

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE 8672
1883 SCOMM 75: MARICULTURE (FISH FARMING), 1987-1990

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MEDIA RELEASE

Alaska Department of Natural Resources

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DIVISION OF: Land and Water Management CONTACT: Janet Burleson or
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RELEASE DATE: November 27, 1989
SUBJECT: First Aquatic Farm PHONE: 465-3400
Opening Draws 54
Applications

The state's first aquatic farm filing period netted the Department of Natural Resources 54 applications for aquatic farmsites on state tidelands located in Southeast Alaska. The 60-day filing period ended October 30th. Nineteen of the applications were for farms located in the Stikine-Admiralty Island Group; eighteen applications were filed for the Prince of Wales Island area. Six applications were for locations in the Wrangell Narrows, five on Etolin Island and four in Sitka Sound.

"This was the first opportunity for potential aquatic farmers to apply for a farmsite under a law passed by the 1988 legislature" said Gary Gustafson, director of the Division of Land and Water Management. "We are pleased with the response and believe that this fledgling industry is off to a good start" he added.

State agencies are now reviewing the applications. Public notice announcing a 30-day comment period and a hearing about the applications will occur after the first of the year.

. . . More . . .

PAGE 2

Aquatic farmers who are awarded permits will be growing shellfish or sea vegetables. A legislative moratorium on finfish farming will continue until July 1, 1990.

The 1988 law requires the Department of Natural Resources to create aquatic farm districts and hold 60-day application filing periods in each district at least once each year. The department will make a decision on when to open the filing period for the districts located in the southcentral area of Alaska sometime in late November or early December.

End # #

Department of Natural Resources
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OFFICIAL BUSINESS
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Sen. Richard Eliason
P.O. Box V
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SCOMM

75:18



Farmed Salmon Product Labeling

Sen. Dick Eliason's SB-531, establishing labeling and identification requirements for food products containing farmed salmon, passed out of Senate Finance last week. The bill was introduced to protect consumers concerned with chemical use in finfish farming, and to not taint the reputation of Alaska salmon as "wild and pur."

SB-137: Commercial Driver's Licensing

The House Transportation Committee reported out SB-137, requiring drivers to have commercial drivers licenses in order to drive commercial motor vehicles after April 1, 1992. The bill was introduced to put Alaska in compliance with the Commercial Motor Vehicle Safety Act of 1986, which conditions future federal highway funding upon adoption of a commercial vehicle driver licensing program. The bill now heads to the Finance Committee.

Spill Bills: Action on oilspill legislation continued in the House last week. House Judiciary voted out HB-565, penalties for pollution violations, with amendments. Judiciary increased dollars/gallon fines for some types of spills, and also dropped insurance requirements to cover potential penalties in certain cases. HB-567, contingency plan requirements, was due up in House Resources as this Digest goes to press.

Dalton Highway: House Transportation Committee is expected to act on Sen. Steve Frank's SB-366, providing for year-round, public access to the Dalton Highway, on Tuesday. Language suggested by Rep. Eileen MacLean is expected to be incorporated into a substitute version of the bill.

Land Reclamation (Cont.)

(Cont. from Pg. 7) in agency policies and key personnel. Under last year's "6i" legislation, regulations will be drafted late this year and in early 1991 by DNR, Alaska Dept. of Fish and Game and Dept. of Environmental Conservation. Also, Congress is virtually certain to include low-toxicity mining wastes in the federal Resource Conservation and Recovery Act reauthorization next year. If Alaska has a state mining reclamation program set in state statute (a regulations-based program may not be sufficient) Alaska could avoid reclamation standards set by the federal Environmental Protection Agency. (Cont. top right)

Land Reclamation Bill in House (Cont.)

The Senate bill would set specific requirements in statute relating to exemptions for small miners operating on five acres or less per year, and limit reclamation bonds to \$750/acre. *Probably most important, SB-544 would set a reclamation standard of avoiding "undue or unnecessary degradation" and for return of the site to stable condition consistent with the mining plan.* This is essentially the same standard now used by the Bureau of Land Management on federal lands administered by that agency. It is a fairly liberal standard, because it assumes that some degradation will occur. There are other standards that could be used, including restoring land to "equal or better" (required now under federal coal mining regulations,) or restoring to "beneficial use." Alaska Dept. of Fish and Game suggested a standard of "avoiding degradation."

