug manufacturers/D7

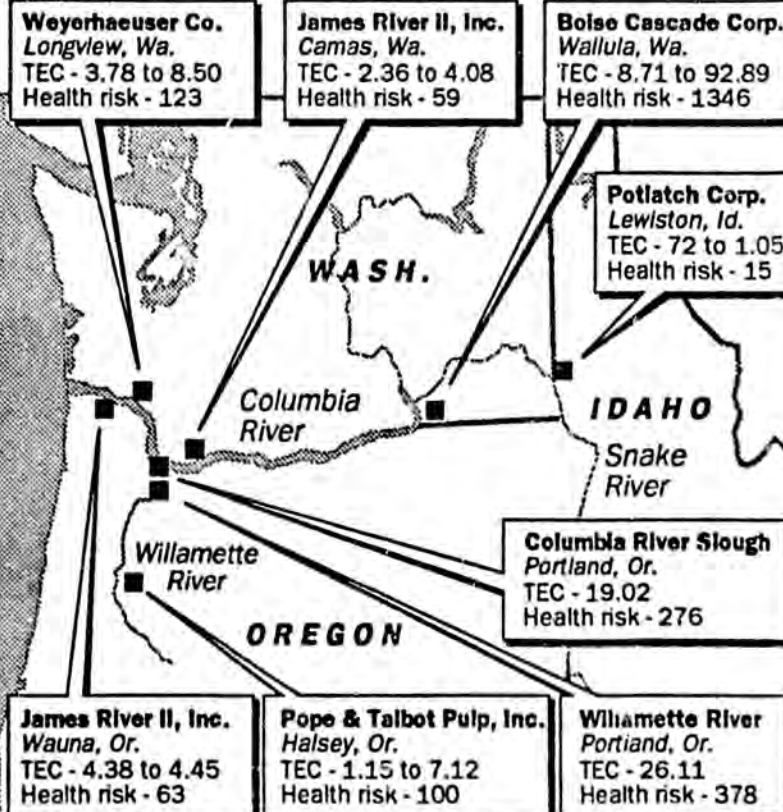
Other high readings were taken from carp in the Columbia River Slough in Portland, and crayfish in the Willamette River, also in Portland.

"The magnitude of risk rests on the whereabouts of the fish caught, and the amount of the fish eaten," Burd said in an interview.

Fish Sampling Sites

TEC: Toxic Equivalency Consideration Factor, measures accumulation of dioxins and furans in fish.

Health Risk: Potential additional cancer deaths per million people based on higher TEC figure.



SOURCE: E.P.A.

should be drawn: Use of chlorine bleaching, which releases dioxins, should be phased out.

During a meeting last May, said Gregoire, Washington and Oregon environmental officials asked pulp industry officials when they could eliminate chlorine.

"They gave us a number of reasons why they couldn't do it," Gregoire said. "We couldn't reach agreement."

Matthews said the industry is trying to reduce use of chlorine,

but she ruled out elimination.

"For some products we risk in this region, there is no substitute for chlorine," said Matthews. That doesn't satisfy Mar O'Brien, staff scientist with the Northwest Coalition for Alternatives to Pesticides.

"Ultimately, the problem is not dioxin, but use of chlorine," said O'Brien. "The question is whether the public will continue to endure a cancer risk so industry can continue making paper white."

Law to Ban Commercial Finfish Farms Proposed

Sen. Dick Eliason (R-Sitka) today introduced legislation to prohibit commercial finfish farming in Alaska. The measure, which would prohibit finfish farming if the law is enacted, the last of which expires July 1 of this year.

A final report of the Finfish Farming Task Force, a non-legislative group which released its final report to the legislature earlier this week, recommended that the legislature act to resolve the finfish farming issue, rather than extend the current moratorium, Eliason said.

"It's clear to me that the serious risks to Alaska and our fishery resources far outweigh any potential benefits from finfish farming," Eliason said.

non said. "We stand to lose much more than we could ever gain.

"In my view it would be highly irresponsible to allow it. Quite a few of my colleagues seem to agree that the time has come to make a final determination on this and get on with other issues," he said.

The measure is co-sponsored by 14 other senators.

The measure, Senate Bill 397, states serious risks are posed by commercial finfish farming, including the spread of disease among wild fish by farmed fish, genetic intermingling of wild fish stocks with farmed fish, degradation of water quality near finfish farms and land use conflicts over the siting of commercial finfish farms.

Sitkans Turn in Figures from Annual Christmas Bird Count

By WILL SWAGEL
Sentinel Staff Writer

How many birds did the bird counters count?

The answer, in Sitka, was 4,656 members of 53 species of birds.

Sitkans did their counting Dec. 17 as part of the National Audubon Society's 90th Annual Christmas Bird Count. The tally was made this year between Dec. 16 and Jan. 3 by thousands of people throughout the Americas, said Alice Johnstone, a long time Sitka participant.

The count allows naturalists to assess and analyze the bird population, said Doris Bailey, who, along with her husband Roy, organized this year's count.

"They were particularly looking at Alaska because of the oil spill,"

ducks, 418 Black's Turnstone shorebirds, 439 herring gulls, 436 Northwestern crows, 308 surf-bird, 273 glaucous-winged gulls, 195 bufflehead ducks, 170 mallards, 167 common Mergansers, 165 common ravens, 135 bald eagles, 119 Thayer's gulls, 99 dark-eyed Oregon juncos, 91 surf scoters, 78 harlequin ducks, 56 double-breasted cormorants, 56 Oldsquaw ducks, 51 pelagic cormorants, 45 rock sandpipers, 33 white-winged scoters, 29 chestnut-backed chickadees, 27 common murrelets, 21 new gulls, 20 rock doves, 20 golden-crowned kinglets, 20 European starlings, 14 song sparrows, 10 Stellar's jays, 10 pine siskins, eight red-breasted Mergansers, eight great blue herons, seven hooded

Nose Job

A National Park Service employee places a paper target on the nose of George Washington as mapping of cracks in the national memorial on Mt. Rushmore in South Dakota began recently. Aerial photography will help determine how serious the cracks are. (AP photo)

Legislators Set to Pass Student-Teachers Bills

By LARRY PERSILY
Associated Press Writer

JUNEAU (AP) — Lawmakers appear ready to respond quickly to Thursday's dismissal of an Anchorage sex-abuse case by passing legislation to impose stiff criminal penalties on teachers who have sex with students.

Although most lawmakers already expected such legislation to pass this session, the dismissal of criminal charges against former Anchorage high school teacher Gordon "Satch" Carlson likely will accelerate the process, several legislators said.

A bill to classify student-teacher sex as a felony will pass the Senate within two weeks, Senate President Tim Kelly predicted.

"The Legislature was bound and determined to pass that" regardless of the outcome of the Carlson case, said Kelly, R-Anchorage.

Superior Court Judge Karl Johnstone granted Carlson's motion to dismiss three charges of sexual abuse of a minor. Johnstone agreed that Carlson's sexual relations with a 17-year-old student did not violate state law.

The general age of consent in Alaska is 16. Although the age of consent is 18 for minors under the legal authority of an adult, the law does not apply to teachers, Johnstone said.

Several bills introduced before the legislative session would make it a felony for a teacher to have sex with a

who have a "special trust relationship" with students, such as youth-club leaders and YMCA counselors, said Sen. Pat Rodey, D-Anchorage and committee vice chairman.

"People such as juvenile probation officers, coaches, athletic managers — there's a large number of different groups of people that probably ought to be included as well," said Laurie Otto, an assistant attorney general who testified on the bill at the hearing.

"I can't disagree with that approach ... if we're talking about sexual relations where a student could be taken advantage of or coerced," Rodey said.

"I think that in trying to define 'special relationships' we need to look carefully and think through the possible ramifications of that down the line," said Sen. Bruce Pearce, R-Anchorage and a committee member.

The committee removed "employer" from the list of adults who could be subject to criminal charges under the bill. The committee will continue working on the bill before sending it to the Senate floor for a vote.

The House has yet to hold a hearing on its similar legislation, but that does not mean the chamber is any less likely to pass a bill, House leaders said.

The dismissal of charges against Carlson will provide further impetus for legislators to amend the law to cover such cases, said Rep. Max Gruenberg, D-Anchorage, and a chair-

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The new land PST extends

Fish, Money, and Science in Puget Sound

Environmentalists and state officials are going head to head over the potential effects of salmon farming near Seattle

WHAT'S THE CLEANEST INDUSTRY you can think of? Fish farming, perhaps? Not exactly: a 2-acre salmon farm produces as much organic waste as a town of 10,000 people. And that is one reason why salmon farming in Washington State is becoming enmeshed in controversy. The dispute pits opponents of the farms against the state government, and it has been complicated by research on the consequences of fish farming that is suggestive but far from complete.

It remains to be seen whether this controversy will hold back the nascent salmon farming industry in Puget Sound, the arm of the Pacific on which Seattle lies. Although the farming of salmon in submerged floating pens has been practiced for decades in Japan—and boomed in the 1980s in Norway and British Columbia—it is only beginning to catch on in Washington. On offshore sites leased from the state, 13 farms cover a scant 23 of Puget Sound's 3 million acres, producing several thousand tons of fish per year.

The critics of salmon farming make up a mixed group that includes fishermen worried about competition, owners of waterfront property, and environmentalists. This coalition is facing off with state officials who support the new industry. "The governor's position on floating aquaculture is that . . . it is a clean industry and a reasonable industry for Washington State," says Judith Freeman of the state Department of Fisheries.

These are some of the hazards the critics point to:

■ **Pollution.** The 50,000 to 100,000 salmon concentrated in a 2-acre farm leave more than 100,000 kilograms of feces and uneaten food each year. Experience from British Columbia and Norway shows that decay of this solid waste can deplete oxygen in water and sediments beneath the farm, killing bottom-dwelling organisms that may have commercial or ecological value.

■ **Algal blooms.** Nitrogenous wastes from urine, feces, and uneaten food can fuel "blooms" of algae that poison marine life. Although marine fish farms have not been proven to cause the blooms, algae has been a

recurring problem in Canada, where deaths of salmon due to algae have forced farms into bankruptcy. Tons of dead fish have been dumped in landfills or (illegally) in the ocean, according to a Canadian Department of Fisheries and Oceans memo leaked to the Canadian press last year.

■ **New diseases.** Atlantic salmon are the preferred farm stock and eggs imported from Scandinavia may bring new diseases to the native Pacific salmon. Norwegian fisheries have suffered severely from diseases brought in by foreign fish imported to stock wild streams. Last year, two Pacific salmon hatcheries suffered a mysterious outbreak of viral hemorrhagic septicemia, a disease never seen before in North America, convincing some people the damage has already begun. But there is as yet no conclusive proof.

■ **Antibiotics.** Fish food laced with sulfa drugs or oxytetracycline is commonly used to treat bacterial outbreaks in farmed fish.



Boon or burden? Floating pens hold thousands of salmon in Clam Bay, an arm of Puget Sound near Seattle.

The antibiotics can persist in ocean sediments for months—long enough to promote the growth of antibiotic-resistant bacteria. Resistant pathogens have been found near Japanese fish farms, and some biologists worry that plasmids carrying the genes for antibiotic resistance could be transferred to human pathogens in the same waters.

The state of Washington has not been unresponsive to such concerns. In 1986 the state commissioned University of Washington oceanographer Donald Weston to study the environmental effects of salmon farming. Weston's report was used to draw up guidelines for issuing salmon farming permits.

And a state-ordered environmental impact report on salmon farming was completed just last month. Both Weston and the impact report argue that careful management of salmon farms can avert damage.

Weston believes poor siting—in shallow water without sufficient current flow—has been responsible for most of the environmental impact of salmon farms around the world. Deep water sites with ample current should allow farm discharge to be flushed away and diluted before it can do harm. Such siting is easy in Puget Sound, Weston says: "Puget Sound is a fjord environment. The bottom drops right off. You can go a couple hundred yards from shore and you're in over 100 feet of water."

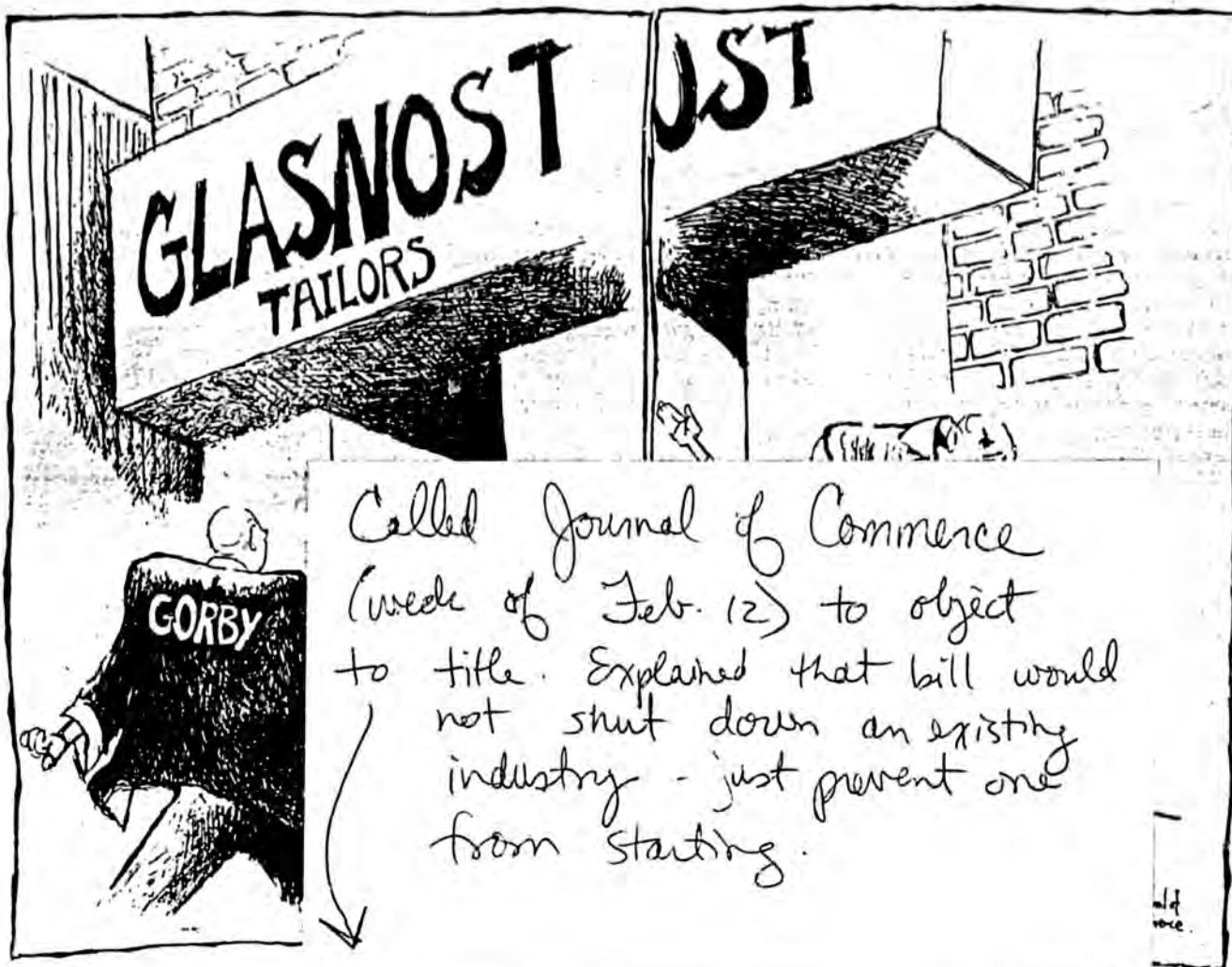
The impact report minimizes some other concerns. Antibiotic resistance might not be a threat, it claims, because transfer of resistance may be a laboratory phenomenon that does not occur in the wild. Likewise it labels importation of exotic diseases as unlikely, due to current quarantine and disinfection measures. But the report and Weston advocate development of a regional brood stock—a move that would eliminate the need to import salmon eggs.

The environmentalists are not convinced. Last year the Sierra Club Legal Defense Fund, representing a consortium of local environmental groups, threatened to sue the U.S. Environmental Protection Agency for not insisting that Washington State treat the salmon farms as point sources for pollution and require discharge permits—as mandated by the Clean Water Act. The EPA pressured the state to do just that.

But the activists remain dissatisfied. They say the process of granting permits is too lenient. "The state has been pushing [salmon farming] awfully hard and is tending to write off the negative factors as sort of marginal impacts that don't really account for much," says John Brookbank, a retired biologist from the University of Florida who lives near a proposed farm site.

State officials believe salmon farming should continue. The next step, says Freeman, is to use information in the impact report to develop a general management plan to minimize environmental damage. Input will be accepted from any concerned group, but the state is unlikely to be sympathetic to scenarios for which there is no hard evidence. When hard facts do not exist, Freeman says, "all you can do is talk to the researchers who know the most about the area." And the state feels it has already done that.

■ **MARCIA BARINAGA**



Senator wants to end fish farming

By DICK ELIASON

After four years of discussion on the subject of mariculture, the time has come for the Legislature to end the debate on fish farming and resolve the matter once and for all.

The grave problems associated with fish farms operating in other states and countries, the testimony of witnesses from Ketchikan to Bristol Bay expressing staunch opposition to the legalization of fish farm operations, and the findings and recommendations contained in the recently released report of the Finfish Farming Task Force have led me to introduce legislation prohibiting commercial finfish farming in Alaska.

Several years ago, when the issue of fish farming was first raised, the Legislature recognized the need to proceed slowly and withhold action until more information could be gathered. We have enacted two consecutive moratoriums on finfish farming and in 1988 called for a non-legislative task force to examine the key issues pertaining to finfish farming in Alaska

and providing a well-balanced report to the legislature. The group, which completed its work this month, has done a commendable job of laying out the pertinent facts, noting several possible benefits and some serious risks, and leaves to the legislature the disposition of the issue. One of the main conclusions in the report is that the legislature should not simply extend the current moratorium on finfish farming (expiring in July), but should instead enact a law either allowing or prohibiting finfish farming.

The legislation I introduced, Senate Bill 397, reflects the concerns addressed in the task force report. In evaluating the costs and benefits of fish farming identified in the report, it seems apparent to me that the serious risks outweigh any potential benefits. These risks include the spread of disease among wild fish by farmed fish, genetic intermingling of wild fish stocks with farmed fish unsuited to survival in the wild, degradation of water quality near fin-

fish farms, and land use conflicts over farm siting. The report acknowledges that these potential threats to Alaska's valuable fishery resources and the environment can never be eliminated if fish farming is permitted, they can only be minimized.

Minimizing the risks would be accomplished largely through state regulation, which would necessitate a substantial expenditure of public funds. I don't believe the public would support such an expenditure when it is unlikely that a fish farming industry can succeed here, and nobody can guarantee the absolute protection of wild fish stocks upon which commercial fishing, subsistence harvests, recreational fishing, and increasing sportfish-based tourism depend.

Although the proposed ban on finfish farming is necessitated by the legislature's responsibility to protect Alaska's natural resources, I have some additional personal concerns. The proponents of finfish farming

See FINFISH page 10

From Minnow to Sturgeon, North American Fish Are in Peril

Environmental dangers threaten a third of all types.

One in three species or subspecies of native freshwater fish in North America is or may be threatened by the degradation of lakes, rivers and streams, scientists say.

Fish in waterways all over the continent are being affected by urban, agricultural and industrial development, pollution and the introduction of competitive or predatory fish, the researchers say. And though governmental efforts like the Endangered Species Act have been successful in individual cases, they have been unable to solve the overall problem.

There are about 1,000 species and subspecies of freshwater fish in the United States, Canada and Mexico. In a new report, the American Fisheries Society says 364 of them fit one of three categories: endangered, which means facing extinction in all or a significant portion of their ranges; threatened, meaning likely to become endangered in the near future; and of "special concern," meaning that relatively minor disturbances to the environment could place them in danger.

That is 113 more species and subspecies than were on the society's first list, compiled in 1979. It does not include the 40 species thought to have become extinct in this century.

From Minnows to Sturgeon

On the new list, published in the November-December issue of the journal *Fisheries*, are many types of fish throughout the continent, including all 50 states. They range from large to tiny, from obscure to well-known; the list includes species of minnows and killifish, the paddlefish, the Colorado squawfish and two-thirds of all species of North American sturgeon.