Some indications as to how the House might look at this proposal: In amendments proposed (unsuccessfully) to Senate Resources, Alaska Dept. of Fish and Game suggested the reclamation standard focus greater emphasis on avoidance, restoration and "enhancement" (*editor's note: possibly off-site mitigation?*) of resources. The "undue or unnecessary" standard "maintains the status quo by accepting a level of impact consistent with industry norms," habitat director Frank Rue wrote in an agency memorandum, though he noted the standard "parallels (that of) Bureau of Land Management...and certainly can be used to obtain reasonable reclamation."

Fish and Game also criticized the exemption of miners using five acres per year, noting this exceeded BLM's exemption of five cumulative acres. "A substantial percentage of the state's mining operations would fall under (this) exemption," Rue noted. ADF&G also suggested enforcement authority for DNR in administering the program, including criminal and civil penalty provisions. Under existing authority, "blatant violations have taken years to resolve." Two other objections: The \$750/acre ceiling on bonds is inadequate, Ruse said, and specific provisions are needed to fund restoration of abandoned mines, or when an operator moves outside state jurisdiction.

Fish and Game did support three concepts in the Senate bill, however: Extension of reclamation requirements to private and federal, as well as state, lands, noting "advantages to adopting a uniform state program which avoids piecemeal regulation."

Budget action continues in House, Senate Finance Committees (Cont.)

(Continued from Pg. 1) levels recommended in the Governor's budget, with the possible exceptions of municipal debt pickup and senior citizens' tax abatement. Capital budget totals are ranging from \$200-\$250 million as committee work proceeds, but if agreements between House and Senate can be worked out on using the Railbelt Fund, total capital spending could jump to over \$400 million. But there's sharp disagreement in the House over using the Railbelt Fund. The Majority Caucus is essentially split 50-50 over the \$240 million Railbelt Fund, what it should be used for or whether it should be used at all. Several major projects are riding on the outcome of this debate: A new-technology coal power plant at Healy, built mostly with federal research grants, still needs \$30 million in state matching funds; if \$9 million isn't allocated for a new coal train set for Alaska Railroad, Idemitsu Kosan may not be able to go ahead with development of the Wishbone Hill mine near Palmer. New buildings at the University of Alaska's Fairbanks and Anchorage campuses also ride on outcome

of this debate.

Those new revenue forecasts: \$200 Million More in 1990!

Dept. of Revenue's April revenue forecasts predicts, as expected, more money coming into the treasury from higher-than-expected oil prices. However, the recent slide in spot market prices has raised some concern that the administration's forecast may be too optimistic. *Here are the new figures, based on the "mid-range" revenue/price scenarios:*

Fiscal Year 1990

(current year):

\$2504.3 million (new estimate)

2295.6 million (former estimate)

Gain:

\$ 208.7 million

FY 1991

(begins July 1)

\$2428.2 million (new estimate)

2255.6 million (former estimate)

Gain

\$ 172.6 million

FY 1992

\$2527.1 million (new estimate)

2416.2 million (former estimate)

Gain

\$ 110.9 million

Oil price assumptions*

(ANS crude, U.S. West Coast
Gulf Coast prices averaged)

FY 1990

\$16.51 (former estimate, Oct. '89)
17.84 (new estimate)

FY 1991

\$17.73 (former estimate, Oct. '89)
19.52 (new estimate)

* Estimate is for the average prices prevailing during the fiscal year, and is used as the basis for estimating state oil and gas tax and royalty revenues, which provide 85% of total state revenues.

Oil Price Plunge

Meanwhile, the plunge in oil prices on spot markets has sent shivers through Juneau. New revenue estimates for Fiscal Year 1991, the budget for which is being written this spring, assumes an average price for North Slope oil of \$19.51 through the year (see article at left).

Last week, crude oil spot prices plunged \$2/barrel to \$13.20/bbl as this Digest goes to press. Each \$1 fall in oil prices decreases state revenues by about \$150 million.

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... Resources ...