Many kinds of game fish are also endangered or threatened, including sunfish, perch, catfish and 34 kinds of trout, but the report said that only 3 percent of all species on the list are threatened by recreational or commercial fishing.

"The situation is more alarming than we expected," said Dr. Jack E. Williams, director of the society's endangered species committee. "There has been a continuing downturn in the status of freshwater fish in North America. What is more alarming is that our report finds very few cases of success."

Since the Endangered Species Act was adopted in 1973, only four species of fish have recovered enough to be moved from the endangered to the

A Range of Problems

Factors ranging from dams and industrial and agricultural runoff to the accidental introduction of ornamental species have disrupted the environments of native freshwater fish.



Eastern sand darter

Waits for prey in upper Mississippi Valley stream bottoms, hidden except for its eyes. Threatened by silting of streams.



Northern cavefish

Eyeless species, devastated by groundwater pollution of caves in Indiana and Kentucky.



Shortnose sturgeon

Native to most Atlantic coast states and New Brunswick, Canada, it can grow to three feet. Overharvested at the turn of the century. Dams of rivers flowing into the Atlantic has destroyed spawning runs.



High Rock Springs tui chub

Found only in springs in the Sierra Nevada in California. Cichlids, aquarium fish, prey on it.

Source: American Fisheries Society

The New York Times/Michael Rothman/Jan. 30, 1990

A new report, one scientist says, 'is more alarming than we expected.'

tor responsible for a species' decline or extinction, experts agreed that the most pervasive threat is destruction of delicate fish habitats. That destruction assumes many forms: the diversion of water for drinking and irrigation; industrial and agricultural development; sewage and chemical pollution; and the introduction of non-native species.

A new and serious threat is the proliferation of acid rain. Some lakes and streams in the Northeast and Canada have become so acidic that fish can no longer live in them. In 100,000 lakes in Ontario and Quebec, wild stocks of the endangered aurora trout have been eradicated; half the range of the endangered Acadian whitefish of Nova Scotia has been destroyed.

"Across southern Canada there has been a tremendous alteration of fishery habitats," said Charles Dau-

phiné, coordinator of endangered species for the Canadian Wildlife Service in Ottawa. "We are quite alarmed by the scale of the threat."

But scientists agree that the hardest hit regions are in the arid parts of the Southwestern United States and northern Mexico. The fisheries society says 62 percent of the imperiled species are in five American states — California, Nevada, Arizona, New Mexico and Texas — or in the Mexican states of Sonora, Chihuahua and Coahuila.

"Every fish in the Southwest is endangered whether or not it is on the list because of the continued population growth in the region," said Phil Pister, a biologist for the California Department of Fish and Game who is secretary of the Desert Fishes Council. "The situation is going to get nothing but worse."

In Special Danger: Mexican Fish

The Colorado River once flowed 1,450 miles, from the Rocky Mountains to the Gulf of Mexico. Now even a trickle often remains at the river's mouth, the water having been captured by large dams and diverted for thirsty crops and human populations.

As a result, many fish species have disappeared from the Colorado and

Only 3 percent of the species on the list are threatened by fishing.

its tributaries. And many that survived the loss of habitat have been eliminated by the introduction of non-native fish like the largemouth bass, which prey on native species or compete with them for dwindling food supplies. Compounding the crisis, many species in the arid Southwest live in single small streams or springs, fragile aquatic ecosystems that are easily disrupted.

Of the 113 species added to the American Fisheries Society's list since 1979, 56 are native to Mexico. The society says that many were added because improved techniques have identified more imperiled species, but that many others were included because growing population and pollution have devastated habitats.

"Most of our fish in Mexico are in some sort of danger," said Dr. Salvador Contreras-Balderas, a co-author

Fish in Trouble

The number of species in each state that are endangered, threatened or of special concern.

Alabama	30	Montana	6
Alaska	1	Nebraska	6
Arizona	22	Nevada	43
Arkansas	18	N.H.	3
Calif.	42	New Jersey	2
Colorado	9	New Mexico	20
Conn.	2	New York	10
Delaware	2	N.C.	21
Florida	10	N.D.	5
Georgia	20	Ohio	8
Hawaii	4	Oklahoma	10
Idaho	5	Oregon	25
Illinois	12	Penn.	8
Indiana	9	R.I.	2
Iowa	7	S.C.	8
Kansas	9	S.D.	5
Kentucky	18	Tenn.	40
Louisiana	11	Texas	23
Maine	4	Utah	11
Maryland	4	Vermont	2
Mass.	2	Virginia	21
Michigan	7	Wash.	4
Minnesota	7	W. Va.	9
Miss.	14	Wisconsin	8
Missouri	14	Wyoming	8

Source: American Fisheries Society

of the report who is a professor at the Autonomous University of Nuevo León in Monterrey, Mexico.

"Strong regulations are now beginning to be enforced, but the situation will not get better," he said. He cited a lack of experts, "a lack of economic resources, a lack of ecological conscience."

In the Yucatán, for example, many people dump trash and sewage into crevices and caverns, unwittingly destroying the fragile subterranean habitat of the dama blanca ciega, a tiny blind species that faces almost certain extinction.

In the United States, scientists say, 30 Federal agencies and a plethora of state bodies have addressed the problem species by species instead of dealing with entire communities of fish and freshwater ecosystems. And many experts agree that efforts to halt the decline of freshwater species will meet resistance from political and economic interests.

But Bob Herbst, executive director of Trout Unlimited, a sport fishing association, said something must be done to halt the decline of even small, obscure and seemingly unimportant species. "Fish are barometers for the future of humans, like the canary in a coal mine," he said. "Whether a fish species lives indicates the quality of the environment for man."

Fish Farm Study Challenges FDA

A number of chemicals and additives used in fish farming are bad for folks. Clearly, there are grey areas regarding other substances into which research could help direct the formulation of sorely needed regulations. These conclusions to a research report by Dr. Arthur H. Whitely and Annamarie Johnstone, were submitted last fall at the 42nd annual meeting of the Pacific Marine Fisheries Commission (PMFC).

The report states, "There appears to be no medical or public health supervision or regulation here, or in other fish farming countries, on the use of antibiotics and *chemotherapeutics* other than the requirement of FDA approval of three drugs and their dosages. There appears to be no monitoring by agencies of the use of these drugs or their persistence in marketed fish."

The report brings to light fears that chemical residue, associated with the discouraging of disease in fish farming operations, is remaining in the fish tissue and being consumed by the purchaser of the fish.

The amounts of drugs are enormous. In Norway last year, 48 metric tons of *oxytetracycline* (OTC) alone was used—more than in animal husbandry and human health uses combined, according

to the researchers.

"The relevant issue here," reads the report, "is, do these uses affect man?" Because of the potential for these residues producing a serious problem in public health, Japan recently restricted the use of *chemotherapeutics*, and does not allow cultured fish to move to market if residual drugs can be detected in fish meat.

The potential for adverse effects has been documented. The current regulation for control of such residues are based on admittedly minimal research. The FDA requires a 21-day withdrawal period after the last medicated feeding of OTC, and 42-days for *Romet 30* before the fish can be killed for market. The researchers found that very little data exists for measuring the length of time traces of the antibiotics remain in the flesh of the fish after they are given the drugs.

Complicating the withdrawal period question further, is the matter of water temperature in which the fish are living. Researchers noted that residues of *Romet 30* persisted for several months in fish at colder temperatures.

"Clearly, these limited data do not support the FDA regulation of 21-days."

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ALASKA

Senator seeks to ban salmon farming

JUNEAU — Republican Sen. Dick Eliason of Sitka is leading a strong push to ban salmon farming in Alaska before it gets started, but the bill first must clear rough water in a Senate committee.

Eliason's bill is co-sponsored by three-quarters of the 20-member Senate. But the chairwoman of the Senate Resources Committee, Sen. Bettye Fahrenkamp, is not one of its supporters, and the measure is in her committee.

Fahrenkamp, D-Fairbanks, said Alaska will lose its position in the marketplace if it does not join the worldwide move toward pen-rearing of salmon. Several other countries already are heavily involved in salmon farming instead of relying solely on the commercial harvest of wild stocks, she said.

IDAHO

Senator blasts show for alar scare

TWIN FALLS — If Idaho Sen. Steve Symms had his way, the television show "60 Minutes" would be vulnerable to a food defamation lawsuit under the provisions of a bill he's working on.

"'60 Minutes,' I think, would get sued," he said. "The program's story about Alar last year was defamatory to the apple industry."

THE DOWNEAST

Serving the Community

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For

Jonesport and Cutler Salmon Pens Fined

Army Corps Asserts its Authority in Emerging Industry

by Fred Hastings

Maine Coast Nordic, a subsidiary of Nordic Enterprises, Inc., an aquaculture corporation based in Connecticut, has agreed to pay \$80,000 in civil penalties for placing fishpens in Cutler Harbor and Jonesport without the required permit authorization of the U. S. Army Corps of Engineers.

The action, approved under a consent decree issued last week (February 27) in Bangor by U. S. District Judge Gene Carter, was the first such fine sought by the Army Corps.

According to Jay Clements, a spokesman for the Army Corps, while other aquaculturists in Maine have placed pens in the water without first receiving Army Corps approval and also are in technical violation of the law, Maine Coast Nordic was the first company to add additional pens after first having been

warned by his agency that it needed permits. He indicated that Maine Coast Nordic was notified in January, 1989 that it needed permits from the Army Corps in addition to those required by the state, but that the company nonetheless put two pens in Hatch's Harbor, Jonesport, and five additional pens in Cutler Harbor.

Industry Subject to Multiple Regulators

The aquaculture industry is subject to multiple regulatory jurisdictions. While the state's Department of Marine Resources has authority to grant lease sites of shoreline waters, the federal Army Corps has jurisdiction over any objects, such as piers, breakwaters, or fishpens, that are placed into those leased waters.

The state's DMR moved early and aggressively in asserting its role in the emerging industry.

Please Turn to Page 9

The Downeast Coastal Press

Jonesport and Cutler Salmon Pens Fined

(from page 1)

while the Army Corps was late in participating in the process. As a result many fish farmers found themselves heavily invested and ready to start farming fish while they were encountering delays in getting Army Corps approval.

Clements indicated that the Army Corps was delayed in processing many of the permit applications and did not initiate legal action against those who had gone ahead and set out fishpens. However the agency held that no additional pens be placed in the water until it had completed its review and approval process.

While the Corps has begun to catch up with its processing of requests and several local fishfarmers have received their permits, there are currently twelve additional permit applications still under review, said Clements. All applicants have been warned that they need the permits before proceeding with adding more pens.

Under the consent decree issued last week, Maine Coast Nordic has agreed to remove the fishpens, containing about 140,000 smolt, or baby salmon, by March 1991 if federal permits sought by the company aren't authorized.

Juneau Empire
2-20-90

Japanese buying up Norwegian fish

Surplus of pen-reared fish threatens Alaska's seafood markets in Japan

THE ASSOCIATED PRESS

ANCHORAGE — Norwegian fish farmers are attempting to sell a huge surplus of pen-reared salmon in Japan, long the main market of Alaska seafood processors.

The 88 million pounds of frozen fish could add to an already glutted Japanese salmon market, and drag down prices for this summer's Alaska salmon harvest, according to a U.S. embassy cable from Japan.

More than 80 percent of Alaska's salmon goes to Japan, most of it frozen.

The Norwegians so far have been unable to sell most of their frozen fish, but may cut prices in order to move it, according to the cable released by the U.S. International Trade Administration. If that happens, the Norwegian salmon "will be a threat to U.S. frozen, chum, coho and sockeye salmon," the cable said.

"If they dump it on the market, that would create one hell of a mess," said Roger Dahlke, market-

ing manager for Trident Seafood, a Seattle processor with plants in Bristol Bay and the Aleutians.

Dahlke said Trident is currently trying to sell a lot of Alaska salmon in Japan. But the company is making little headway in a market swamped with both fresh farm-raised fish and frozen fish left over from last season.

As of December, wholesale prices for sockeye salmon had dropped by more than a third from summertime levels, according to Pacific Fishing Magazine. Prices haven't moved much since then, according to industry officials.

Bill Atkinson, publisher of a seafood newsletter that tracks Japanese markets, doubts the Norwegians will be willing to drop their price low enough to compete on the glutted frozen market.

"The Norwegians are not really interested at selling at a loss," Atkinson said. "And the Japanese are not going to accept a high price for them when there are all the other less ex-

pensive fish available."

But one unnamed importer cited in the embassy cable said at least 44 million pounds of the frozen Norwegian fish probably will end up in Japan, knocking down salmon prices just as Alaska's annual harvest begins.

"This scenario, if true, is very critical for U.S. salmon fishermen," embassy officials said. Japanese buyers might import Norwegian salmon in an attempt to force down Alaska salmon prices during pre-season negotiations, the cable said.

"With this type of volume they could start eroding traditional (Alaska) sockeye markets," said Gary Ervin, president of the Kenai Peninsula-based Seafoods From Alaska.

Pen-reared salmon production has been expanding rapidly since the Norwegians pioneered the aquaculture technology in the early 1980s. Salmon farming has been banned in Alaska but is legal in Europe, South America, the South Pacific, Canada and the Pacific Northwest.

Farmers feed the salmon until they reach market size. They offer the fish fresh on a year-round basis. Most Alaska salmon is sold frozen or canned.

Within the past five years, farm-raised salmon have taken over most of the European market, as well as much of the East Coast market, according to a report by the state-funded Alaska Finfish Farming Task Force.

Last year Norway produced more than 330 million pounds of salmon, a nearly 60 percent increase from 1988, and farmers have been unable to sell all that fish.

That production, combined with a record Alaska salmon harvest and a strong Japanese chum harvest, created a huge glut on the worldwide market. The amount of unsold fish is estimated by the state finfish task force at more than 200 million pounds. That equals the entire 1989 export of Alaska salmon to Japan.

When Norwegian fish farmers could not sell all their fish, they froze large amounts and began pushing it toward Japanese markets long claimed by Alaska.

"I think the impact of farm-reared salmon on traditional Alaska markets is profound, and simply going to accelerate," said Chuck Becker, Anchorage district director of the U.S. Commerce Department's International Trade Administration.

Norwegians try Japanese market

Fish farmers may cut into Alaska sales

By HAL BERNTON
Daily News Reporter

Norwegian fish farmers are attempting to sell a huge surplus of pen-reared salmon in Japan, long the main market of Alaska seafood processors.

Norway's 40,000 metric tons — 88 million pounds — of frozen fish, if they find buyers, would add to an already glutted Japanese salmon market, and drag down prices for next summer's Alaska salmon harvest, according to a U.S. embassy cable from Japan.

More than 80 percent of Alaska's salmon goes to Japan, most of it frozen.

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Japanese Salmon Consumption

Total for 1989



Source: Pacific Fishing/March 1990

Anchorage Daily News/Don Tullous

salmon "will be a threat to U.S. frozen, chum, coho and sockeye salmon," the cable said.

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Please see Back Page, SALMON

SALMON: Norwegians try to sell more to the Japanese

Continued from Page A-1

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Dahlke said Trident is currently trying to sell a lot of Alaska salmon in Japan. But the company is having little luck in a market swamped with both fresh farm-raised fish and frozen fish leftover from last year's harvests.

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"This scenario, if true, is very critical for U.S. salmon fishermen," said embassy officials cited in the January cable. Japanese buyers might import Norwegian salmon in an attempt to club down Alaska salmon prices during preseason negotiations, the cable said.

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Pen-reared salmon pro-

duction has been rapidly expanding since the Norwegians pioneered the aquaculture technology in the early '80s. Salmon farming has been banned in Alaska but is legal in Europe, South America and the South Pacific, as well as Canada and the Pacific Northwest.

Farmers feed Atlantic, silver and other salmon on meal until they reach market size. They offer the fish fresh on a year-round basis.

That product was first embraced by white-table restaurants, and didn't appear to directly compete with most Alaska salmon, which was either frozen or canned.

Then farm-raised fish edged into supermarkets as it became cheaper and easier to get. Within the past five years, farm-raised salmon has taken over most of the European market, as well as much of the East Coast market, according to a report by the state-funded Alaska Finfish Farming Task Force Force.

Last year Norway produced 150,000 metric tons of salmon, a nearly 60 percent increase from 1988, and farmers have been unable to sell all that fish.

That production combined with a record Alaska salmon harvest and a strong Japanese chum harvest to create a huge worldwide market glut. The amount of unsold fish is estimated by the state finfish task force at 100,000 metric tons. That amount equals the entire 1989 export of Alaska salmon to Japan.

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"I think the impact of farm-reared salmon on traditional Alaska markets is profound, and simply going to accelerate," said Chuck Becker, Anchorage district director of the U.S. Commerce Department's International Trade Administration.

And Another Thing . . .

by Steve Grabacki

What can you say about finfish aquaculture that hasn't already been said? Everybody's heard everything, and everyone has their minds made up. Both sides have their opinions, and neither side wants to be bothered with facts.

Well, let's talk about that. There are some undeniable risks to aquaculture. These risks are serious, and could be devastating to the fish farmer, the fishing industry, and the wild salmon resources. However, there is a difference between public risk and private risk.

Public Risks

It seems that some of the salmon farms in Washington state and British Columbia have dropped indigenous salmon (from their own areas), and are turning to either Pacific salmon from further south, or to Atlantic salmon. The faster growth rate of these species makes them reach market faster, thus increasing the profitability of the aquaculture operation.

For Alaska, the risk is that non-indigenous strains or species would escape from the pens, and compete against the strains of wild fish on which the commercial fishing industry depends. But the solution to this risk is clear - Alaska already has a law prohibiting the importation and release of foreign species. Strict enforcement of this law would solve the problem.

If growth rates of Alaska wild stock were indeed too slow, that problem could be solved by the rapidly-evolving technology of finfish breeding, starting with indigenous Alaska stocks.

Alaska Stocks

In any case, there is little reason to prohibit culture of salmon from Alaska stock, and no reason at all to prohibit culture of Alaska fish (salmon, trout, char, etc.), in landlocked or otherwise closed systems.

The risk of disease transmittal is a real

(See And Another on Page 25)

Alaska Commercial Fisherman
welcomes letters, opinions and photos.
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Attention: Editor

And Another Thing

(Continued from Page 4)

one. When animals are crowded together, any small infection can quickly sweep through the entire crop. However, there are solutions to this problem, too. For example, strict regulations could be enforced regarding the construction of the pens. For ranching operations, existing Alaska private/non-profit hatcheries have already shown that disease can be controlled.

In any case, the problems of disease transmission and waste disposal in crowded conditions have always been solvable — if they were not, chickens would not be raised on farms, and people would not live in cities.

Insurable Risks

There is the risk of a badly-run or poorly-financed operation releasing fish (healthy or diseased) into the wild environment, or of the plastic pens breaking loose and causing damage. These are insurable events — seafood processors routinely post bonds to guarantee payment of wages and fish taxes, and government contractors routinely file proof of certain levels of liability insurance. This same requirement could be applied to aquaculture.

And another thing... These "public risks" are risks of safety. Are there public risks in the commercial fishing industry? There sure are — risky working conditions for crewmen (especially for new deckhands in "the most dangerous job in the world"), risks of vessel collisions and accidents, of fuel spills, etc.

Some of the risks of commercial fishing are risks to public safety, but they are controllable (by regulation, and by good industry practices) and insurable — they are no reason to stop fishing. Similarly, aquaculture's risks are no reason to "Just Say No."

Subsidies Unnecessary

As for the need of aquaculture for subsidies — they are not necessary. The question of allowing aquaculture is different from subsidizing it. The best way to prove this would be to allow aquaculture — if no one tried it, subsidy-free, it could then be dropped.

The potential for increased regulatory costs is a serious concern, in these days of declining state revenues. But how would the costs of regulating aquaculture be different from the costs of regulating a new commercial fishery?

Also, these regulatory costs would be offset by two factors: (1) a new commercial fishery would require the state to spend money on research, while aquaculture R&D would be funded by the industry itself; and (2) the fish landed by an aquaculture operation could be subject to the same raw fish tax as commercially-caught fish are.

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Salmon aquaculture, a private — not a public — investment risk.

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Get Real

The last public risk is the fear of outside interests taking over Alaska. Get real. Which Alaska industry is not dominated by outside interests? Oil? Timber? Tourism? Mining? Seafood? Who owns the processing plants and floaters? Who owns the factorytrawlers? Who owns a large fraction of the salmon fishing permits?

Alaska has always been rich in

resources, and poor in people and capital. The people and capital have always come from outside. That is what makes the extraction of our resources possible. The question is not "How can we keep them out?", but rather "How can we Alaskans sell our goods and services to that huge market?"

Private Risks

There are lots of risks facing a would-be aquaculture entrepreneur, most of which are related to money — an Alaska aquaculture operation would be uneconomical, high cost, high debt, etc.

This is NOT a public risk, it is private risk. As long as a business owner does not receive government subsidies, he is free to succeed or fail on his own. It is no one's concern but his and his creditors'. Neither the government nor another industry has any business trying to prevent someone from taking a private risk.

Have there been any bankruptcies or defaults in the commercial fishing industry? Of course, just as there are in any industry. This does not mean that the government should prohibit commercial fishing — in fact, CFAB's program and the Capital Construction Fund actively support and promote this private risk-taking.

The point is — let aquaculture succeed or fail on its own merits.

Market Risk

This is The Big Risk — the fear that aquaculture will erode the market for Alaska's wild fish, which will decrease the price paid to fishermen.

Already, there are definite indications of a glut of farmed salmon on the market, even in Japan, where most of Alaska's wild salmon go.

The big point here is that the market glut is happening whether we like it or not — Alaska controls the wild salmon, but aquaculture outside of Alaska is beyond our command. We can't stop it.

The tide of aquaculture is rising fast. The question is not "How can we turn back the tide?" — we can't. The real

question is "How can we ride the tide?"

Fishermen Can Control and Benefit from Aquaculture

One obvious answer to all of these potential problems is to allow a limited number of aquaculture operations, which are partly owned and controlled by fishermen. That way, the Alaska commercial fishing industry would have a direct hand in the set-up, operation, and profit of this global industry, along with the opportunity to build in the appropriate safeguards against escaping fish, disease, etc.

Another answer would be for the State to establish an aquaculture oversight committee, including representatives from the fishing industry. This would provide the same opportunity for safeguards.

"Risk of Benefits"

The potential benefits of aquaculture are too great to ignore, and the potential risks can be addressed. Alaska cannot turn back the tide, nor can we fight back the dawn.

We can't solve all of aquaculture's problems in the abstract, before they come up. However, we can't experience aquaculture's promise without trying it, at least on a limited, controlled scale.

The risks are real, but they are not enough for us to say we won't even try. We've got to try.

Steve Grabacki is President of GRAYSTAR Pacific Seafood, Ltd., in Anchorage.

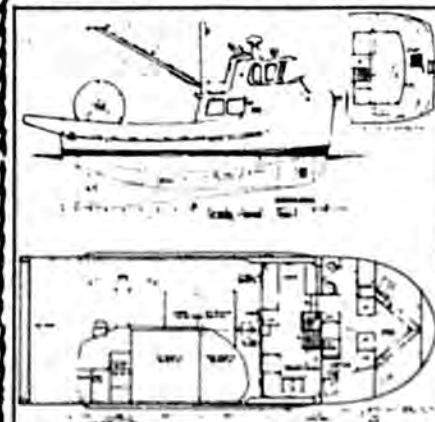
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Fish farming still draws opposition

By DAVID FOSTER
The Associated Press

RICH PASSAGE, Wash. — The history of salmon-fishing in the stormy North Pacific is filled with tales of brave fishermen riding the wild seas, but its future is being shaped in calmer waters.

Thousands of salmon in this sheltered arm of Puget Sound are captives in sunken pens the size of basketball courts. Crowded fin to fin, they swim endless laps, gobbling feed pellets and being fattened toward the day they'll be scooped up and whisked to market.

Yet while the crenulated coastline and pristine waters that stretch from Washington's Puget Sound to southeastern Alaska might be ideal for fish farming, the political climate is not so welcoming.

In Alaska, where commercial fishermen are a powerful

Please see Back Page, **FISH FARMING**

Anchorage
Daily News
2-20-90

FISH FARMING: Young industry has run into resistance

Continued from Page A-1

lobby, bumper stickers in fishing towns proclaim "Real Fish Don't Eat Pellets," and the legislature is considering a permanent ban on fish farms when a two-year moratorium expires in July.

In Washington state, salmon farmers have the official blessing of the legislature, but that has helped little in the face of challenges from fishermen and environmental groups, which have defeated several proposed farms.

The fish waste produced by a two-acre salmon farm is equivalent to the sewage produced by a town of 5,000 people, claims a Washington citizens group called the Marine Environmental Consortium.

Environmentalists also fear introduced species such as Atlantic salmon — favored because they fetch a higher price and are more docile than Pacific salmon — will corrupt the local gene pool and spread disease. Wealthy owners of shoreside homes, meanwhile, don't want fish farms spoiling their views.

Promoters call fish farming an efficient way to help meet the world's growing appetite for fish. Not only does it provide a year-round supply of fresh salmon to supplement the seasonal wild catch, they say, it also creates jobs free of the hazards of commercial fishing, one of the nation's most dangerous occupations.

They also contend salmon-farming provides an economic incentive to preserve clean water.

"We're the best environmentalists of all, because we're dependent on it," said Jerry Polley, site manager for Global Aqua, the nation's largest salmon farm. "If something's wrong with the water quality, we're going to be the first to complain."

Production of farm-raised salmon, here and abroad, has boomed in five years, flooding markets traditionally held by wild salmon and driving down prices.

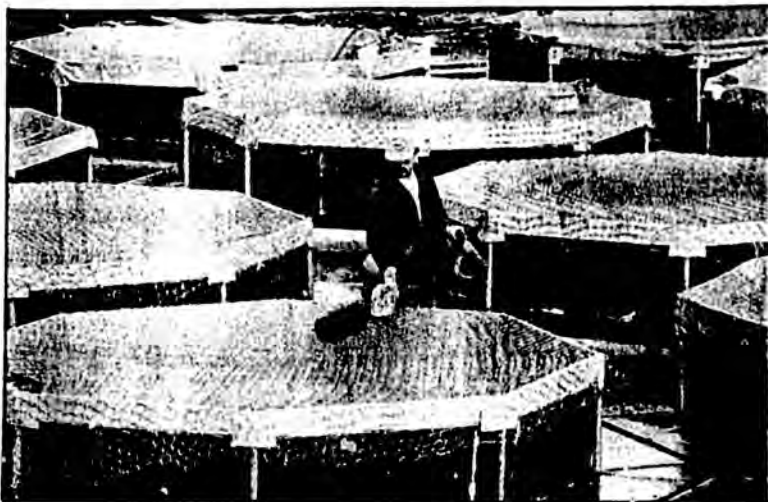
"For the first couple of years, as more salmon was around on a year-round basis, the farmed fish seemed to help the wild market," said commercial fisherman Randy Babich. "Now it's a battle at the retail counter."

Fish farming, or aquaculture, is hardly a new concept. For years, farmers have raised oysters in the Northwest, rainbow trout in Idaho and catfish in the Southeast. But techniques have developed more slowly in domesticating salmon, the mainstay of fisheries off Oregon, Washington, British Columbia and Alaska.

For years, it was practiced only by the Norwegians, forced into salmon farming by their declining wild fish populations. But interest has spread quickly since 1985, after Norway refined methods to raise salmon cheaply enough to compete with the wild catch.

In 1983, world production of farm-raised salmon was 23,500 metric tons, just 3 percent of the 670,000-ton wild salmon catch. By last year, farm-raised salmon production had soared to an estimated 202,000 tons, or 30 percent of the relatively constant wild catch.

Norway still leads the pack, producing about 75 percent of the world's farm-raised salmon, but other places, including Scotland, Chile, Canada and Iceland, are catching up.



Daily News file photo

Alaska Department of Fish and Game technician feeds penned salmon at Little Port Walters in southeast Alaska.

The United States, with 50 fish farms in Washington state and Maine, lags far behind, producing 1 percent of the total.

Many of the U.S. salmon farms are run by Norwegian companies, including Global Aqua's four-acre operation in Rich Passage, 10 miles west of Seattle.

Global Aqua's farm is fairly typical: a huge raft anchored offshore holds 40 pens, each lined with a net holding as much as 15 tons of fish, which range from finger-size smolts to fat-bellied salmon 2 feet long.

A half-dozen workers tend the pens from metal walkways, filling automatic feeders and mending nets. At harvest, workers herd fish into one end of the pens, scoop them out with an oversize dipnet and load them onto a boat. The salmon are still kicking when they reach a Seattle processing plant 30 minutes away.

In the three years it takes to raise salmon to harvest, farmers contend with prowling otters, hungry sea lions and diseases that can wipe out whole farms if left unchecked.

Aquaculturists say their operations will never be a major blot on the coastline.

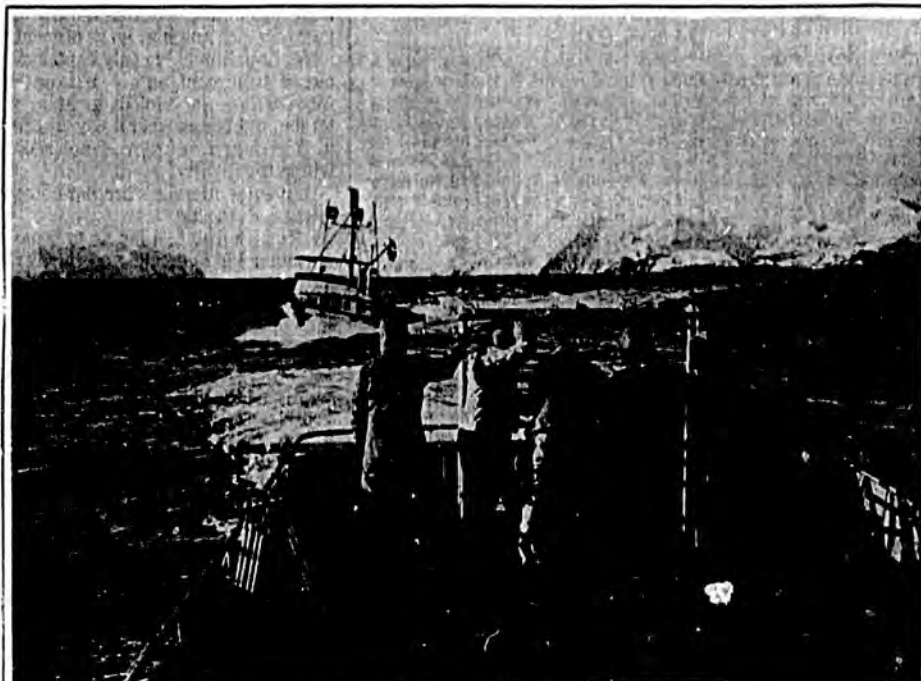
"It would take just 40 acres of farms to produce all of the salmon that was imported into the United States in 1988," said Chris Gibson of Sea Farm Washington in Port Angeles. "The industry does not need a lot of space."

It may need even less space in coming months. Worldwide growth of salmon farming and recent overproduction in Norway have glutted the market with fish. Prices have plunged, and many farms are selling below cost just to keep cash flowing.

In British Columbia, lax regulation and a surge of Norwegian investment capital helped the number of fish farms soar from five to 135 in the past six years. But now many are in trouble. Nineteen have filed for receivership in the past year, and small businesses are being bought out by large investors better able to outlast the lull in prices.

Aquaculture boosters profess confidence in their long-term place in the salmon trade.

MONEY



Filming at sea: Old Harbor fishermen provide talent for new TV ad.

New Alaska seafood ad debuts on national TV

Five Alaska fishermen and the Kodiak Island village of Old Harbor will be making waves in 54 million American homes over the next two months.

The Alaska Seafood Marketing Institute (ASMI) debuted its new 30-second "marine cowboy" commercial promoting Alaska seafood nationwide this week.

The date was less than two weeks after the commercial was filmed in Old Harbor.

"Only fresh or fresh-frozen Alaska seafood can make it into American homes any faster," said Kevin O'Sullivan, ASMI's acting executive director.

The new ASMI commercials feature five Alaska fishermen riding the harsh seas off America's last frontier. In the commercial, the fishermen are shown heading to sea and harvesting Alaska seafood from tumultuous waters.

"The commercial uses a real fishing boat getting knocked around in a real storm off Kodiak Island," O'Sullivan said. "We couldn't chance losing that realism by replacing Alaska fishermen with actors who didn't know what they were supposed to be doing."

The fishermen chosen by the commercial's director have decades of experience in the halibut, salmon, crab, herring and bottomfish harvesting industry. Two generations of Old Harbor's Christiansen family are represented — father Carl who fishes the boat "Sabrina C." and son Ken who fishes the boat "Mischelken C."

Two other fishermen out of Old Harbor, Jose Aguilar and Bill Pulkownik, and one Kodiak fisherman, Matt Shadle, rounded out the on-camera talent for the commercial.

Behind the talent and crew stood the entire community of Old Harbor. The residents of the southern Kodiak Island village rallied around to support the filming and film crew when power was lost for a couple of days, when planes could not get into or out of Old Harbor during a three-day storm and when long distance telephone service to the small community was lost.

Old Harbor's 350 residents put each of the setbacks into perspective. Many of them had survived the tsunami that followed the Good Friday earthquake which swept away most of the village in 1964. The tsunami left only the Orthodox Church and a few houses standing.

When the planes couldn't land with fresh meat and vegetables to feed the film crew, Old Harbor residents donated crab, halibut, deer meat and smoked salmon to keep the crew going.

When electrical power failed before the final scene was shot, an Old Harbor skipper brought his fishing boat around so his generator could provide power to run the television lights.

Women in Old Harbor held traditional banyas so that female production crew members could thaw out by taking steam baths.

For the camera and production crews, the minor inconveniences in town paled in comparison to the talk of filming in the stormy Gulf of Alaska seas.

Weather deteriorated as each day passed. As one of the fishermen described it, the film crew, producers and fishermen ended up in "pretty nautical stuff" including 50 mph winds and waves over the bows and across the decks.

Cameramen tied themselves to the decks while filming and protected cameras with underwater housings.

At one point, the seine boat skipper ordered the fishermen to quit acting and revert to sea duties by chopping away ice in the scuppers and on the deck and deckhouse.

There were 31 people involved in filming the commercial. Out of those, 17 were on Kodiak Island for some portion of the commercial's production. ASMI spent over \$60,000 for talent, lodging, travel, location scouting, production services, equipment and other expenses.

ASMI developed the commercials to promote all Alaska seafood products. The Alaska seafood industry directly contributes one of every 13 jobs in Alaska and one of every eight private sector jobs, the organization says.

The seafood payroll in Alaska in 1988 topped \$1 billion — more than the combined payrolls for the oil and gas, tourism, mining and forest products industries, according to ASMI.

The commercials will be placed on cable television, allowing ASMI to target specific market niches to assure optimum exposure. Stations included are the Arts and Entertainment Network, Cable News Network, The Discovery Channel, The Lifetime Network, Turner Broadcast Network, CBN, TNT and USA.

FORUM

Lawmakers should ban fish farming in Alaska

By Sen. DICK ELIASON

JUNEAU — After four years of discussion of mariculture, the time has come for the legislature to end the debate and ban commercial finfish farming in Alaska.

The current economic outlook for fish farming is bleak, and does not provide any justification for jeopardizing a natural resource base which supports subsistence, sport and valuable commercial fisheries.

Economic development is important to our state, however, one must weigh the potential detriment of each economic development prospect against the potential benefits.

Unlike the other states and countries which have pursued fish farming, Alaska boasts a wealth of healthy natural fish stocks. These support a seafood industry payroll in Alaska which in 1988 exceeded \$1 billion. That's more than the combined payrolls of Alaska's other leading industries: oil and gas, tourism, mining and forest products.

A fish farm, which costs about \$1 million to get started and takes two years to realize its earliest income, employs an average of only three people. Financing for fish farming ventures in Alaska would likely come from investors in other states and nations, with a large share of any profits flowing out of state.

Fish farms in other states and in nearby British Columbia have been forced to sell their products at or below cost due to a glut



of farmed fish on the market, and some have faced bankruptcy. Profitability is, at best, uncertain.

The report submitted to the legislature by the (non-legislative) Finfish Farming Task Force states that the potential negative impacts of fish farming on natural stocks cannot be eliminated, a finding with which even fish farming advocates reluctantly agree.

The chief areas of concern which have emerged during the course of the fish farming debate in Alaska are those of water quality, siting, and hazards to natural stocks.

Water pollution is hard to sidestep in an operation which generates tons of oxygen-demanding waste. One typical fish farm using net-pens produces pollutants equivalent to untreated sewage from about 10,000 people, according to a Washington state report. Hormones and antibiotics given the fish are part of this waste, and their use is believed a threat to public health.

The likelihood of irreversible damage is greatest, however, in the threat to natural stocks posed by disease, accidental escape-

ment, and genetic intermingling, all of which have presented genuine problems in Norway, home of the world's most advanced fish farming operations.

Despite the advanced technology and massive government subsidies supporting the industry in Norway, thousands of diseased fish have escaped from farms, threatening wild stocks.

Even when a certain disease exists in wild fish, studies have indicated higher rates of infection near net pens. Renegade farm fish, even if they are free of disease, may constitute a threat by competing for space in rivers inhabited by wild fish, and inbreeding can weaken the qualities which suit a fish for life in the wild (such as the ability to migrate).

These various risks to wild stocks can be minimized, according to fish farm proponents, with proper controls, siting guidelines and adequate funding. The cost of these controls and the attendant layers of bureaucracy would be considerable, and regulations would be ineffective unless accompanied by rigorous enforcement efforts.

From Norway to British Columbia there have been documented cases of flagrant violations of regulations, including the release of diseased fish into the wild (to spare the expense of proper disposal) and the improper dumping of diseased carcasses (in one case an open trench enabled scavengers to provide a route for the disease into the food chain).

The legislature has a constitutional mandate to manage natural resources for the maximum benefit of Alaskans. To gamble with these resources at public expense is simply irresponsible.

Our stewardship of Alaska's natural resources, her lands, her waters, and her fisheries, involves both development and conservation. The public interest would be best served by our unflinching commitment to managing Alaska's fisheries resources according to sustained yield principles, maximizing returns through controlled harvest and enhancement, providing incentives for shore-based processing, continuing marketing and quality assurance campaigns, and protecting the marine environment from pollution.

The moratorium on fish farming now in place will expire in July. Legislation has been introduced which would ban commercial finfish farming in Alaska.

Legislative committees are now taking public testimony on this issue. If the legislature lives up to its constitutional mandate, Alaska will refuse to flirt with the potential catastrophe which could be brought about by fish farming and will institute this prohibition.

□ Sen. Dick Eliason represents District B in the Alaska State Legislature. He is chairman of the Senate Labor and Commerce Committee, and a member of the Senate Resources Committee.

Anch Daily News 3-8-90

Unqualified information about fish farming distorts debate

In a recent column, Howard Weaver boasted of the investigative reporting style of the Anchorage Daily News. He said that a statement is not reported as fact without first researching the truth of the statement. A front page article "Fish farming still draws opposition"



TALKING BACK TO THE NEWS

(Feb. 20) belies this approach. In an article examining the legalization of salmon farming in Alaska, the author states "the fish waste produced by a two-acre salmon farm is equivalent to the sewage produced by a town of 5,000 people." The statement is presented as fact.

Two years ago when the debate about salmon farming in Alaska was raging, this

statement was quoted so often it appeared indeed to be fact, and the source was cited as a University of Washington study. The source is "The Environmental Effects of Floating Mariculture in Puget Sound" by Donald Weston of the School of Oceanography. A reading of the original study shows that the statement has been taken out of context.

The study reads, "much attention has been given to comparisons of the water quality effects of mariculture with those of sewage discharge. For example the 250,000 kg (kilogram) salmon net-pen facility (a hypothetical farm with a surface area of about 2 acres) would have loadings equivalent to untreated sewage from approximately 10,000 persons. While there may be some utility in this type of comparison, the determination of a population equivalency tends to reduce the issue to a single number, an oversimplifi-

cation which may be misleading and unwarranted."

The author goes on to explain that most small towns discharge some toxic chemical waste along with domestic sewage. Sewage contains bacterial and viral pathogens which constitute a public health hazard. Finally, sewage discharge is freshwater, and the salinity gradient with the receiving water inhibits mixing and dilution of the nutrients. Simply stated, the sewage produced by a town of 5,000 or 10,000 people is *not* equivalent to fish waste produced by a salmon farm.