Land Reclamation Bill to House

The Senate has sent a land reclamation bill (SB-544) with an unusually tight title to the House. The bill covers mining (including sand and gravel) on state, private (mostly Native corporation) and federal lands, and would include operations of the State Dept. of Transportation and Public Facilities. It's uncertain just what the House will do, given two weeks remaining in the session. The administration has been asked to draft a reclamation bill satisfactory to three key resource agencies, Dept. Natural Resources, Environmental Conservation, Fish and Game. DOTPF is unhappy with SB-544 and is pushing to be excluded. *One key objection of the House is that almost two-thirds of miners operating in the state would be excluded because of the limit of SB-544 to mines operating in more than five acres/year.*

From a practical standpoint, the bill would have relatively little impact on most private lands. Native corporations, in their private mining agreements, have more stringent requirements. Likewise, most federal reclamation requirements are at least equal. *Native corporations are still nervous about the bill, however. Their concern is not the requirements in the current legislation, but where state agencies may go with the issue.*

The title of SB-544 (Resources) is now very specific, and includes major points Senate Resources wants covered in statute. This gives the House fewer options for amending the bill than if the title were written with very broad language, as in the Senate bill as it was originally introduced. *If the House wants to move on reclamation this year, it could either work to make modifications to the existing Senate bill (even under the restrictive title, there are several options,) or it could develop its own bill with changes to the specifics of small-miner exemptions, bonds or the standard of reclamation.* If the latter course is followed, legislative procedures would require a new House bill to go back through the Senate.

It's late in the session to be tackling a controversial, complex issue like land reclamation. Resources Chair Sen. Bettye Fahrenkamp moved on it as a kind of pre-emptive strike, hoping to resolve key points before state agencies tackle new reclamation regulations next year, as they are required to do under a law enacted by the legislature last year. The coming change of administration will bring about changes (*Cont. Pg. 11*)

Forest Practices: House, Senate Action

As this *Digest* went to press, the House was expected to vote on HB-331, revising the state's Forest Practices Act. The bill was on the floor last Thursday; 15 amendments were offered, with only 2 passing. One amendment was technical in nature; the second, by Rep. Robin Taylor, makes notification to DNR of timber operations voluntary instead of mandatory. HB-331's companion, SB-317, was in a Senate Finance subcommittee as this *Digest* went to press. Some Senators had expressed concerns earlier about the make-up of the Board of Forestry. The word is that the Governor is actively seeking movement on the bill in Senate Finance.

Yakataga Refuge: HB-346, creating a state game refuge in the Yakataga area, passed the House last week by a vote of 31-8. The House Resources Committee also recently passed out HB-583, relating to management of the Yakataga area. A substitute was crafted by the Resources Committee, buying out the University's interests in two parcels, Cape Suckling and Yakataga, with a down payment to be made in a later appropriation. CSHB-583 also clears the White River tract for development, and has stronger planning language than its predecessor. HB-583's next stop is the House Finance Committee.

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Finfish Farming: The Senate Labor and Commerce Committee passed out HB-432, prohibiting finfish farming, last week. A statewide teleconference was held, and nearly everyone testifying—fishermen, environmentalists, and even a shellfish farmer—was in support of the bill. HB-432 next heads to the Senate Resources Committee.

Spruce Bark Beetles: Two bills relating to the spruce bark beetle infestation were to be heard by the House Finance Committee as this *Digest* went to press. HB-574 would appropriate \$1 million to DNR for building fire breaks and developing public consensus on how to treat state land on the Kenai Peninsula in order to control the fire hazards created by the infestation. HB-575 would exempt expenditures made to handle fire hazards from the state procurement code. HCR-45, which passed the Senate recently, supports the actions of an interagency task force of federal, state, and Kenai Peninsula Borough officials, in developing emergency responses to combat the problem. The resolution also urges the task force to broaden its efforts to include other affected areas of the state.

... Business ...

HB-409, DEC inspection bill, set for action on House floor

As this *Digest* went to press, the House was expected to vote on Rep. Mike Davis' HB-409, a controversial bill among development groups. The bill expands authority of Dept. of Environmental Conservation to do inspections of industrial sites, without consent in certain cases, as well as impose civil penalties for pollution violations. Supporters of the bill predict passage on the House floor. *But Senate attitudes toward the measure are uncertain. A similar bill, introduced by the administration, has been in Senate Judiciary Committee most of the session, with no action.*

Amendments may be offered on the House floor, attempting to gut the bill's provisions for nonconsensual inspections, and putting a cap on administrative penalties assessed by DEC. A somewhat softened version of HB-409 was passed out of the House Finance Committee recently. So much as been done to the bill that business groups privately say the bill is "almost acceptable." *But some interest groups hoping to kill HB-409 worry about the bill being "fixed up" enough that it will pass.*

Here are changes House Finance made to the bill:

- allows for only "relevant" records to be copied during inspections. This is intended to allay fears that DEC will go on 'fishing' expeditions, looking for documents;
- adds "financial and commercial information and records" to the list of types of information that would be held confidential after a DEC inspection;
- adds language that allows nonconsensual searches only to the extent authorized under the Alaska and U.S. Constitutions;
- further defines which specific facilities would be subject to nonconsensual inspections. Under HB-409's provisions, oil terminal facilities, refineries, crude oil or gas exploration, production, or transportation facilities, hazardous waste transportation, storage, or disposal facilities, major solid waste disposal facilities, or facilities with both significant air and wastewater emissions that are also 'pervasively regulated' would be subject to nonconsensual inspections;
- defines "pervasively regulated facility" as a facility where activities or operations are or were conducted that affect a significant public interest and that DEC comprehensively regulates;
- reduces penalties maximum from \$25,000 to \$15,000 per day;

Changes to HB-409 (Cont.)

- replaces language concerning the penalty for non-payment to be consistent with the treatment by the Dept. of Revenue for non-payment of taxes;
- amends the provision concerning compliance orders to state that an order may be issued "after investigation," rather than "in the opinion" of the department, and adds language requiring that the order contain the nature of the violation, the nature of the required response, and a deadline for compliance;
- adds language to clarify that "an individual may refuse to provide a specific item of information on the basis of the privilege against self-incrimination";
- adds language proposed to limit the number of environmental audits which DEC may require at a single site;
- requires that DEC adopt regulations under the Administrative Procedures Act to implement provisions of the bill. This is a very important point to some business groups working on the bill, because it provides a framework for appealing DEC regulations.

Long-haul truckers' overtime

The House Transportation Committee passed out SB-506, exempting long-haul truckers from overtime wage requirements, last week. Supporters said that the bill would preserve a long-standing tradition in the way long-haul truckers are paid — by the mile instead of by the hour. Long-haul truckers develop their own rhythm of working and resting, it was said, and payment by the hour would not allow drivers the flexibility they currently enjoy.

The Dept. of Labor feels that the bill is not necessary, that truckers are able to continue working the way they have been, under present statute. But a recent court challenge in the state of Washington has prompted introduction of SB-506. An AFL-CIO representative argued against the bill, saying that while he did not oppose the bill per se, AFL-CIO didn't want to see an overall deterioration of overtime wage laws. Identical provisions are in HB-430, now in the House Finance committee. SB-506 next heads to the Labor and Commerce Committee.

The Senate Labor and Commerce Committee recently passed out HB-404, increasing unemployment benefits. The bill now heads to Finance Committee. Being so far advanced, this bill now stands an excellent chance of being approved this year.

WISE NATURAL RESOURCE MANAGEMENT DICTATES FISH FARM BAN

by

Senator Dick Eliason

After four years of discussion on the subject 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 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 3 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.

Unfortunately, nobody can guarantee that our wild fisheries resources would be safe from the risks posed by fish farming. 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 to the fish are part of this waste, and their use is believed to constitute a threat to public health.

Conflict over the location of fish farms will be inevitable, as many of the attributes sought in a fish farm site (good flushing action, fresh water source, accessibility, protection from heavy wave action, etc.) also make it desirable for other uses: shellfish farms, hatcheries, boat moorage, recreation, and residential development, for example.

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

escapement, 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 to life in the wild (such as the ability to migrate). Rivers in Norway and the U.S. have had to be poisoned, and their wild stocks intentionally exterminated to control outbreaks of exotic disease unknown prior to the advent of fish farming.

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 use of 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 unfailing 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 of this year. 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.]

Farm Salmon's Silver Lining

Silver Lining Seafood of Ketchikan this summer became the first Alaska processor to bring farmed salmon north. Silver Lining bought about 200,000 pounds of salmon from Prince Rupert Sea Farms which has sites located midway between Ketchikan and Rupert. The arrangement was a natural because shipping costs to market are lower by routing through Ketchikan. Co-owner John Sund told The Fish Farming News that Silver Lining hopes to establish better year-round supplies of product. "We're in the fish business," Sund said. "We're interested in acquiring fish." Sund, a former legislator, said the company is closely watching B.C. for potential investments, but it looks too risky at the present.

development of specialized farm broodstocks.

Brent Paine, the fish farming advocate on the panel, and the Alaska Mariculture Association agreed to the compromise with the assurances that farmers could have their own hatchery operations independent of state facilities and hatcheries controlled by fishermen, and would be provided access to surplus eggs, hatchery cost recovery fish and other sources of broodstock.