Never when the statement was cited was a qualifying comment added that the author of the source report questioned the validity of the statistic. The debate over salmon net pen farming in Alaska should be based on facts and not hearsay.

- Bill Osborne
Kodiak

De Yonge was right on fish-farm perils

By Arthur H. Whiteley, John W. Brookbank and Annamarie K. Johnstone

In his article (P-I Op-Ed, March 29), State Land Commissioner Brian Boyle took severe exception to John de Yonge's March 5 Focus Section article on fish farms.

We believe that de Yonge's pithy comments were right on target.

Boyle argues against relating fish-farm pollutants to untreated human sewage. In terms of organic sludge whose combustion consumes dissolved oxygen from the water, and loading of the water with various nitrogen compounds and phosphate which act as fertilizers, the two pollutants are essentially alike.

The question of dilution of these discharges is relevant.

Metro's West Point Wastewater Treatment Plant dumps its soluble discharge into the main channel of Puget Sound at considerable depth, permitting dispersion. Fish-pen wastes are deposited on the site as feed pellets and feces, which settle as sediment and dissolved components that enter the water column. The sites are channels or embayments with restricted water flow, not rivers, with a one-way flow that flushes things away. Tides flow and ebb and currents in bays create eddies, leading to retention and accumulation of the pen wastes.

Metro sewage must undergo treatment, at substantial and justified expense to our citizens who create this waste. Discharge is monitored by a permit, mandated by federal Clean Water Act. The fish-pen solid waste enters the bay raw, untreated, without disinfection — and free to the fish farmer. Washington's pens have avoided the federal discharge permits, although the Sierra Club Legal Defense Fund threatens the state with legal action if this requirement is not enforced.

real, just as it has been in Norway.

Boyle's understanding of the *Gyrodactylus salaris* issue in Norway is at variance with reports from Dag Dolmen of the Directorate for Nature Management in Trondheim. This trematode parasite has been introduced into Norway, according to Dolmen's analysis, "through stocking with salmon parr from infected hatcheries/fish farms." Johnson and Jensen report that total salmon catches in infested Norwegian rivers (1970 to 1984) dropped to 16 percent of levels in uninfested rivers. These were mostly wild fish, which have been nearly decimated by a parasite spread through "hatchery/fish farm" stockings. The smolts that are stocked in salt water fish farms are reared as fry in fresh water hatcheries.

In November, Svein Mehli, head of the division of the Directorate for Nature Management concerned with protection of wild salmon in Norway, testified for Skagit County before the State Shorelines Hearing Board. Mehli reported the escape into Norway waters of thousands of pen-reared salmon carrying furunculosis, the appearance of bacterial kidney disease in farmed stock, the presence of redmouth disease in 300 salmon pens — a disease previously unknown in Norway — and of his concern about "other diseases knocking at the door." Given these facts, we disagree with Boyle's position that "environmental arguments against fish farms are essentially specious."

Boyle objected to de Yonge's extrapolation of the targeted 100 fish pens to the sewage equivalent of Seattle's sewage outfall — as "scientifically absurd." But Boyle can find a graph on pages 133 and 134 of the draft Programmatic Environmental Impact Statement to which he referred that shows that 100 pens will load Puget Sound with biological oxygen demand (organic sludge) 150 percent higher than that of the West Point plant, and add an amount of dissolved nitrogen to the embayments equal to that from this sewage plant. We think de Yonge stated things correctly.

In Norway, which has much smaller farms than are permitted here, pens are moved every couple of years to try to mitigate environmental problems. Moreover, they are located closer to the open water at the mouth of fjords. In some regions, alternate fjords are kept free of pens to create security zones between sites.

Atlantic salmon can become diseased in their pens and they do escape. This year commercial fishermen have recorded many Atlantics caught along with native salmon south of San Juan Island and between Bellingham and Point Roberts. Escaped Atlantics have been picked up in the Nooksack, Skagit and Nisqually rivers. These are adult fish, apparently ready to breed. We feel that there remains a possibility that they will breed, that they will become established and that they will compete on the breeding grounds with native salmonids — how successfully neither we nor Boyle knows yet. The presence of potentially diseased pen escapees among breeding natives poses a danger that in our opinions is

Boyle must be well aware of the current concern about appearance of viral hemorrhagic septicemia (VHS) in resident salmonids and doubtless has seen the U.S. Fish and Wildlife Service summary of March 3, 1989, which reports that this virus is confirmed in yearling coho and steelhead trout and fall chinook salmon fry from the Makah hatchery. We assume that he is aware of the opinion from the U. S. Fish and Wildlife Service that the logical, though not proved, avenue for entry of this new disease is via Atlantic net-pen culture. If these are proved to be "specious arguments," then we can drop them.

Is it fair for "the working stiffs" on the gillnet boats, purse seiners and reef boats — white and Indian alike — to be crowded off their fishing grounds, or worse, to have their resource diminished? Should clam growers, who have husbanded their rich resource for three generations, be forced to contend with pollution from a fish pen?

In order to generate new jobs and revenue, a wiser course for our state would be to accept the mitigation measure in the draft EIS — to culture salmon in tank farms. These should be on privately owned land with effluent monitored and regulated by permit and then discharged into deep water. In this way the negative impacts of floating mariculture — navigation hazards, storm-caused breakup of pens, dissemination of disease, release of untreated wastes, difficulties with antibiotics and impairment of aesthetics — would be eliminated. Lastly, land-based fin-fish culture would place the costs of this industry on those who profit from it.

■ Dr. Arthur H. Whiteley is professor emeritus of zoology at the University of Washington; Dr. John W. Brookbank is professor emeritus of microbiology and cell biology at the University of Florida. Dr. Annamarie K. Johnstone is a marine microbiologist. Soapbox columns are contributed by readers.

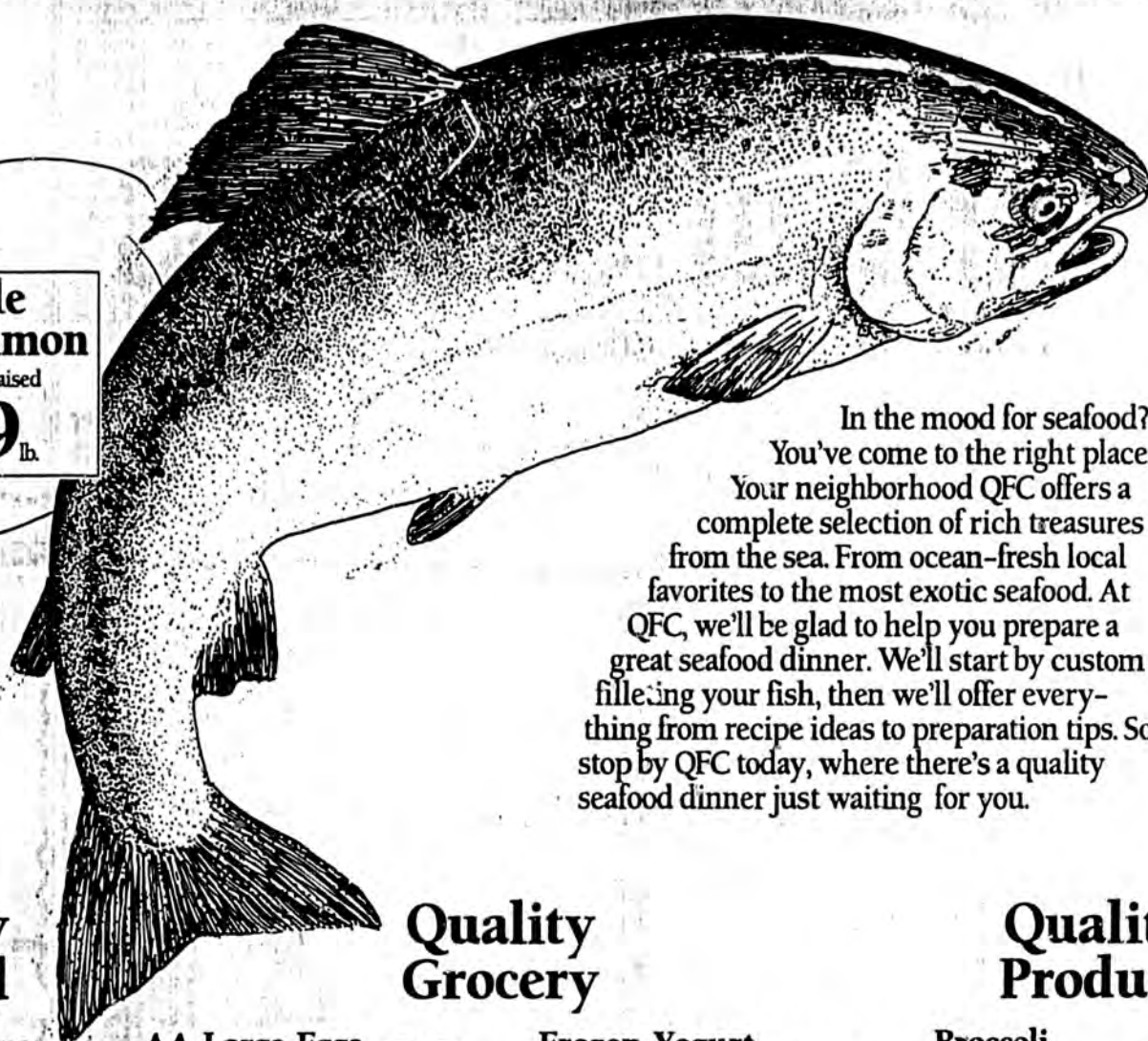
Annamarie K. Johnstone

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Fahrenkamp's Entry Secret in Legislative Finfish Pen

by Bob Tkacz

Two public and one still-secret measures addressing the future of finfish farming in Alaska are circulating in various quarters as the debate over the controversial form of mariculture begins to heat up in the Alaska state legislature.

The public proposals are identical bills introduced by Republican Senator Dick Eliason and Democratic Representative Ben Grussendorf, both from Sitka, which would ban finfish farming in the state except for specified circumstances such as fishery enhancement, or scientific and educational projects.

Stalled Two Months

Eliason's bill has 14 cosponsors, three more than it needs for Senate passage. It has been stalled for almost two months in the Senate Resources Committee where Chairwoman Bettye Fahrenkamp (D-Fairbanks) is seeking a compromise which would allow upland fish farming.

Grussendorf's bill had its first hearing in the House Resources Committee, March 5, and was scheduled for a statewide teleconference to take public testimony, last Tuesday, March 13 at 7 p.m. As chairman of the Rules Committee, Grussendorf has control of scheduling of all bills for floor votes in the House. He has made clear that he will use his position to leverage a finfish farming ban into law.

Although he said the Sitka delegation's preference was for Eliason's bill to be the vehicle to enact the ban, Grussendorf does not expect serious opposition to his bill's progress through the House.

The Senate is another matter.

Unknown Element

The unknown element swimming in the legislative pen is a draft proposal written by Fahrenkamp which would permit some type of fish farming in something other than the marine environment. Fahrenkamp has sent copies of the proposal to the United Fisherman of Alaska and the Alaska Mariculture Association for review with strict orders not to release the proposal. Fahrenkamp aid Tom Moyer said the measure may not be publicly released for two weeks, or longer.

Fahrenkamp said she is attempting to get Eliason "to talk to me about other concerns of other parts of the state" than the coastal fishing communities. If some agreement can be reached, she continued, Eliason's bill would be passed out of Senate Resources "very quickly."

In her twelfth year as senator, Fahrenkamp, to a lesser extent than Grussendorf, can use her post as Resources Chairwoman to stop resource-related House bills in her committee.

She declined to discuss the specifics of the proposal she has developed, except to indicate it provides for finfish farming in controlled environments.

Fahrenkamp's Constituent

Fahrenkamp remains upset about a small scale coho venture undertaken by one of her constituents in tanks in a garage. The project was forced to an end when state authorities would not allow it to acquire broodstock eggs.

"I just think we ought to look at all the possibilities," she said last week.

"To outright ban is to pretend [mariculture] doesn't exist.."

—Senator Betty Fahrenkamp

"To outright ban is to pretend like it doesn't exist."

Fahrenkamp said she is in "negotiations" with fishermen's groups, but United Fishermen of Alaska executive director Ken Castner politely shied away from that term.

Noting that the UFA support the Eliason/Grussendorf bill, Castner said the group is only reviewing the Fahrenkamp proposal at her request "to see if there is common ground."

"I'm looking toward the end of the month (when) this whole thing will shake out," Castner said.

His group's major concerns are loss of safe habitat for wild fish stocks from fish farm pollution and with the potential for major changes in traditional property interests, "taking the state's resources and assigning them as property rights."

Cynically, Castner suggested that entities which could successfully grow fish in pens would not be worried about habitat protection.

Farmers, Not Fishermen

"Finfish farmers are not fishermen," Castner declared, adding, "People who are really pushing this thing are pro-development people."

In the relatively safe forum of the House Resources Committee, where Cochairman Cliff Davidson (D-Kodiak) is one of its 12 cosponsors, Grussendorf's bill encountered little opposition at last week's hearing.

Jonathan Sherwood, coordinator for the report of the Alaska Finfish Farming Task Force, told the committee only that the benefits of a fish farm industry "eventually" could outweigh the costs and risks.

Several committee members asked about the potential for dislocation of existing fishermen or businesses from a fish farming industry here. Sherwood explained that economic problems which may occur because of the growth

of fish farming are likely to happen whether Alaska permits the industry to begin here or not.

No Effect on Market

The task force, Sherwood said, "assumed that the impact would come from finfish farming worldwide whether or not Alaska got into it."

Rep. Grussendorf, in committee testimony, gave some perspective on the international, and historical status of fish farming.

Recounting Norway's experience with finfish farming, Grussendorf said the country is now attempting to export the problems it has encountered in order to restore its own streams, while at the same time maintaining control of the technology it has developed.

"I think the experiment got away from them and they're trying to move it out of their back yard," Grussendorf said.

He also presented a segment of "European Journal," a public TV news program, on Scottish fish farming problems.

"The Scottish salmon that they eat is loaded with chemicals," the announcer began as video film showed workers packaging smoked salmon. "The account reported the almost total loss of salmon stocks on the country's west coast, widespread use of chemicals in fresh feed both to combat disease and to 'produce the right color' of fish, and serious concern with the future of the industry there."

Pollution Problem

Moving only slightly toward Fahrenkamp's goal, Resources Cochairman Curt Menard (D-Wasilla) asked Grussendorf what problems he saw in upland, closed water fish farming.

In addition to the difficulty of promoting the product in a glutted market, Grussendorf said, fish in a two acre pen produce as much pollution as a

community of 5,000 people. Disposal of the pollutants, in the case of the Fairbanks project, was down common sewer lines into the Chena River.

"The only pollution control is the length of the pipe," Grussendorf said in a later interview.

Eliason followed the representative in testimony, speaking for a total ban.

"A little fish farming will certainly lead to more and more of it," he said. "Recognize a bad deal when it comes along."

After Eliason, Fahrenkamp testified before House Resources. It is normal for Senate bill sponsors to appear before House committees hearing their legislation, but the presence of a bill's opponent is rare. While her attendance may have been part of Fahrenkamp's attempt to court a compromise, it also is an indicator of the importance of the debate.

Head-in-Sand

"I'm not like Senator Eliason and some of the others who will testify. I'm not afraid of a little competition," Fahrenkamp said. She noted that farmed salmon are available in grocery stores and restaurants in Anchorage and Fairbanks and said a head-in-the-sand approach was not correct.

Opposing suggestions that a ban could easily be lifted if circumstances warranted, Fahrenkamp said that would happen "just as easily as we could do away with the Permanent Fund."

Representative Walt Furnace (R-Anchorage) asked if Fahrenkamp would support legislation to test their viability, but then be terminated under a sunset provision of the proposal.

She responded that three years would not be enough time in light of the investment necessary, but said the concept is worth examining.

Fahrenkamp said she was encouraged by a visit to Norway last May and expected to see more small scale "mom and pop" fish farms in the future.

Eliason returned to the witness chair as the hearing closed to respond to the remark:

"I'd be real reluctant to say it's a ma and pa operation. If your ma and pa were Rockefeller, maybe."

Fishermen win at gubernatorial debate

By STAN JONES
Daily News reporter

KODIAK — Six people who want to be Alaska's next governor spent two hours here Thursday night telling an auditorium full of fishermen exactly what they wanted to hear: That fishing in Alaska is at least as important as life and death, maybe more so.

To please the fishermen,

every candidate had to say pretty much the same things, so the "debate" at Kodiak's high school quickly degenerated into a numbing me-too marathon. On most issues, there wasn't enough of a gap between any two candidates to slide a credit card through.

The six candidates who waged the raging agreement were Republicans Jim

Campbell, Rick Halford, John Lindauer and Arliss Sturgulewski, and Democrats Tony Knowles and Steve McAlpine.

The candidates didn't get much out of the debate except a chance to echo each other, but the fishermen got a lot. They got all six of the current leading contenders for governor to say they support Alaska fishermen on

every fishing issue of any importance.

For example, the candidates agreed that factory trawlers — ships that catch and process fish on the high seas — should be driven out of Alaska waters so the fish will have to be processed in Alaska.

"The factory trawler fleet is really probably the junk bonds of the fishing indus-

try," Knowles said.

The debate was broadcast over several Alaska public radio stations and reached about 40 communities, according to the sponsors, a group called Women's Fisheries Network.

So, in the all-but-certain event that one of the candidates in Kodiak Thursday wins in November, the next governor of Alaska is now

on record, all over the state, promising the fishermen everything they want.

"We had some critical issues that the fishermen wanted very pat answers on," said Kathy Kinneer, one of the organizers of the Kodiak debate. "They wanted to know just how committed these candidates

Please see Page C-3. FISH

FISH: Agreement breaks out when gubernatorial candidates debate in Kodiak

Continued from Page C-1

were on each of those issues."

The fishermen's political shopping list was a long one. Besides denouncing factory trawlers, the candidates all declared that salmon farming — a growth industry in other fishing economies — should continue to be outlawed in Alaska.

"I support a permanent ban on finfish farming," Halford said. "It's a disaster environmentally and to the stocks."

And they agreed that, however well state-controlled limited entry may have worked for Alaska salmon stocks, talk that the federal government should do it for high-seas species like halibut is basically the devil's handiwork.

"A Lindauer administration would oppose cutting any fisherman out of any fishery," Lindauer said.

And when it came to a showdown between Alaska's two big industries — fishing and oil — fishing won hands down, at least in Kodiak.

oil drilling in Bristol Bay.

"The wreck of the Exxon Valdez has given all of us a very harsh lesson," said Sturgulewski. "We've learned we have to be extraordinarily careful or we pay a dreadful price."

And they all agreed, or at least hinted, that even though the state budget needs to be cut overall, fishing programs should be beefed up, not reduced.

"I think it's important that we add the funds that are necessary because, in doing so, we're going to actually increase revenues," McAlpine said.

After the debate, the candidates and many in the audience wandered over to a reception and an enormous seafood buffet at the Kodiak Elks Lodge.

"All the candidates seem so close on the issues that it's almost going to be a personality contest," said Nick Szabo, a well-dressed, well-spoken Democrat who runs a fishing tender boat and backs Tony Knowles. "You kind of almost had a rubber stamp as far as all

"I would definitely want to hear a debate in Anchorage or Fairbanks to see what these people would say to a community based on business, not fisheries," said Mary Relyea, a former commercial fisherman who is now a teaching assistant at Kodiak's junior high school. "I just had the feeling that there was a lot more difference between them than what I was hearing."

The epidemic of agreement may have served the candidates' purposes in Kodiak, but, elsewhere, sentiment on some of the issues is less than unanimous.

The people who run factory trawlers, for example, figure they have same right to go onto the high seas and catch fish as do fishermen who take their catch ashore for processing.

"That's an American fishery, a national fishery, and we're American fishermen participating in it," said Vince Curry, government affairs director for the Seattle-based Alaska Factory Trawler Association. "Because of our participation, we're con-

Alaska economy.

According to Curry, the factory trawlers will pump \$100 million into the state's economy this year, counting the wages they pay Alaskans and the money they spend ashore for supplies and services.

"All we're saying is, you make your investment and you work as hard as you can, and the more efficient and better method of producing a quality product will be borne out in an open, competitive situation," Curry said.

As for the ban on salmon farming, it worries even some of the people in Kodiak, people who support commercial wild-salmon fishing as practiced today.