The task force also recommended that the legislature prohibit out-of-state transfers of live finfish eggs, fry and smolts. The task force had received mixed legal advice on the state's ability to prohibit out-of-state sales, particularly if the motives smacked of economic protectionism. Throughout the course of the task force process, Castner was extremely critical of Washington and Oregon for exporting broodstock and technology that fueled development of ocean ranching a salmon farming in other countries in direct competition with the fish industry.

Saying the private nonprofit status could complicate financing arrangements and muddle the issue of stock ownership, Paine and AMA conceded that the provisions could be workable as long as farmers had the ability to build their own hatcheries, sell eggs,

fry and smolt to other Alaska farmers and hatcheries, and had access to broodstock.

The legislature also directed the task force to separately examine the various forms of finfish farming, and the five-member panel issued a rather vague statement to differentiate the impacts.

"As directed by the enabling legislation, the task force has examined various finfish farming activities," the draft conclusion said. "We have determined that risks differ between these farming activities. The impact of enclosed systems are, by isolation, species limitation and potential user conflicts, greatly reduced.

"The potential genetic and socio-economic impacts of rearing non-salmon species in marine net pens also appears to be much less than those involved with salmon net pen culture, although most of these species are still in the research and development phase."

Alaska Mariculture Report

Published by the
Alaska Mariculture Association

Alaska Mariculture Report

Nov.-Dec. 1989

Vol. 3, No. 7

Task Force Sidesteps 'Yes' or 'No'

The Alaska Finfish Farming Task Force resisted pressure to say "yes" or "no" to finfish farming and unanimously adopted recommendations that would enact a tough set of restrictions if the legislature decides to move forward.

While neither side of the debate over finfish farming can claim a clear victory, the acknowledgement by the task force that a properly managed salmon farming industry would cause "little or no adverse effect on wild stocks or the environment" provides an obvious boost for advocates who have long made that very contention. On the other hand, the task force said poor market conditions will make it difficult for farms to develop in Alaska and the cost of regulation would be high.

At a mid-December meeting in Juneau, the task force worked through more than 50 public comments on its draft report (the packets weighed three pounds each) and reviewed the issues raised with each finding and recommendation. After extensive markup of the draft, the task force got down to the bottomline: how specific to make its conclusions and recommendations.

The final report appeared to find some middle ground for farmers and opponents, but stopped short of what many on both sides of the issue had sought: a clear statement of support or opposition. Instead, the panel bounced the ball right back to the legislature by saying the decision was "political" and must be made by elected public officials.

"Another study and debate are unlikely to significantly change the task force's findings of fact; therefore, there is no reason to extend the current moratorium beyond its

Highlights

Complex nonprofit hatchery program recommended. Provides to continued state ownership of eggs and fry.

Enclosed upland farms "greatly reduce" impacts. Risks with non-salmon species in marine net pens "much less" than salmon.

Revenues from finfish farming development could offset state costs, but "costs would accrue...even if the industry fails."

Market conditions "poor," but farmers "may find some market opportunities."

expiration date of July 1990," the task force said in a draft of its conclusions. "The legislature should resolve the issue by statutory permission or prohibition."

The group planned to review the final language of the report via a teleconference call and forward it to the legislature by mid-January. In a letter to the task force, Senate Resources Committee Chairman Bettye Fahrenkamp said she intends to have legislation implementing the task force findings drafted and presented to committee members early in the session which convenes in early January.

While the task force's final report avoided an endorsement of finfish farming, it effectively puts to rest most of the objections raised by fishing and environmental interests. The most important conclusion of the task force may deal a crippling blow to the argument that finfish farming threatens wild stocks and the environment.

"The environmental and biological impacts of finfish farming can be minimized through careful attention to proper siting and enactment of...conservative regulatory practices..." the task force said. In an attempt to offer some comparison of impacts to the hatchery programs supported by most fishermen, the task force said, "Current fisheries management techniques are designed to minimize disease and genetic problems. Risk management of disease and genetic problems found in finfish farms would be no different."

The task force tempered its draft statement by stressing that the protections are provided by strong regulatory controls and oversight and no farming should occur until the necessary programs are funded.