Pen-reared salmon already command about a quarter of the market, up from near zero in 1982, and a glut of farm salmon overhanging the market this winter has raised fears that prices will be dragged down in this summer's wild-salmon season in Alaska.

One of the worriers is Dave Harville, a big guy

beard and a couple of inches missing off of one index finger. Harville owns two trawlers, a charter boat, and a shop that sells boat gear, but doesn't fish for salmon himself.

Harville is worried that the tidal wave of farmed salmon will roll right over the world market, leaving his friends and neighbors who fish for wild salmon high and dry.

"Anybody who wants to run for office has to support wild salmon," Harville said at the Kodiak Elks Lodge after Thursday's debate. "But I just don't know how we combat the pen-raised fish. I fear for the livelihood of all our salmon fishermen. I fear the value of salmon permits is going to drop to almost nothing."

A legislative task force that studied finfish farming concluded that most of the problems wild-salmon fishermen worry about — such as the farm salmon spreading disease to wild stocks — were manageable.

Rodger Painter, director of the pro-salmon-farming

tion in Juneau, thinks the ban is just plain unfair.

"One of the basic tenets of our monetary system here, of capitalism, is the ability to go out there and fail or succeed," Painter said. "If an industry threatens a resource, then fine, don't allow it. If it would pose negative effects on our environment, fine, I mean, ban it. But you've got to do that based on facts."

While the ban on oil drilling in Bristol Bay, the site of Alaska's richest salmon fishery, has been supported by a series of Alaska governors, pro-development forces still think it should be lifted.

"It's ridiculous to think that eventually — assuming the world stays on a fossil-fuel economy — someone's not going to want" the oil under Bristol Bay, said Becky Gay, executive director of the Resource Development Council. "The best way to have oil development is when there's no crisis, because then you have time to do all that extra stuff you wouldn't have to do if there was a crisis."

Fish farmers try sockeye despite disease threat

Despite new disease outbreaks and a continuing chain of bankruptcies which observers believe will wipe out salmon farming on the Sunshine Coast, B.C. fish farmers are trying their hand at farming sockeye.

Thanks to eggs provided free of charge by the Department of Fisheries and Oceans from Pitt Lake stock, four farms are culturing sockeye at five sites around the coast. (See related story on page 11.)

"The industry is looking at getting broodstock for commercial culture," DFO aquaculture co-ordinator Ron Ginetz said March 12. Farmers hope sockeye will provide them a way into large and lucrative new markets now that chinook and coho prices have collapsed.

But Ginetz said DFO justifies the transfer of eggs — each project got about 25,000 eggs — on the basis of new information on sockeye marine survival which the projects should generate.

The hatcheries involved are at Qualicum, Chemainus, Deepwater Bay and two other locations in the Campbell River area. Ginetz denied reports that the fish will be reared in pens in Deepwater Bay, which is an important sockeye migration area.

The eggs were certified free of disease and all firms involved have promised to destroy the entire stock if disease occurs. Unlike other salmon species, which spend little time in fresh water, sockeye normally grow in lakes for up to a year.

These fish will be accelerated, Ginetz said, and should be ready to smolt this spring.

According to provincial government figures, this year's harvests of farmed salmon will total about 12,000 tonnes, far above the 400 tonnes produced in 1986 but far below 16,000 to 20,000 tonnes predicted only two years ago.

Disease, algae blooms and collapsing prices have hammered the farming industry.

Food multinationals are taking over B.C. salmon farms

Although 24 percent of B.C.'s salmon farms have gone into bankruptcy, provincial fisheries minister John Savage says "the industry is maturing... (and) is consolidating into an industry staffed by experienced people."

But other industry observers believe the financial crisis will end salmon farming on the Sunshine Coast and concentrate activity on the Johnstone Strait area from Campbell River to Port Hardy.

At the same time, concentration of ownership in the hands of multinational food companies is accelerating.

According to Savage, 20 farms have closed affecting at least 31 sites since May 1989. More receiverships are expected. So far, four out of 43 private hatcheries have gone under.

Federal aquaculture co-ordinator Ron Ginetz said many of the failures are in the Sechelt area, where a combination of algae blooms and a mysterious new disease called marine anemia are driving farms to the wall.

It marks the end of the Sunshine Coast industry, Ginetz said. "They won't be farming there any more."

From a high of 50 farms, the Sunshine Coast has dwindled to 30 and more are expected to close. It's a far cry from only five or six years ago, when salmon farmers predicted they would transform the Sunshine Coast economy.

Elsewhere on the coast, National Sea, B.C. Packers, Canada Packers and Ewos, a feed company controlled by the multinational Unilever, are snapping up sites at bargain prices. "They will be the dominant players," Ginetz said.

The final blow to the Sunshine Coast was outbreaks of marine anemia, a mysterious new disease which can devastate farms where it breaks out.

First detected in 1988, it kills fish with anemia, enlarged kidneys and spleens. According to the Pacific Biological Station, "the disease is characterized by general invasion of various tissues by proliferating, immature cancerous blood cells."

Dr. Michael Kent, of the Biological Station, said March 12 that the source of the disease and its mode of transmission are unknown. "It seems to be spread within pens, but not from one site to another."

In the field it has been found in chinook, but in the laboratory it has been transmitted to sockeye and Atlantic salmon. Coho and steelhead do not appear susceptible.

Scientists are baffled by why the disease is found only in the Sechelt area and only at certain sites. "It may be coming from the freshwater stage," Kent says, but more research will be needed.

In a January advisory to fish farmers, the station recommended that because of the diseases "infectious nature and its ability to cause high mortality" fish not be transferred from infected sites to new sites.

None of this demoralizes Savage, however, who said in a Feb. 20 news release that "government has designed a regulatory framework to ensure sustainable growth."

"We understand that this industry must maintain the highest standards in environmental protection and product purity to hold the confidence of the consumer."

The Fisherman
3/14/90

Act Now to Kill Fish Farms

Dear Editor,

The moratorium on finfish farms in Alaska expires July 1, 1990. In order to address this issue, the Alaska legislature is considering companion bills to extend the fish farming moratorium indefinitely. Both House Bill 432 sponsored by Representative Grussendorf and Senate Bill 397 sponsored by Senat-

or Eliason show broad support through cosponsorship. The biggest hurdle this legislation faces is the Senate Resources Committee chaired by Senator Fahrenkamp. As chairman of the committee, Senator Fahrenkamp can effectively kill SB 397 by simply not acting on it.

Along with her very able political ally, Senator Sturgulewski, Senator Fahrenkamp is known as one of the

continued on page 47

Alaska Fisherman's JOURNAL, April 15

LETTERS

continued from page 22

Act Now

biggest supporters of fish farming in the legislature. Both of these senators, as well as your personal representatives, need to hear the voice of Alaska's fishermen right now. They can be written to care of Pouch V, Juneau, AK, 99811. Also, a message can be sent to any or all legislators as easily as phoning your local legislative information office.

If you are against fish farming, you support HB 432 and SB 397. The time to write or phone is not tomorrow; it is today. An old timer once explained to me that he caught 90 percent of his fish because his net was in the water. Do not leave your net out of the water on this issue. Take the time to express your opinion.

Sincerely,
Brad Faulkner
Homer, AK

Aquaculture I

Not out to stop it, but...

A bill that would tighten environmental controls on Maine's growing aquaculture industry runs the risk of strangling it, according to opponents, who accuse summer residents of being insensitive to the financial needs of year-round islanders.

Representative Patricia Stevens (D-Bangor) introduced the legislation after summer residents of Swans Island complained that an 18-acre salmon farm near Toothacher Cove won state and federal approval last year without adequate environmental review. Stevens told a packed Marine Resources Committee hearing room last week that state laws inadequately control the potential for disease and toxic algae blooms caused by overcrowded fish pens in shallow water and slow currents.

"I'm not out to stop aquaculture, but the ... law has failed," said Stevens, whose bill is based on Washington state standards for aquaculture in Puget Sound, including a water depth beneath fish pens of 30 feet. (The minimum depth in Maine is 10 feet.)

A fish farm producing 50 tons of fish a year will generate fish feces equivalent to the raw sewage discharged by 1,500 people, said one marine biologist who testified in support of tighter controls. Another warned that

current velocities inside pens are as low as 35 percent of outside velocity, leading to the buildup of uneaten food and feces.

But fish farm operators contended that Maine's coastal waters are flushed by stronger currents than those in Puget Sound, and the water-testing requirements in the Stevens bill would bankrupt most small operations.

State marine resources officials contended that adequate controls already are in place, but they acknowledged that they have contracted with a Washington aquaculture consulting firm to review Maine's standards and make recommendations by June.

Other bills in other committees:

Aquaculture II

Maine fish farmers cry "foul"

Fourteen Maine salmon farmers and six from Washington state have petitioned the Department of Commerce and the International Trade Commission (ITC) to stop Norway from dumping an oversupply of salmon on the U.S. market.

Led by Ocean Products Inc. of Portland, the salmon farmers want the agencies to protect their harvest from cheaper foreign imports and impose duties if necessary to keep Norway's

salmon prices in line with domestically-raised salmon.

"The Commerce Department will look at Norway's prices and costs and determine what their selling price in the U.S. should be so we're all in the same playing field," said Ocean Products president Wally Stevens.

Last fall, according to Stevens, Norwegian suppliers exported so much salmon to the U.S. that it cut prices here by 25 percent. While that was good

news for consumers, it was bad news for the state's fledgling fish farmers.

"They sold their product at or below their cost because they had a tremendous increase in production and they had to move it," he said.

Stevens claims Norwegian fish farmers raised about 100 million pounds of salmon two years ago, and suddenly found themselves with 150 million pounds last year due to maturing salmon classes.

"This year their figures will be about 300 million pounds and there has not been a corresponding effort to broaden their market for salmon," Stevens said. "There is no coordinated effort to keep supply and demand in reasonable balance."

While undercutting a competitor to promote a product is as American as apple pie, it's not fair in the international market, Stevens says.

"If you do that within your own marketplace, it's OK," he said. "But when you do that with a heavily-subsidized industry and then go sell it in someone else's backyard where there are no subsidies and you harm a

developing industry, then it's not legal under trade laws."

The petition was filed February 28 and the Commerce Department is scheduled to issue a preliminary finding within 45 days and then schedule hearings.

Ocean Products meanwhile is struggling with depressed Atlantic salmon prices. The company operates fish farms in Cobscook Bay and Eastport and has hatcheries in Deblois and East Machias.

The company is restructuring its financing plan and is seeking new stockholders to bolster its operation.

Puget Sound anglers hooking Atlantic salmon

by Brad O'Connor
Times staff reporter



Steve Loop caused quite a stir in June when he showed up at Seacrest Boat-house in West Seattle with a 5½-pound Atlantic salmon he'd caught while fishing for blackmouth near the Southworth Ferry landing.

Atlantics are not supposed to be swimming around Puget Sound and it was only the second Dave Nelson, Seacrest manager, had seen in his 17 years at the boat-house.

Atlantics — 1 million or more of them — are in the Sound, but all are supposed to be confined to net pens where they are reared by private growers for markets mostly in the south, the East Coast and California.

Loops' Atlantic was an escapee. Since June, Nelson has weighed about a dozen others, all caught on hook and line, which is remarkable. While Atlantics provide some of the world's greatest freshwater sports fishing, they rarely are caught on sports gear in salt water.

"Ponder this," said Nelson, "if we've seen a dozen here, there must be many, many more swimming around out there."

He's correct. There are more.

Will Sandoval, biologist for the Muckleshoot Tribe, said his tribal fishermen have told of netting several Atlantics during summer and fall salmon seasons.

"Some told of catching three or four a day," he said.

Three that Sandoval checked during a state and tribal test fishery for sockeye in July were approaching sexual maturity.

"What concerns me is that they may have been looking for somewhere to spawn. Even if they can't spawn successfully there's a risk they could be carrying some exotic disease."

Decades ago, attempts were made to establish spawning runs of Atlantics in Washington and British Columbia. All failed and the belief among some fisheries scientists is that further attempts to establish Atlantic runs on the West Coast also would fail.

In fact, most fisheries managers nowadays shudder at the thought of Atlantics spawning in any West Coast stream — not only because of the risk of disease, but because of increased competition for food and space with native trout and salmon.

Reports of Atlantic catches are funneled to Lee Hoines, a Department of Fisheries biologist at Olympia. Of the 203 reported to him last year, most were caught by commercial fishermen in the Bellingham area and around the San Juans.

However, two were caught in fresh water, including one last October near Nugent's Corner on the Nooksack River and another in July in Cedar Creek, a tributary of the Nisqually.

What if they did spawn successfully?

"My assumption is that they can't. I can't say that absolutely is the case, but I hope they don't," said Tim Flint, another WDF biologist.

*THIS WAS IN SEATTLE RIVER, DICK
10/1/89*

Royal Pacific salmon farm empire in receivership

Tom May's Royal Pacific Sea Farms, the high-flyer of the B.C. salmon farming industry, is in receivership and the flamboyant May no longer works for the company he founded.

The humbling of Roypac, which has an exclusive sales contract with B.C. Packers, is just the latest shock in the financial crisis shaking the fish farming industry.

As collapsing prices and continuing losses to algae blooms drive firms to the wall, farmers are scouring the Johnstone Strait region for new sites. Receivers answer the phones at many operations.

But the shakeout is reducing the number of companies, not the number of active sites. About 28 farms and nine firms are involved in the latest shakedown and all but two sites are expected to remain in production.

Bob Cobb, of Thorne, Ernst and Whinnay, has been fielding calls at Royal Pacific since the Oct. 27 announcement of the receivership.

The receivership was forced by Sergio Kumar, Cobb said, who until Oct. 26 was chairman of the Roypac board and holder of a major loan to Roypac through his own firm, Pacific Crystal Sea Farms Ltd.

Kumar headed a major Italian investor group which bankrolled Roypac to glory several years ago. Since Kumar's involvement, May's small operation was transformed into the largest of the industry, with four hatcheries and 14 farms.

In a news release before the collapse, Roypac acknowledged its inability to pay a whopping \$3.9 million in debentures. Five other directors resigned, according to some reports, and Roypac was pleading with its Saudi backers for more cash.

About 160 employees are affected.

Government reaction was enthusiastic. According to the

Campbell River *Courier Islander*, DFO aquaculture co-ordinator Ron Ginetz declared "the restructuring" was "something that's needed and can't happen faster."

Roypac shareholders may not enjoy the changes as much.

In 1988, May made investments in Chile, attracted new Saudi Arabian investment, and purchased the assets of Seastar, a stumbling farm operation on the south coast, and Prince Rupert Sea Farms, a northern operation.

The firm also invested in Northern Transportation Ltd., a Nova Scotia fish feed company and Northwest Navigation, a shipping firm. It had links to Scantech, a Norwegian farm technology company.

Cobb said Nov. 7 that he expected to be appointed receiver manager, giving him the powers to either sell the firm intact or break it up to satisfy creditors.

There will be no shortage of creditors. The entire operation was built on debt, with a 1988 overdraft of \$290,168, a demand loan from the Bank of Montreal for \$4.5 million, advances from shareholders of \$557,000, debentures from shareholders of \$2.25 million and long term debt of \$3.6 million.

The long term debt includes \$100,000 interest free from the Province of B.C. Aquaculture Incentive Program, \$157,000 from Kaizen Consumers Credit Union and \$350,000 from the Federal Business Development Bank.

Cobb said crews have been reduced on the farms, but the company would need a substantial injection of funds to continue.

Meanwhile, the Prince George, a cruise ship in which May has an interest, has moved from Alaska, where it was sheltered oil spill cleanup workers, to a new berth at Port Mellon, where it will be used by pulp mill construction crews.

THE RISING TIDE OF RECEIVERSHIPS

Company	Farms	Date	Receiver	Status
Ross Passage	1	7	Thorne	Sold to Norwegians
Seagrow	2	June 30	Coopers	Sold to B.C. numbered company
N. American Salmon	7	July 7	Coopers	Sold to Nor Am Ltd. (Includes NASC Processing, Quadra Sea Farms, Whill Bay SF)
Viking	2	Sept.	Coopers	Unknown
Atwood Bay	1	Sept.	Thorne	Unknown
Scarpesa	1	Sept. 26	Coopers	Unknown
Evans Bay	1	Oct. 2	Coopers	Unknown
Osgood Creek	1	Oct. 10	Coopers	Unknown, in
Miller Bay	1	Oct. 16	none	Unknown
Royal Pacific	12	Oct. 26	Thorne	Unknown

Note: Royal Pacific sold three sites prior to receivership. Two NASC sites have been abandoned as biologically unsuitable. In most cases, farm operations are continuing during the receivership.

Miller Bay is being offered for sale and shut down as part of the reorganization of the Prince Rupert Fishermen's Co-op Assoc.

Source: B.C. Packers, DFO and various sources.

Puget Sound Fish Farms Challenged

By KEITH SCHNEIDER

Special to The New York Times

PORT ANGELES, Wash. — Salmon farmers in the Puget Sound region are encountering resistance this summer as they and a group of scientific critics clash over the safety of production practices, including the use of antibiotics.

The dispute, waged in public hearings around the sound, comes as the state's salmon farming industry is emerging from legal and legislative battles that have delayed its growth for two years. Local and state licensing panels are considering proposals that would expand the number of Puget Sound salmon farms to 20 from 13 in the next year.

The expansion here, however, and the prospects for the rest of the United States aquatic farm industry could turn on the ability to answer the critics and satisfy consumers that fish are safe to eat.

In 1969, when the first experiment in salmon farming was started in Puget Sound, aquaculture was seen as an intelligent, ecologically responsible way to raise food. The three million acres of Puget Sound offered deep clean water and many protected coves for raising fish in floating enclosures.

Aquatic farms produced 790 million pounds of fish and other seafood last year, or nearly 10 percent of the 8.1 billion pounds of fish and seafood consumed in the United States, the Federal Department of Agriculture says. But the growth in the \$600 million aquaculture industry is slowing as Americans take a second look at the health attributes of fish.

Consumption Fell in '88

Last year, consumption of fish fell to about 15 pounds a person from 15.4 in 1987, the first decline since 1982. Experts attributed the drop largely to unease about ocean pollution.

But farmers and the South's catfish producers depend more than fish farmers here do on synthetic substances to control disease. Fungus, aquatic weeds and other threats to farm-raised fish thrive more readily in fresh water than in salt water, aquaculture specialists say. But the production practices in the other parts of the industry have not yet come under scrutiny as intense as salmon farmers now face in the well-populated Puget Sound area.

Though evidence is far from being clearly established, some biologists say antibiotics could be absorbed into shellfish and other organisms and make some bacteria resistant to the drugs.

Earlier this year, after a series of hearings by a House Merchant Marine and Fisheries subcommittee, the National Marine Fisheries Service began a study to develop new inspection procedures that would be modeled after existing systems that monitor for antibiotics in poultry, pork and beef. The study is scheduled to be completed in 1990.

of salmon, about equal to Washington's salmon harvest.

Maine's aquatic farms have also not been hampered by the intensity of the political conflicts of the industry in the Pacific Northwest. The northern Maine coast is less developed than the Puget Sound region, and many who live along the Maine coast make their living from the ocean.

"There is a highly vocal group of opponents who have argued for years that Puget Sound should not be developed for aquaculture," said Dr. Forster. "Now they are using the food safety issue as a point of argument."

The use of antibiotics worries some critics.

The real issue has always been aesthetic concerns about what should be the proper use of public waters.

Assurances From State

Since 1986, the State of Washington has set guidelines for establishing and managing fish farms and published a series of reports intended to answer questions and reduce anxieties. The reports provide evidence that fish farms properly situated in deep water with strong currents will not pose an environmental problem and have the potential to generate thousands of new jobs. The state's assurances have begun to persuade more counties and review panels to approve new fish farms.

Yet as the number of approvals increase, the dissent has also grown louder. And now critics are raising the safety of production practices to consumers as an important issue. The critics, led by Dr. Arthur H. Whiteley, a retired marine biologist from the University of Washington, assert that feed medicated with antibiotics is widely used on Washington State's 13 salmon farms to treat bacterial diseases.

Dr. Whiteley said that in some cases meat from fish treated with antibiotics may contain residues of the drugs, an assertion strenuously denied by salmon producers. In other cases, he said, antibiotics may be changing the genetic structure of aquatic bacteria infectious to other fish and to humans.

Critics Are Still Uneasy

It is well established scientifically that antibiotics fed to livestock and poultry cause bacteria to develop resistance to the drugs. The Federal Centers for Disease Control in Atlanta has traced some outbreaks of salmonella food poisoning in the Midwest to medicated cattle.

Three antibiotics are approved by the Food and Drug Administration for use on fish farms. The most commonly used is oxytetracycline. Fish farmers are required to stop using medicated feed weeks before salmon are sent to market, and residues are not present in the meat, said Dr. Forster and other industry executives.

But studies have shown that 90 percent of the antibiotics fed to fish are excreted in the feces. Last year researchers in Norway, the world's largest producer of farmed salmon, found that oxytetracycline persisted in the sediments below fish farms for months. Other studies have determined that aquatic bacteria developed resistance to the drugs.

Of particular concern to health specialists is the possibility that resistance to antibiotics could be transferred from bacteria that cause fish diseases to bacteria that cause illnesses in people. The most important of these is *Vibrio parahaemolyticus*, a bacterial strain known to cause severe digestive discomfort in people who have eaten infected shellfish.

In 1982, Japanese scientists showed that antibiotic resistance could be transferred to *Vibrio parahaemolyticus*, but the experiments were performed in very warm water. Kevin H. Amos, chief fish pathologist with the Washington State Department of Fisheries, said in an interview that *Vibrio parahaemolyticus* does not survive well in the cold waters of Puget Sound.

One of the most prolific of the Puget Sound area aquaculture farms is just off the northern shore of Port Angeles harbor where Sea Farm Washington built a four-acre salmon farm, one of the country's largest. Two 900-foot-long floating steel platforms are divided into 50-foot squares from which nylon nets are suspended to form pens 20 feet deep. Thousands of Atlantic salmon, a species more docile than the aggressive Pacific species, gleam in the clear, cold water like polished stones. This year, Sea Farm may sell more than 1 million pounds of salmon.

Dr. John Forster, who directs the Sea Farm operation here and is president of the Washington Fish Growers Association, a Seattle-based trade group, has worked for years to ease both technical and political problems. The Atlantic salmon, he said, has proved a delicate species in Pacific waters. Farms lose 40 percent of their fish, most of them when 15-month-old smolts, or young salmon, are transferred from freshwater hatcheries and put into saltwater net pens.

Washington's production problems are enabling Maine's aquatic farms to challenge Washington's for dominance in the domestic industry. The 7-year-old industry in Maine now number 18 to 20 farms, executives say. This year, Maine could produce 5 million pounds

New York Times

The
Fisherman (B.C.)
6-23-89

LETTERS

The Fisherman welcomes letters to the editor. Letters must be signed and should be brief, if possible.

UFAWU stand on fish farms needs to be toughened

In a recent editorial entitled "Can the UFAWU represent salmon farm workers?" (April 21, 1989) union policy was outlined with respect to aquaculture — no ban on fish farming but strict regulations. Your position is reasonable and takes into consideration that workers in this industry require safe working conditions and decent wages.

However, it has now become apparent that salmon farming has become an even bigger problem than most had predicted in terms of mort disposal, industrial plastic garbage, destruction of marine wildlife, water pollution, antibiotics, price wars, fish escapement and numerous other problems.

The union's decision to embrace a "regulated" aquaculture industry does not take into account the burden that must be shouldered by the residents of the many communities that have to live with and pay for (through taxation) this new industry.

Our communities have lost funding in other areas, such as recycling, parks development and education as public money and expertise are poured into this industry.

We then must live with the mess created by people who don't care about local concerns and values and think that all you have to do is wave money in people's faces and they will swallow anything.

Both levels of government seem completely disinterested in regulating this industry. The new waste management laws for fish farms are not even worth the paper they are printed on. This industry is, and will continue to be, "self-regulating."

This industry has little respect for existing laws like the Fish and Wildlife Act or the Pest Control Products Act, so there is every possibility that new laws will be ignored as well.

In the wake of falling farm fish prices, many people are asking questions concerning the viability of fish farming. But regardless whether or not fish farming is sustainable or must continue to be subsidized by the public, there is no question the industry will continue to impact negatively on coastal communities.

The use of the biocide Nuvan 500 in Scotland to control sea lice is just one indication of what we can expect to see here if it hasn't already been used.

It is becoming more and more obvious that the economic benefits are confined to the fish farming industry while we must pay the social/economic and environmental costs borne out over the long term. Under these circumstances, phasing out fish farming during the next five years is become a more appealing and realistic alternative. Then we can get on with the real job at hand — rehabilitation and conservation of wild salmon stocks.

We would be pleased to present a slide show documenting industry abuses.

Claire Heffernan,

Citizens for Aquaculture Regulations,
POWELL RIVER

Developments to Watch

EDITED BY EMILY T. SMITH

A BIG FAT FISH THAT'S GOOD FOR YOUR HEART



In this health-conscious era when "light" food usually means less fat, here's one product with more—but with all the health appeal of bran. Norwegian scientists and the Marketing Council for Norwegian Salmon are breeding a new salmon that will have as much as 70% more omega-3 fat than regular salmon. That fatty acid, which is found particularly in fish that swim the icy North Atlantic, seems to reduce the risk of heart attacks as well as the risk of

arthritis and other inflammatory ailments.

Supervising the project is Harald Skjervold, a retired professor of animal genetics and breeding from the Agricultural University of Norway whose own worsening heart condition spurred his interest in the food. The new fish should be on the market by 1992. If demand takes off as expected, Norway's Marketing Council will devote its entire production, about 70% of the total farmed Atlantic salmon harvest, to this new breed.

CHEAP CHIPS WITH ALL THE POWER OF RISC

Most chipmakers worked up over reduced instruction set computing are scrambling for business at the high end of the market, peddling microprocessors in the \$100 range. But Microchip Technology Inc. likes the other end. "That's where the real volume will be," says Vice-President George P. Rigg, "and where most consumers will see the real benefits of RISC."

So on Nov. 23, the former division of General Instrument Corp. will unveil two RISC-based microcontrollers costing as little as \$2.40. They can be tailored to serve as the brains inside products ranging from keyless car locks to music synthesizers and cordless telephones. In such computer peripherals as keyboards and disk drives, substantial speedups can be achieved, adds Rigg. That's because the Chandler (Ariz.) company's chips can churn through 5 million instructions per second (MIPS)—four times the speed of rival microcontrollers. "We're selling MIPS per dollar, not dollars per MIPS," he boasts.

THIS BUILDING-CLEANUP IDEA MAY NOT BE SO HOT

When it comes to sick buildings, the cure may be worse than the disease. Employees in buildings with high levels of organic air pollutants can suffer headaches, nasal congestion, and eye and throat irritation. One method increasingly recommended to get rid of the irritants: bake them out.

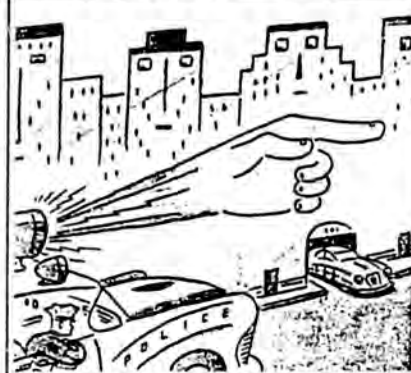
In theory, when temperatures in buildings are raised to between 90F and 120F and ventilation rates are increased, the heat drives out volatile organic pollutants, such as formaldehyde found in carpets, fiberboard, and other materials in offices. But according to preliminary research by Georgia Insti-

tute of Technology scientist Charlene Bayer, "bake-out" may be ineffective—or even increase pollutants.

Bayer conducted tests on two products commonly used in new buildings: particleboard and modular office partitions. After baking them in her laboratory for three to five days at the 90-plus temperatures, she found they released the same amount of volatile organics as they did before the experiment. The experiment also showed that carpeting, wall coverings, and other materials absorb the pollutants being baked out—and later, they release those chemicals into the air.

BUILD A BETTER SIREN, AND THE WORLD GETS OUT OF YOUR WAY

Listen carefully in New York City's Times Square and you may hear a strange drone emanating from the traffic island at 46th Street. It's an electronic "sound sculpture" by Max Neuhaus, a 49-year-old Texan whose many public and museum installations are designed to create sounds that give a place its own "signature." Now, Neuhaus has turned his sonic talents to a practical product: a safer, more effective siren for emergency vehicles.



Traditional sirens can baffle drivers and cause accidents—especially amid the echoes of urban streets. Drivers may have trouble figuring out where an emergency vehicle is or which way it's headed, and they may freeze or turn into its path. Indeed, siren-equipped vehicles often smash into each other, because their drivers are confused by overlapping sirens.

Neuhaus' device, based on patented computer circuitry, creates vibrant, bell-like tone bursts that he says are easier to locate and interpret. The siren is designed to sound more urgent as the emergency vehicle gains speed, but it is also supposed to cause less stress to local inhabitants. The New York City Police Dept. is considering the new siren. And Neuhaus has formed Siren Sounds Inc. in Englewood Cliffs, N. J., to market it.

NOW YOUR PC CAN PULL IN THE PLAYOFFS

Watching the ball game, the weather report, or stock quotes on your personal computer might not be as difficult as it sounds. VideoLogic Inc., a British company with U.S. offices in Cambridge, Mass., sells a \$2,500 add-in card for personal computers that accepts direct connections from a television or VCR. The card, called the DVA-4000, uses compression techniques to display full-screen TV images in "windows" on color computer screens, says Vice-President Kirke S. Curtis.

Developed at the company's headquarters in Kings Langley, the card can achieve resolution twice as good as the image on standard U.S. television screens. That's because the incoming TV signal is converted from analog to digital form using sophisticated image-processing techniques before being "painted" in the window. Brokerage houses are the primary market for VideoLogic's new add-in, which will eliminate the need for the banks of TVs displaying news and stock quotes.

Rally for Life

January 22, 1990

1:00 p.m.

1 Steps

Salmon Farming— An Opportunity

The Nisga'a Tribal Council will be holding a free information seminar regarding a salmon farming investment opportunity in Portland Inlet, British Columbia.

TOPICS

CURRENT STATUS OF THE INDUSTRY

SPEAKER: S.F. SVERRE, M.Sc., R.P.Bio.

A LEADING PROFESSIONAL IN THE INDUSTRY

DESCRIPTION OF THE NISGA'A TRIBAL COUNCIL'S PROJECT IN PORTLAND INLET

SPEAKER: HARRY NYCE, AQUACULTURE COORDINATOR

NISGA'A TRIBAL COUNCIL

REVIEW OF THE BUSINESS PLAN AND INVESTMENT OPPORTUNITY

SPEAKER: S.F. SVERRE, M.Sc., R.P.Bio.

TIME

Saturday, January 27th, 1990, at 2:00 p.m.

PLACE

Highliner Hotel, Prince Rupert

FOR ADDITIONAL INFORMATION AND PRE-REGISTRATION PLEASE CONTACT

NISGA'A TRIBAL COUNCIL

New Aiyansh, B.C. V0J 1A0

Tel. (604) 633-2234 Fax. (604) 633-2367

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200 Life on the steps of the
101 Anniversary of the U.S.
311 n, Roe vs. Wade. It is time
101 and be counted in this public
101 abortion holocaust.

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by Knights of Columbus
1760 • Juneau, Alaska

OF ALASKA
OF FISH AND GAME
PROCESS
NEW MAPS OF
GUIDE-OUTFITTER

STATE OF ALASKA NOTICE OF PUBLIC MEETING ALASKA SCIENCE & ENGINEERING ADVISORY COMMISSION

Friday, February 2, 1990, 2:00-5:00 p.m. and 6:00-9:00 p.m.
Saturday, February 3, 1990, 9:00 a.m.-noon.

Assembly Chambers
Municipal Building
155 S. Seward St., Juneau, Alaska

Trouble down on the fish farm

Natural disaster and low prices pour cold water on high hopes

By Leslie Helm
P-I Reporter

The four farmhands in bright red rain gear stand motionless in the motorboat as it slices through the early morning drizzle on its 20-minute ride toward a quiet Cypress Island harbor off Anacortes.

The boat docks alongside a patchwork of steel pens and walkways that rise about five feet above the water and are joined into a floating structure the size of a basketball court. At one end is a small shack for the night watchman, who has been guarding against preying seals. Cormorants and grebe dive for fish nearby.

It's the beginning of a regular work day at the ScanAm Fish Farms' largest salmon-growing site.

Under the direction of Lorenzo Wiese-Hansen, a Norwegian whose family owns the farm, two workers put on wetsuits in preparation for an underwater dive to remove the occasional dead fish and to check for holes in the nets that hang from the steel pens.

Wenche, Wiese-Hansen's wife, sprays the water with fish feed, wearing polarized glasses so she can see the fish clearly past the reflection on the water.

Periodically, a salmon leaps several feet in the air, splashing back into the water on its side.

But something is wrong with this tranquil scene.

USUALLY THE PENS would be teeming with 80,000 salmon ready for market. Instead, more than half are empty. Their nets, caked with algae, are pulled high above the water to dry.

Jan, Lorenzo's brother and president of the farm, had planned for \$7 million in sales this year. Instead he says he will be lucky if he makes last year's level of \$4 million.

The farm was hit simultaneously by the two things farmers fear most: natural disaster and low prices.

An algae bloom, a naturally occurring explosion in algae growth, suffocated 95 percent of Wiese-Hansen's fish in September.

"Farmers risk hailstorms, we risk algae blooms," says Ed Schallenberger, who runs Tailfin Inc., a salmon farm near the ScanAm farms that also lost most of its fish.

A year ago, Washington's fledgling fish-farming industry was bursting with optimism. The Washington Fish Growers Association predicted Puget Sound production would quadruple to 20 million pounds in 1990 from about 5 million in 1989.

Now fish farmers say the industry will be lucky to hit last year's level of 5 million pounds. And money for expansion will be hard to come by.

That's because farms that weren't hit by the algae are contending with prices that have dropped to as low as \$3.50 a pound from \$6 a pound just two years ago.

WHILE WASHINGTON fish farms have watched most of their stock die, the world, it turns out, is awash in salmon.

The wild salmon catch off Alaska this year totaled 698 million pounds, up 36 percent from last year, according to the National Marine Fisheries Service.

And farmed salmon production, which was initially seen as a boon to restaurants demanding fresh fish off-season, has suddenly begun producing too much.

The industry is expected to produce 484 million pounds of fish this year, up 53 percent from last year.

Commercial fishermen are unhappy. They say prices of some salmon varieties go as low as \$2 this summer, in part because of the farmed salmon.

For fish farmers, who spend about \$3 a pound just to raise the fish, the price drop has been painful.

"We've been losing some money," says Oliq Flatnaker, assistant general manager of Global Aqua USA Inc.

Flatnaker is hoping prices will go back up. But that may be wishful thinking.

In British Columbia, where 150 farms have sprung up in the past five years, compared with Washington's 13, at least six fish farms have gone into receivership.

In Norway, where hundreds of millions of dollars in subsidies have helped 700 family fish farmers raise their production to 163 million pounds last year from a little over 44 million pounds in 1985, many

See **FISH FARMING**, Page B4

Fish farming: Federal probe of salmon dumping may be sought

From Page B3

farms are going broke.

Next year, observers estimate Norwegian production at 264 million pounds.

In the long term, the consolidation in the industry may reduce fish production.

For the time being, however, troubled fish farms in Canada and Norway are selling record amounts of fish to pay off their debts, further deflating prices.

"They are out there selling at a loss and dumping," says Dan Swecker, president of Swecker Salmon Farms Inc. in Rochester.

The Washington Fish Growers Association says it may soon ask the federal government to investigate salmon dumping by foreign growers.

In the past, Washington farms have had the advantage of having grown mostly Atlantic salmon, a variety that grows larger, faster and commands a premium over the Pacific salmon grown in British Columbia.

But such premiums may not last.

"Because of the Norwegian oversupply, fish are being imported at prices that affect that premium price," says Norman Albert, president of American Farmed Seafoods Inc.

Washington farms, while facing tough times, still have the advantage of access to a strong West Coast market. Farmers boast they can get their fish to any restaurant on the West Coast in under 24 hours.

"It is ludicrous to bring salmon

on to Seattle from Norway when we can raise it here," says Arne Einmo, president of Dory Seafoods.

Nevertheless, Einmo says he must import fish from New Zealand, Chile and British Columbia because he can't get enough from Washington farmers.

Ironically, the research that originally spawned the industry came from Washington. Norway's fishing industry had collapsed as a result of overfishing and pollution. The Norwegian government, searching for a way to generate jobs in outlying islands, borrowed technology from the University of Washington for raising salmon and put it to work.

After Norway's successes, other countries followed.

But Washington fish farmers

have been hampered by opposition from shoreside homeowners who complain the farms ruin the view and create pollution. Although fish growers say those problems can be overcome with proper siting, approval for new farms has come slowly.

Japanese investors who wanted to build fish farms in Alaska were rebuffed by commercial fishermen and turned instead to Chile, building a sizable industry there.

In failing to invest in fish farms, "the commercial fishing industry is making a serious error," says John Pitts, manager for Aquatic Farm Programs at the Washington Department of Agriculture.

Fish farming could become an

alternative source of income for commercial fisheries that face a long-term leveling off or decline in catches, Pitts says, noting that the United States imported \$125 million worth of farmed salmon last year.

There are still some investors who have found a way to expand in spite of all the obstacles.

"Washington has the advantages handed down," says Swecker, who now sells fish eggs and salmon smolt and plans to get into fish farming.

He hopes to get approval by March to set up a farm in Mason County near Olympia capable of producing 860,000 pounds of salmon a year. "I'm betting my economic future on this," he says.

Other farmers are looking for ways to boost efficiency to lower their break-even points. "There

are technological advances and breakthroughs in feeding and growth," says Brian Zimmermann, production manager at Paradise Bay Sea Farms Co., a farm recently purchased by Oregon-based Andromedus Inc.

There is also talk of farming halibut and sturgeon, which remain in strong demand, and selling byproducts such as fish eggs.

If fish farmers can overcome their current problems by cutting costs and diversifying, they may still find a silver lining in the cloud that is hanging over the industry.

Says Bill Ryan, executive director of Skagit Systems Cooperative, a fish farm owned by three Indian tribes, "Prices have to drop to expand the market so consumers get used to eating salmon again."

Northwest fish farmers see problems, potential

THE ASSOCIATED PRESS

SPOKANE — Washington state's aquaculture industry is important to the state, but some salmon fish farmers are in trouble because an algae bloom destroyed much of the crop and low prices, due to a glut in the market, have greatly decreased demand, officials said.

More than 200 people from Washington, Idaho and Oregon, including Washington Gov. Booth Gardner, met here for an aquaculture conference over the weekend, to discuss co-operation dealing with the water ways and the fate of fish farming.

Aquaculture is the farming of fin and shell fish for consumption worldwide.

"This state holds tremendous opportunities for aquaculture," Gardner said Saturday, in his speech to the group. "There is no doubt the state stands to benefit from a growing, healthy aquaculture industry."

Gardner added that aquatic farmers needed to acknowledge the environmental impact of their industry. Environmental groups contend fish farming destroys natural habitats and pollutes streams and water ways.

But fish farmers disagree.

"Aquaculture adds real and tangible value to water quality because

the industry itself depends on good water," said Barry Moore, president of the Washington Lake Protection Association. "There is an economic incentive — as well as an environmental incentive — to protecting water."

Currently, the Department of Fisheries, with other agencies, is completing an Environmental Impact Statement on the industry. Aquatic farming is controversial in western Washington, where farmers vie for the same waters used by commercial fishermen, recreationalists and others.

However, fish farms are scattered throughout the state, particularly along the Columbia River, and the industry is growing at a rapid rate, said John Pitts, who runs the aquatic program for the Washington Department of Agriculture.

Americans ate 15.4 pounds of seafood per person in 1987, up almost a pound from 1986, he said.

The United States imports farmed seafood to meet the demands because it lags behind other nations in

FISHING NEWS

seafood production. Pitts said, adding that the Pacific Northwest still can compete in the market.

The Pacific coast supplies 25 percent of the total U.S. oyster production, with Washington oyster farmers providing more than 90 percent of that amount, he said.

The state ranks first in the nation for trout egg production, supplying 10 percent of the world's live trout egg supply, Pitts said.

But some fish farmers are in trouble.

Near Anacortes on Cypress Island, Jan Wiese-Hansen, of the ScanAm Fish Farms, said he will be lucky if he makes last year's salmon level of \$4 million.

The farm was hit simultaneously

by an algae bloom, a naturally occurring explosion in algae growth, which suffocated 95 percent of Wiese-Hansen's fish in September, and by low prices.

The Washington Fish Growers Association earlier had predicted Puget Sound production would quadruple to 20 million pounds in 1990 from about 5 million in 1989. However, fish farmers say the industry will be lucky to reach last year's level.

Besides the algae bloom, low prices shook the industry because of the great supply of salmon available. Prices dropped to as low as \$3.50 a pound this year from \$6 a pound two years ago.

Salmon fish farms are plentiful worldwide. According to the National Marine Fisheries Service, the wild salmon catch off Alaska this year totaled 698 million pounds, up 36 percent from last year.

In British Columbia, where 150 farms were started in the past five years, at least six fish farms have gone into receivership.

In Norway, many farms are going broke. Last year, millions of dollars in subsidies helped 700 family fish farmers raise their production to 163 million pounds, from more than 44 million pounds in 1985.

Fish farms in Canada and Norway are selling record amounts of fish to pay off their debts, further deflating prices.

Some fish farmers are talking about farming halibut and sturgeon, which remain in strong demand, and of selling byproducts such as fish eggs to combat their salmon woes.

GROSS-ALASKA T

Homer News Features

B

Fish farming in Alaska?

"The cup is half-full," says one, "half-empty," says the other. "It's a b-o-o-n-d-o-g-g-l-e." "No, a boon." "It won't work." "It will too."

Ken Castner and Brent Paine are commercial fishermen and long-time Alaskans. Both spent the last four months helping to compile the most comprehensive study to date about the potential of salmon farming in Alaska.

They talked to other fishermen and to salmon farmers, visited working farms in Puget Sound, listened to biologists, economists, pathologists and marketers, and with three other members of a special task force, wrote a 25-page report to the Alaska Legislature about fish farming.

Still, the two men diverge in their interpretations. Castner looks at the study and says it supports his platform — that finfish farming in Alaska should not be allowed. Paine says the facts support his side — that it should be allowed.

The two are a microcosm of Alaska, which is perhaps the only salmon-producing area in the world that has not rushed headlong into the industry that allows salmon to be raised, like cattle or chicken, on seaside farms.

Task force report puts issue squarely in legislators' hands

Story by Joel Gay

Most of Alaska's commercial fishermen dislike the idea, as do the politicians who want those fishermen's votes and residents along the coast who don't want the water fenced off or possibly polluted.

On the other side are those who think Alaska's coastline should be used year-round for fishing, not just in the summer. Fish farming means jobs, they say, and any job is a good job.

So far, fishermen have outweighed the pro-mariculture forces. In 1986, the issue came up and the Legislature split the issue into two parts. Shellfish and seaweed mariculture would be fine, they said, and those indus-

tries have set down some fine roots, in Southeast, Kodiak and Kachemak Bay.

But salmon was different, and quickly the issue became polarized and emotional. The Legislature reacted by agreeing to study it further, and enacted a two-year moratorium on finfish farming.

In 1988 it came up again, and again the Legislature was paralyzed. Another two-year moratorium was approved, but this time the legislators created a task force that would, hopefully, present them with facts. They did not, however, give the group any money until five months ago.

It was hoped that the task force would "move away from the extremely polarized camps and sort things out from a middle-ground perspective," said Jon Sherwood, who was hired to coordinate the task force's efforts.

Castner was nominated by the United Fishermen of Alaska, while the Alaska Mariculture Association put forward Paine's name. They were joined on the task force by an economist, a biologist and a member of the general public.

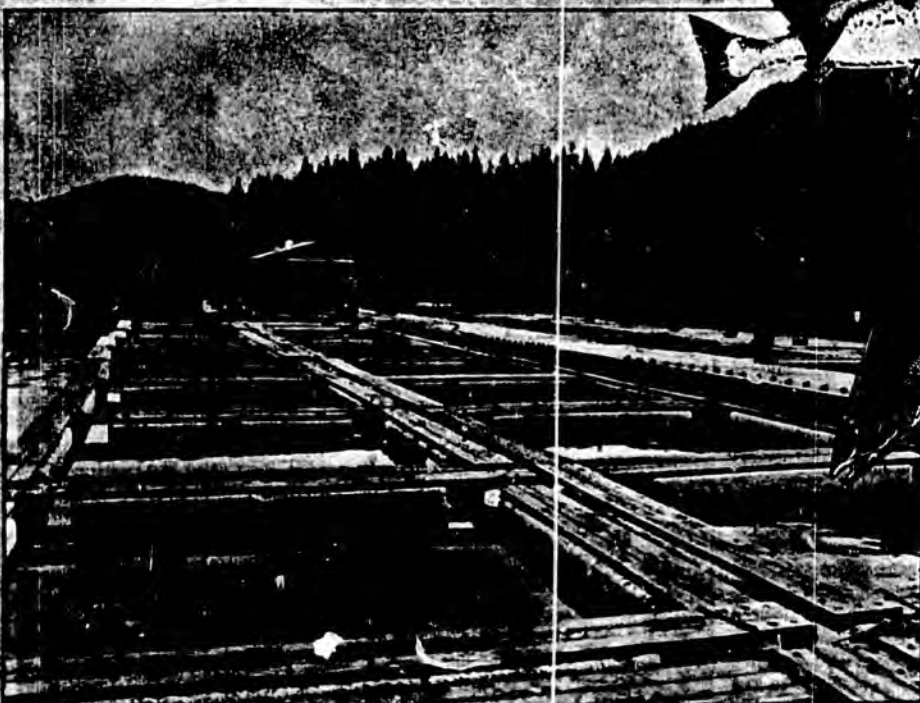
Starting with the assumption that finfish farming was legal in Alaska, they looked at six areas the Legislature had identified as potential problems: the biological threat to existing fisheries posed by fish farming; broodstock and the question of who should own Alaska's salmon; siting; regulatory costs; costs vs. benefits; and marketing. The biological health issue is one often brought up by mariculture opponents. Because the fish are penned up and stressed out, diseases can run rampant through a fish farm and any fish that escapes could introduce the disease into wild stocks.

The task force found that Alaska's salmon stocks are healthy and would remain so if finfish farming were allowed, provided that state regulations adequately control diseases.

"As a biologist," said Ted Merrell, task force member from Juneau, "I think if the industry is properly regulated — and that's a big if — the biological concerns can be minimized."

Fears of disease running rampant are legitimate, Merrell said. "But in my view, existing ocean ranching (such as the Department of Fish and Game's hatchery program) has more potential for biological problems than fish farming."

Most salmon farms are in saltwater, rearing the fish in cube-shaped net pens 12 meters on a side and even netted on the top to keep predatory birds at bay. Similar pens are used in Kachemak Bay for short-term rearing of salmon smolts, such as in Tutka Lagoon and the



If finfish mariculture is allowed in Alaska, sites might look like the Dept. of Fish and Game's net pens in Tutka Lagoon.

Photos by Joel Gay

See FISH, Page 8

...for our own big refuge

... Fish farming raises biological questions

FROM PAGE 1

Homer Spit Fishing Hole. A large farm might cover two acres — about half the size of Tutka Lagoon.

But trout, char and even salmon can be raised in freshwater or saltwater tanks far inland. One farmer got a successful start raising silver salmon in Fairbanks. The task force noted that such upland farms are less susceptible to spreading disease than marine pens, though they stopped short of recommending upland farms over marine pens.

Another major area of biological concern is genetic. Fish farmers, like dairy or cattle farmers, use selective breeding to get the traits they want — docile, fast-growing fish with savory and colorful meat. European and East Coast farmers use Atlantic salmon for those reasons.

However, if those hybrids interbreed with wild stocks, it is feared the wild stocks could lose their ability to survive in the wild.

Castner said he was adamant that Alaska continue its current prohibition against importing salmon or fertile salmon eggs, and the task force agreed. By limiting the farming industry to indigenous species, they said, the state can sharply curtail potential problems with disease and genetic pollution.

Broodstock is a related issue. A fish farm needs eggs to get going, like a corn farmer needs seed. But because Alaska prohibits imported eggs, the farm needs a source inside the state. However, every salmon in Alaska is already allocated — to either escapement or to commercial, sport or subsistence fishermen. That means current users would have to give up fish to provide the eggs necessary to get the new industry off the ground. The Board of Fisheries would have to set an allocation of broodstock to meet finfish farming needs.

And who should own those fish? The farmers themselves? No, the task force said, the state should continue to own all broodstock and provide eggs to the industry through

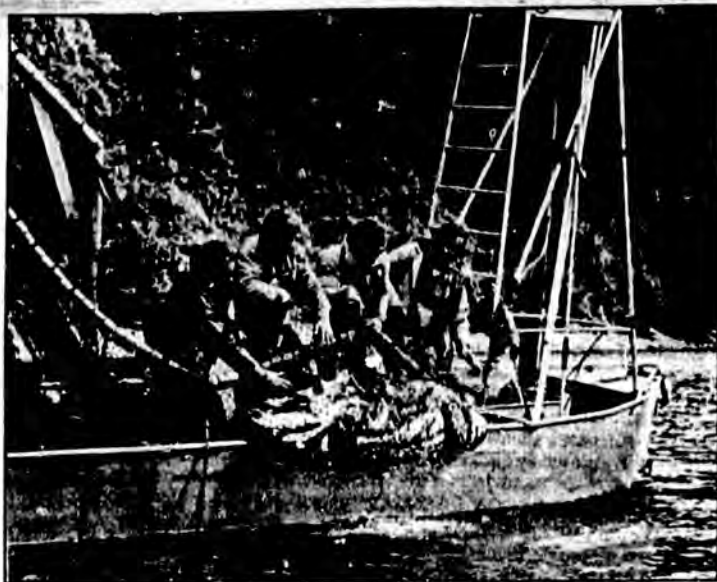


Photo by Joel Gray

Sockeye salmon, like these caught in China Poot Bay, are one species of finfish that might find a niche in the glutted farmed salmon market.

non-profit hatcheries.

The fear of private ownership, Castner said, is that someone would take Alaska salmon to a high-tech laboratory and develop a fish that could be patented, like the laboratory mouse that was patented recently Outside. "I didn't want people taking the things that have been developed in Alaska over centuries and selling them around the world," he said. "As soon as those fish turn into private stock, someone could do that."

Furthermore, the task force recommended that the farming industry develop pedigreed fish for their own use.

Siting fish farms correctly is extremely important, the task force found. Marine pen

farms have had serious water pollution problems where currents did not regularly flush away the excess food and fish wastes.

They recommend that Alaska develop a special set of siting requirements, and use existing mechanisms for providing permits. Those allow for local and public participation to ensure the public interest is met.

It would cost the state about \$500,000 a year to regulate such an industry, the task force found. "I figure that's about \$100,000 a farm," Castner said, "because I don't think more than four or five farms could survive in Alaska."

The task force figured the industry would need oversight by the departments of Fish

and Game, Environmental Conservation and Natural Resources. The U.S. Army Corps of Engineers might also have a say, as would the state Division of Governmental Coordination.

Paine said the government could effectively kill the industry, or help it blossom, depending on how the agencies handle the paperwork. It would be easy to drown a potential fish farmer in paperwork, he said, or to help the person wade through the bureaucracy. "I don't oppose regulation," he said, "just improper regulation."

The industry should be taxed to pay for its own regulation, the task force recommended, and suggested the state reduce its own costs by encouraging the use of private pathology services. But all the fears of disease, genetic mutation, red tape and bureaucratic regulation are minor compared to the big issues of cost and benefit.

Is finfish farming feasible in Alaska? Who stands to benefit?

The commercial fishing industry could suffer, the report states, from lower prices caused by the increased supply of fish, and from the inability to equate "Alaska salmon" with "wild salmon." Castner thinks state residents and other industries would be less protective of the commercial fishing industry if a farm industry were allowed.

The task force figured a two-acre farm would require \$1 million and would yield no return for 30 months. That is likely to attract corporations, particularly those already farming elsewhere, and Castner contends that would mean the profits would leave Alaska.

Paine disagrees, saying \$1 million is a small enough figure that many commercial fishermen could participate. "Anyone who has fished Bristol Bay the last few years (as he has) has at least \$500,000 in the bank, if he hasn't spent it," Paine said. "A million dollars ... it's just like putting together a large fishing operation."

See COLD, Page 9

Lakewood Inn Restaurant is Closing

John, Jo, Jonnie & Sandor Smith wish to thank the people of Homer who have so graciously welcomed us to this wonderful community.

Your patronage has granted us a successful year, but due to further business ventures, we must leave our current location at the Lakewood Inn. To go where? We're not sure! When we find our new location (hopefully on the peninsula), we'll let the good people of Homer know. So, watch this space for the continuing saga of the Smith family!

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... Refuge designers visited eighty villages



FROM PAGE 1
ity, said Kerr.

Kerr and other members of the team held public hearings at more than 80 villages dispersed along 30,000 miles of coastline. The team showed slides and videotapes of the refuge and answered questions from villagers about how they would be affected by the plan. But they also asked questions, said Kerr. And more important, they listened to the answers.

"Bureaucrats are always going into the Bush with their hands open for help and information and the engines running on their airplanes. We tried to take more time."

One of the problems with public hearings is that the people who put them on usually show up with the plan already published, Kerr said.

"That gives the local people the idea that all the decisions have been made," she said. "They say, 'Why are you asking us when you know what you're going to do?'"

"Most of our hearings were held before we had a plan. We showed up at meetings with blue-line drawings and invited people to scribble on them with us. We tried to avoid making it look like we had spent so much time on things that we weren't open to new ideas," Kerr said.

The team conducted environmental education programs at village schools — "today's children are tomorrow's refuge users," said Kerr — and talked with native elders about historical and current patterns of subsistence in the areas included in the refuge.

Native peoples affected by the refuge include Aleuts, Koniags, Yupik and Inupiat Eskimos, Haidas and Tlingets. The team also talked with commercial fishermen and the U.S. Coast Guard, Navy and Air Force.

"One of the hardest things was learning the protocol of each group we worked with," said Kerr. "When you arrive in a village, do you go to the mayor, the tribal leader or the council? Sometimes the groups aren't talking to each other. You go to the wrong group first, you've screwed up."

Being a landscape architect on the last frontier is a little different than it is most other places, Kerr said.

"After the plan was written, I was offered a chance to go to graduate school at Harvard. After I'd done a presentation on the refuge for a class, the professor said to the class, 'Most of you won't ever do what Leslie does, but what she has done has affected more land than most of you ever will.'"



Photos courtesy of U.S. Fish & Wildlife

The Alaska Maritime National Wildlife Refuge is big. Far too big to give the credit to one person, said Kerr.

"I'm not the project. The project is all the people who worked on it," she said.

Among the local folks deserving a round of applause, she says, are assistant planner Poppy Bensen, wildlife biologists Ed Bailey, Mike Nishimoto, Dave Nysewander, and Art Sows and refuge manager Jon Martin. Former assistant refuge manager Tom Early, now the manager of the award-winning Nowitna Wildlife Refuge near Fairbanks, was also a vital part of the planning team, according to Kerr. Leslie Kerr works for the U.S. Fish and Wildlife Service in Anchorage. She is currently working on the service's oil spill projects.

... Cold water could foil industry attempts

FROM PAGE 8

The industry would be likely to hire one person for every 25,000 pounds of fish raised. A large farm might turn out 600,000 pounds a year, Castner said, requiring perhaps 25 workers. "Most of them are throwing feed," he said, "day in and day out, throwing feed."

The existing processing industry might be able to sell the farmers fish meal, the task force said, creating a few more jobs

and making better use of the byproducts of the summer season. Some plants might also stay busy year-round processing fish for private farms.

But is it economically sound? It depends on who you ask. "The window of opportunity for making a fast buck has long passed," said Paine. "British Columbia took it and ran with it," and many farmers made money.

The industry grew quickly, however, and when salmon prices fell by 25 to 50 percent this year, some farms went out of business. "There's a shakeout going on," Paine said. "But it's going to be a viable industry in the long run. Alaska could have done that, but we didn't."

It's a high-risk industry that could be foiled by the cold waters of Alaska, the task force found. Growth rates are critical — so critical that most West Coast farmers have stopped trying to raise Pacific salmon in favor of faster-growing Atlantic salmon. One farmer told the panel he killed a million king salmon fry — worth 50 to 60 cents apiece — because they weren't growing fast enough. He switched to Atlantics.

McNeill, the biologist on the task force, said he thinks salmon can be raised anywhere in Alaska. And with selective breeding, a fast-growing sockeye or coho would be a farmer's goal, he said.

Castner thinks "the whole thing is so uncertain that we're afraid if they allow any finfish farms, the state will come whining back. You didn't give us the tools to succeed. We need Atlantics. The timing requirements are too tough, the regulations are too tough." They're always going to be whining about something," he said, and having one foot in the door that could lead to dangerous changes in the industry.

Currently the market for farmed fish is not good. Worldwide, farm fish this year produced 14 percent more fish than the market wanted, creating a glut totalling 100,000 metric tons. Norway's farms alone produced 150,000 metric tons in 1989, and 1990 should see some 200,000 metric tons, according to various industry sources. By comparison, Alaska's salmon fisheries produced about 315,000 metric tons in

don't know if it's profitable right now," he said, but the state's decision to allow or not allow finfish farming should not be made on current market conditions. He pointed out that Alaska's state-owned hatchery program was funded in the mid-1970s when salmon markets were severely depressed. "I certainly wouldn't shut the gate just because this year or next year it's not a good idea."

"There's always this argument that Alaska can't compete. I don't buy that. Canada, Norway, Washington, they've all done it. Even though the timing is wrong, we have some trump cards."

Brent Paine

1989. In the October issue of "Canadian Aquaculture" magazine, author Peter Chettleburgh wrote, "Since May, we've heard of at least four West Coast farms that have been put into receivership, another two that have been sold at fire sale prices and at least a dozen more which are in desperate need of working capital. Everyone else is holding on, praying for higher prices."

Despite the fears, costs and unpredictability of starting finfish farming in Alaska, Brent Paine is optimistic. "My basic line is that because of limited entry, there's no further openings into the commercial fisheries of Alaska. I see fish farming as one way to allow new Alaskans into the commercial use of the coastal resource area."

"I'm a real believer in private enterprise," he said. If it makes good business sense, the state shouldn't stand in the way. There's always this argument that Alaska can't compete on the world market, Paine continued. "I don't buy that. Canada, Norway, Washington, they've all done it. Even though the timing is wrong, we have some trump cards." He thinks farm-raised sockeye salmon and black cod could create their own market niche.

John Weddleton is the economist on the task force. "I

Although the task force has not made any final recommendations — all the above are preliminary and subject to change — Weddleton said he favors any industry that brings jobs to Alaska. "So some Japanese company builds a salmon farm, I say hooray. If they're hiring people and spending money and it's successful, I say hooray," he said. "To me, it's a wonderful thing if you can get someone outside the state to invest here."

Sonja Corazza, a longtime Homer fisherman and former head of the United Fishermen of Alaska's mariculture committee, said she was pleased to see the balanced reporting done by the task force. But she agrees with Castner that the report makes an argument for the status quo in Alaska — no finfish mariculture.

"It definitely points to the fact that this is a very unfavorable time for anyone to get into finfish farming," she said.

But why should the state prevent someone from going into a business likely to fail? Look at the Point MacKenzie dairy farmers, Corazza said. "Whose picking up the tab? The state of Alaska. It has turned into a state burden," she said, and so would finfish farming.

And as long as the Department of Fish and Game is underfunded — she says to the tune of \$1.5 million — the state shouldn't tack on the cost of regulating a new industry that may prove harmful.

The task force is taking comments on the report until next Wednesday, Dec. 13. They will meet again in mid-December to make final changes to the report and submit it to the Legislature. Then, next session, the issue of finfish farming and whether it makes sense for Alaska could be settled at last.

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**HOMER
PENINSULA FORD**



According to critics, it's unreasonable to expect there would be room for "mom and pop operations."

Bill Ryan, manager of the tribal fishing cooperative in Skagit County, Wash., related that before the co-op's transition to farming, "We kept getting our share of scarcity and poverty." The economy of La Conner, like that of many other small fishing towns, revolves around salmon.

Ryan stated that diversification

was his group's only hope for an economic come-back, and "diversification is more possible in an industry with which you are familiar."

Comments from the audience showed that concerns about fish farming are more numerous than the justifications and solutions presented by the panel. "In no place that the farming industry has flour-

ished has it not destroyed the wild stocks," said Deborah Papetti.

Fishermen are worried not only about the weakening market, but also about the threats of virus, cross breeding and pollution, the long-term results of which are still uncertain. "Uncertainty is dangerous and if something disastrous did happen to our wild stock, who would

have the liability?" asked Ms. Papetti.

"These are some valid concerns," replied Brent Paine, Fin Fish Farming Task Force biologist, "but the guidelines for pollution and disease which Alaska has determined will minimize risks."

Among the suggestions directed towards those concerns were the following: raising only Atlantic species to avoid cross breeding with Pacific salmon, and, as is now the case in Norway, restricting management of farms to people who have degrees in aquaculture. Bill Ryan agreed that for the sake of environmental issues, "the farms must be well managed."

The general consensus of the pro-farming panel was that fish farming has become an economic necessity and the only choice left to commercial fishermen is whether to sink or swim.

The word of encouragement given by each of the speakers was "marketing."

"The effort should be to cooperate and grow the market here in the U.S.," said Talley, "there's too much energy lost fighting each other." Both fishermen and fish farmers should redirect that energy towards a marketing push on a grand scale if all U.S. fisheries intend to hold their own in the international marketplace, he said.

Paine admitted that there's nothing in it for some fishermen. "The side you take depends on your situation in the market," he said.

Paine concluded his presentation with a message—"We must look at what the market demands—fight fire with fire." □

Expo Seminar Pumps Fish Farming

by Liza Bobo

"Every year we seem to have a seminar on fish farming," said Bruce Buls of *National Fisherman* as he opened the Fish Expo '89 seminar on the topic. This year's seminar continued in step with that of Expo '87 by including a panel of salmon farming advocates who made yet another effort to present the many opportunities fish farming holds for commercial fishermen.

The growth of salmon farming has been "explosive, phenomenal," said *Seafood Trend Newsletter* editor, Ken Talley. He noted that this September marked the 100 millionth fish harvested in Norway since the infancy of the industry in that country in 1978.

Also, over the past nine years, the French smoker market, one of the U.S.'s largest consumers, has been steadily buying more and more Atlantic farmed salmon. In 1980, this market bought 80 percent wild Pacific salmon; last year, only 26 per-

cent.

"Commercial fishermen no longer have the market to themselves," warned Talley, "and mid-1989's drop in prices is directly related to this." He affirmed that salmon farming is here to stay and that "salvation lies in cooperation, not competition."

Competition is, however, precise-

ly what commercial fishermen are concerned about. "Again, I'm a fisherman," stated Dominic Papetti after attending the seminar, "and if it's all going to turn to farmed salmon, where does that leave the individual?"

He could see no way the majority of vessel owners could secure them-

selves a piece of the farmed salmon pie. "You cannot have 90,000 fish farms," Papetti said.

No one on the panel spoke directly to this concern. The speakers focused, rather, on the necessity of fish farming if Alaska fishermen hope to keep up with the changing nature of the international market.



With the explosive growth of fish farms, commercial fishermen "no longer have the market to themselves," said *Seafood Trend Newsletter* editor Ken Talley at Fish Expo '89.

Roy Scully/Seattle Times

Farthest North Fish Farm Nears First Commercial Crop

by Rodger Painter

Starting a fish farm with an unproven aquaculture species might seem like a difficult enough challenge, particularly when the fish has a very narrow market base, but the developers of Polar Sea Fisheries are undaunted. In fact, they've taken on the additional challenge of extending the northern frontiers of the North America fish farming industry to the Yukon.

According to Gavin Johnston, a managing partner in Polar Sea, the decision to locate one of Canada's first commercial arctic char farms in the Yukon Territories was one of the easier problems for Polar Sea Fisheries to resolve. Where else should arctic char be raised than the arctic, he asks rhetorically?

As Polar Sea neared the significant milestone of harvesting its first commercial crop, Johnston said there are no regrets about basing in Whitehorse. After all, he said, "We can truck product to Vancouver cheaper than they can from the north end of Vancouver Island."

Polar Sea has been able to negotiate very favorable freight rates in backhauls of empty refrigerated vans southbound on the Alaska Highway from the Yukon and Alaska. With power rates in Whitehorse dropping recently from ten to seven cents per kilowatt hour, Johnston said Polar Sea can be competitive in the operation of its recirculating hatchery, grow-out tanks and processing plant. Johnston concedes that shipping feed from feed plants in Vancouver to Whitehorse via Skagway can be a costly proposition. He

estimated that feed costs run about \$1.50 (Canadian) per kilogram. [About \$.62 (U.S.) per pound.]

As testimony to Polar Sea's choice of culturing locations, Johnston pointed out that two other companies are now planning char farms in the Whitehorse area. While Whitehorse is located south of the Arctic Circle, the establishment of a commercial fish farm in the Yukon Territories has extended the northern boundaries of fish farming in North America.

Polar Sea plans its first commercial harvest this year, with an estimated four metric tons of production. This should climb to 14 tons in 1990, 60 tons in 1991 and full production of 200 tons by 1992, Johnston said. The first sales will be to Whitehorse restaurants who are eager to get the product and willing to pay \$6.45 a pound for pan size fish, Johnston said.

The Whitehorse market will be quickly overwhelmed by Polar Sea's production, and the company intends for the local pan size sales only to produce some positive cash flow. Johnston said Polar Sea has carefully considered its marketing strategies and plans to sell four to six pound fresh fish to Canadian restaurants.

"The Canadian market looks pretty promising," Johnston said. Polar Sea eventually would like to penetrate the U.S. market, but initial opportunities are more promising in Canada where "char is pretty well known."

The company's marketing research shows that a \$6 to \$7 (Cdn) per pound figure can be sustained by selling four- to

six pound fish directly to restaurants. Canada's other commercial char farm, Elder Aqua Farms in Winnipeg, reportedly now obtains \$4.50 to \$5.50 per pound for pan size (8-10 ounces) char.

According to reports in *Canadian Aquaculture*, the Winnipeg division of Safeway is selling Elder's pan size char at its seafood counters, although the price is an obstacle to sales. Safeway reportedly is installing as many as 25 live tanks over the next year to boost the sales of char. This strategy has been successful for farmed trout.

Pan size char are "not a good product," and market prices will reflect that reality, Johnston said in explaining Polar Sea's preference for 4 to 6 pound fish. "It's easy to grow things, but selling them at a profit is the real challenge" facing fish farmers, according to Johnston.

Polar Sea's careful approach to development is reflective of its approach to fish husbandry. Tucked away behind the small rolling hills of Fish Lake Road, Polar Sea operates out of a 5,000 square feet insulated metal building with concrete floors.

A smaller adjacent building houses a small processing plant and blast freezer. A refrigerated van serving as cold storage for processed products hums nearby. Johnston explains a subsidiary company was established to buy salmon from the Canadian side of the transboundary Taku River. The fish buying and processing operations allows the company to establish some cash flow and get some experience in marketing fisheries products.

Each section of the hatchery, grow-out and processing operations are carefully separated, and employees and visitors alike are required to rinse their boots in

disinfectant before entering another area.

There's always someone on duty at Polar Sea, following a careful regime of checking and rechecking the hatchery and fish tanks. Although many systems are computerized, each also can be operated manually, and everything has a backup system. If the power is lost, the entire operation can be carried on a backup generator.

The project was initiated shortly after Johnston, with aid of a government development grant, completed a 1986 feasibility study for arctic char farming in the Whitehorse area. Johnston and his partner and an employee in Northern Biomes formed Polar Seas Fisheries and began seeking capital.

Some of the original concepts have fallen by the wayside during the past couple years of development. The most significant has been the decision to not heat the grow-out tanks. Polar Sea originally planned to heat the water with an oil burner, later switching to heat generated by a garbage incinerator.

A local air inversion, public opposition and environmental regulations killed the latter concept, but the performance of the char stocks and other factors may have obviated the need anyway. Johnston echoes the convictions of other believers in the adaptability of first generation char stocks to a simple farm environment.

Polar Sea draws its water from a constant spring-fed creek which ranges between 4-9° C. Johnston said water in unheated outside tanks will drop to 2° C. when temperatures dip to minus 40° F., but "that's not a problem for char."

DFO researchers in Winnipeg achieved an average daily growth rate of 1.9

(See Farthest North on Page 32)

Delta

Farthest North Fish Farm

(Continued from Page 16)

percent in char stocks with water temperatures ranging between 11 and 14° C. At these rates, char outperform salmon or even rainbow trout. Elder Aqua Farms reports that char reach market size (8-10 oz.) in 12 to 16 months in water maintained at 12-13° C.

While Polar Sea has not matched that experience with its cooler rearing temperatures, the growth rates are good enough to convince the company to drop plans to boost the temperatures. Johnston said they expect the fish to reach three kilograms (6.6 pounds) within three years from a 20- to 40-gram smolt.

One of the Whitehorse-area farms now in the planning stages intends to pump lake water from 300 feet down during winter months to provide a stable temperature, according to Johnston.

The biggest problem has been finding adequate brood stock. Canadian and European researchers report a tremendous variability in char stocks, and some stocks perform very poorly. Polar Sea had hoped to obtain its initial eggs from the wild, perhaps from a stream running into the Canadian Beaufort Sea. Widespread disease problems (IPN) ruled out most systems from the western arctic coastline, and Labrador stocks have very white flesh resembling that of white chinook salmon.

"It's easy to grow things, but selling them at a profit is the real challenge facing fish farmers."

— Gavin Johnston

The only available broodstock turned out to be DFO's hatchery in Winnipeg.

Despite char's nearly legendary tolerance to high densities, Polar Sea plans to keep smolt densities to 75 kilograms per cubic meter and larger fish at 12-13 kilograms per cubic meter. This compares to stocking densities for Atlantic salmon in land-based farms of 55 kg./m³ and chinook in net pens 8 kg./m³.

Elder Aqua Farms reports its stocking densities are 15 kg./m³, but 10 kg./m³ may be optimum. Johnston said Polar Sea's stocking densities were determined after careful observations of mortalities at various densities.

Polar Sea's hatchery operation is very compact and carefully managed. In contrast to the high tech, nearly sterile environment of the hatchery, the grow-out operations are simple buried tanks located outdoors. The 12-foot

diameter tanks are five feet deep and have simple removable wooden covers.

Char are much more efficient converters than salmon because they feed off the bottom of the tanks and they apparently have better biological conversion ratios of feed to pound of flesh produced.

The adaptability of arctic char to a farming environment has aroused interest in the fish in aquaculture circles throughout the world. The September annual meeting of the American Fisheries Society included a section on arctic char biology where 23 research papers from Norway, Sweden, Canada and Alaska were delivered. One group calling itself the International Society of Arctic Char Fanatics was a cosponsor of a 1988 conference in Tokyo on the biology of arctic char.

Northern European farmers have been farming char for many years, but the success of salmon farming has stepped up interest. Norwegian farmers reportedly are solving problems that initially plagued salt water net pen rearing of the anadromous fish.

Experiments with arctic char stocks by

the Alaska Department of Fish and Game at the Clear Hatchery near Fairbanks showed impressive growth. ADFG biologist Jim Raymond said researchers have recorded daily growth rates of 1.8 to more than 3 percent at water temperatures of about 13° C.

Dr. Brian Allee, director of ADFG hatchery programs, recently told the Alaska Finfish Farming Task Force that arctic char represent a good potential for the state to carve a unique niche in the fish farming industry.

In addition to Polar Sea and Elder Aqua Farms, there are a number of Canadian trout and salmon farmers experimenting with arctic char. Elder Farms now raises char, rainbow trout, Atlantic salmon and kokanee salmon, but intends to shift its entire production to arctic char within two years.

Ironically, quick and easy success — or at least the promise thereof — is what Johnston and other Canadian farmers experimenting with arctic char appear to fear the most. The spectacle of panic stricken British Columbia salmon farmers dumping product at prices far below production costs has strengthened concerns that arctic char will be the next fish farming "gold rush."

"We don't want to see what's happening on the west coast with salmon occur with arctic char," Johnston said. If the B.C. experience shows char farmers anything, it should be that the industry "must be market driven," he said.

Rodger Painter is the executive director of the Alaska Mariculture Association, from whose monthly newsletter this article is reprinted.

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SEN DICK ELIASON

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This corporate mascot never sheds. Standing next to the Scotti Muffler mean machine are (from left) Larry Caswell, Larry Edwards, owner Stuart Huettl and Matt Huettl. AJC PHOTO BY IMRE NEMETH

Shop unveils a strategy Studebaker becomes a marketing tool

By IMRE NEMETH

To say that Stuart Huettl lays claim to the nicest, shiniest 1952 Studebaker pick up in the entire state is no boast. Just one look at the recently-painted black cherry rig and even people who aren't car aficionados vince with envy.

Superficially, Huettl's Studebaker represents what he estimates to be \$12,000. And that's only what he's spent since the beginning of the year on its ground-up restoration.

The engine gleams with chrome

parts. The dashboard instrumentation is high-tech, yet simple. All the details of the body have been attended to with white glove tenderness. The interior has been redone in the finest fabrics. Still, it doesn't run.

To anybody but Huettl, this may seem like an exercise in futility. Why not go out and buy a new Chevy?

Sure, sure, he'd say. But anybody could own a Chevy truck. They're about as uncommon in Alaska as

See 1952 Page 6

what's happening in Berlin and East Europe."

Dubbed the Ice Classic, people who buy tickets will attempt to guess the closest time the ice breaks up between the Bering Sea islands of Big Diomed and Little Diomed this spring. Tickets are scheduled to go on sale in March of next year both in Alaska and in the Soviet Union.

Gennady Alferenko's Foundation for Social Inventions will head up the effort in the USSR while Lottery Alaska, teamed with Camai, will administer the local effort. Exactly how the Soviet tickets will be marketed is not yet known.

Camai, a Juneau-based non-profit organization which has been instru-

bling foray.

Bob Thomas, president of Lottery Alaska, said the long-range intent is to market the Classic beyond state borders. He said he's currently negotiating with existing lottery organizations in other states to tap their sales networks and is reviewing state and federal statutes to determine the exact legal extent of potential gaming expansion.

Participants who buy a shot—at approximately \$1 apiece—will attempt to pinpoint the closest possible time the ice breaks up. The exact process of measuring the changes caused by warmer weather

See ICE Page 2

Findings promote mariculture Task force reports may usher in sea farming

By SALLY J. SUDDOCK

The Alaska Finfish Farming Task Force has issued a series of findings and recommendations that, if adopted, could clear the way for mariculture in Alaska.

The task force was created by the 1988 legislature and funded in 1989 to help clear up the controversy that has surrounded the farming of fish here—especially salmon. The chief concern in the mariculture debate that has continued since the Sheffield administration has been the fear that farmed salmon may pose a risk of disease for wild salmon stocks.

In its draft report issued earlier this month, the task force said finfish farming can be done without significant risk of disease if the state continues to meet its responsibilities in disease control, and if additional pathology and health services are provided either by government or the private sector.

The Alaska legislature impose a moratorium on finfish farming in 1988, through next July, but in the interim, plant and shellfish farming projects have begun to show prom-

ise. Even so, the task force has concluded that barriers beyond potential wild stock disease still remain before a viable finfish farming industry could take hold.

The task force considered fisheries health, broodstock issues, finfish farm siting, regulation costs, and marketing in the series of findings and recommendations issued earlier this month. Among its recommendations:

- Alaska should continue to pro-

See FISH Page 2

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sure progress.

At this point the intent is for grand prize winners on both sides of the border who receive \$100,000. Other prizes of \$10,000 will also be included.

This is the latest development of lotteries in a state that doesn't officially recognize their existence except through using the license of a non-profit organization. Before private companies like Lottery Alaska were formed to administer these games, which have recently included pull-tab formats, the efforts were largely small-scale fund raisers.

Lottery Alaska and others like it contend that, through their efforts, more money has flowed through charitable organizations they deal with than ever before. In light of state cuts to many of these groups, Thomas says it's a necessary relationship that has benefitted all parties involved.

Recently, jurisdiction over the games has been handed over from the state Department of Revenue to the Department of Commerce and Economic Development. This has led to several problems in translation that threaten the continued existence of the games, says Thomas.

On Sept. 26, the Department of Commerce notified Thomas and other lottery operators that the interim regulations instituted following the Alaska Gaming Reform Act of 1988 could be substantially altered. On Nov. 16, Department of Commerce officials said they would implement a set of regulations similar to those proposed earlier in September.

Through the approval process, these changes would take effect in 90 days. Thomas doesn't like changes that would eliminate the use of retail agents at multiple locations for distribution and require that a complete prize package be self-contained in a batch of tickets. State officials' contention is that the Gaming Reform Act doesn't specifically mention the use of vendors. They'd prefer an employee of the company distribute the game cards.

Swedish ferry line may begin serving Ketchikan & Vancouver

A Swedish ferry company has indicated plans to begin running passengers and vehicles between Vancouver and Ketchikan by January 1992.

The proposal is to operate year-round and market the line as a corporate conference cruise, a format that has proven quite popular during the winter months in Europe, officials with the ferry said according to the Associated Press.

Steffen Melin, deputy trade commissioner for the Swedish Trade Council in Vancouver, discussed the subject while in Ketchikan recently.

The Swedish company, Rederiaktbolaget Gotland, intends to capitalize on the tourism industry and direct travel between the two cities to increase significantly. The idea is a compliment rather than compete with the existing Alaska Marine Highway System routes that currently serve the largest southern Alaska city in Bellingham, Melin says.

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tions to carry the units in 50 communities.



The new classic is roughly fashioned after Nenana's famous event.

The second issue (that of prizes being all contained in one batch of cards) Thomas claims is easy to exploit and promotes fraud. He calls the move by the state a step backward in safety. It's easy for a vendor to discover by default if the big prize (there's a few located in every bundle of a few hundred) has been won or not by monitoring subsequent wins. The current structure of Thomas' games have the big prize distributed randomly throughout the ticket runs of 900,000 so nobody knows for sure where the big prize is located.

Lottery Alaska games are currently issued in batches of 900,000 and sold at \$1 apiece. Of that \$900,000, 55 percent is prize money. The sum is dictated by state statute. Buyers scratch off and try to match three figures on the cards which will win them whatever cash prize is listed.

Currently, 11.4 percent of Lottery Alaska's revenues go to charities. The company has distributed more than \$500,000 to non profits during its history.

Alotto, another lottery operator, opened its doors in November 1987 and has a number of games on the market. It has also dispersed a substantial amount to various charities.

Public hearings on the proposed changes or verifications of regulations by the Department of Commerce will be held beginning in mid December.

The latest debate will undoubtedly somewhat affect the Soviet-Alaska Ice Classic but Lottery Alaska offi-

cially and skill as the state defines these games will not have entrants guess at random times. Instead, card buyers will scratch off six foil-covered times. The time closest to the actual time the ice goes out this spring will win. The formula, Thomas says, also promotes sales since the more times a person has, the more likely he could wind up with the winning card.

In the past two years, the ice between the two Diomed islands has broken up between May 15 and June 1.

FISH: Task force says there are lots of variables to answer

Continued from page 1

hibit the import of live salmon or eggs as broodstock for farming.

- Regional planning teams should identify sources of broodstock for farming, and create broodstock sanctuaries where farmed fish would not intermingle with wild stocks.

- The state should develop specific regulations and criteria for the siting of mariculture operations, and a farmed fish tax should be enacted to offset the cost of regulating the new industry.

The task force also said that finfish farming in salt water is a high-risk industry that may suffer from high cost and market conditions. For a two-acre net pen farm, said the task force, for example, \$1 million dollars would be needed before cash flow would begin from the sale of market-sized fish, and any salmon produced would enter a world surplus market. Potential niches exist for all finfish

types, said the task force. It also found that Alaska's wild salmon products are losing ground to European farmed fish, as well as Canadian and East Coast farmed Atlantic salmon.

Finfish mariculture would enable Alaska to move fresh fish products into the market year-round, at a time when pen-reared fish are gaining acceptance in the market. Japan, for example, said the task force, bought 17,000 metric tons of pen-reared frozen salmon this year, compared to the 100,000 tons of frozen fish Alaska now sells to this market.

Meanwhile said the task force, clear state policy and regulations for such an industry would also enable markets to be developed for other species such as black cod, arctic char, and sheefish, and halibut.

The task force will accept comments on its preliminary findings and recommendations until December 13th and a final report will be sent to the legislature in January.



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