**"...little or
no adverse
effects on
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or the
environment."**

**The task force concluded
that the impacts of finfish
farming could be minimal if
properly regulated.**

"If the legislature decides to allow finfish farming, it is imperative that the necessary regulatory framework be in place well in advance of any farming activity. If that caveat is satisfied, the Task Force concludes that fish farming would have little or no adverse effects on wild stocks or the environment.

"Most of the necessary regulations can be adapted or extended without change from those that are already in effect for the state's ocean ranching and hatchery programs, but additional funding must be provided to extend them

to fish farming." [Original emphasis.]

The mounting evidence against the horror stories of biological and environmental devastation already had caused critics in recent months to shift their emphasis to the cost of properly regulating a finfish farming industry, narrow opportunities for salmon farming in light of spiraling world production and the unrelenting opposition of fishermen and environmentalists. The task force report undoubtedly will lend some fuel to these arguments.

The task force estimated that it will cost the state about \$500,000

per year to provide proper regulation. The task force based its figures on the costs of handling about 15-20 applications annually, and noted that an informal estimate provided by state agencies of \$1.2 million was based upon the expectation of 50 or more applications.

"The cost of providing adequate regulation of a finfish farming industry would be high, but successful development would bring employment and other benefits to Alaska," according to the draft conclusion. "[Although] development of finfish farming eventually could bring in enough revenue to offset the costs to the state, costs would accrue to the state from the permitting and regulatory programs even if the industry fails.

"The legislature is the appropriate body for deciding where to rank development of finfish farming in its funding priorities at a time when state revenues remain low and show signs of future declines."

One section of the draft report which was extensively marked up related to ownership of farm broodstock. While the final language was still in rough form, the task force recommended creation of new finfish farming hatcheries under a nonprofit status allowing the state to retain ownership of eggs and fry.

Ocean ranching hatcheries would be allowed to sell surplus eggs, fry and smolt to farmers and finfish farming hatcheries, but would be required to obtain a special permit ensuring the activity does not conflict with the mission of common property enhancement, under the task force recommendations.

The provisions were crafted at the insistence of Ken Castner, the fishing representative on the task force, who argued that private ownership could provide for out-of-state sales of broodstock and the state had an interest in benefits that could be derived from genetic

The long and winding road

The issuance of the task force report is a major milestone in the long debate over finfish farming in Alaska, but it is far from the end. The issue isn't likely to be resolved until the final days of the 1990 session in May after intense political debate.

Here are highlights of the process to date:

1985-86, a task force appointed by Gov. Bill Sheffield recommends a study of finfish farming while moving forward on shellfish and plant mariculture.

1986, ANA forms and begins working on legislation.

1987, bills authorizing finfish farming introduced in both houses, but get bogged down in controversy and a one-year moratorium on finfish farming is approved.

1988, fishermen win a fierce political battle and legislators extend the moratorium for two years and approve a sweeping bill covering shellfish and plant farming and establishing the task force. Since no funding was approved, the agencies stop processing shellfish applications.

1989, funding approved for new shellfish program and task force.

Farm Salmon's Silver Lining

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Saying the private nonprofit status could complicate financing arrangements and muddle the issue of stock ownership, Paine and AMA conceded that the provisions could be workable as long as farmers had the ability to build their own hatcheries, sell eggs,

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The legislature also directed the task force to separately examine the various forms of finfish farming, and the five-member panel issued a rather vague statement to differentiate the impacts.

"As directed by the enabling legislation, the task force has examined various finfish farming activities," the draft conclusion said. "We have determined that risks differ between these farming activities. The impact of enclosed systems are, by isolation, species limitation and potential user conflicts, greatly reduced.

"The potential genetic and socio-economic impacts of rearing non-salmon species in marine net pens also appears to be much less than those involved with salmon net pen culture, although most of these species are still in the research and development phase."

54 S.E. Oyster Sites Sought

State agencies are sorting through 54 applications for shellfish farmsites in Southeast. Officials say that successful applicants probably won't receive their permits until mid- to late-May.

Oyster Hatcheries

Two additional shellfish hatcheries were certified by the Alaska Department of Fish and Game in 1989 as sources of Pacific oyster spat for Alaska farmers.

The entry of Coast Oyster Company and Kuiper Mariculture brings the number of certified hatcheries to five and radically changes the spat availability picture for Alaska farmers. Farmers have complained of long delays in obtaining spat in past years.

Coast owns the world's largest oyster hatchery. Kuiper's certified broodstock were supplied by Southeast farmer "Grizz" Nicholson.

ADFG cautions that its new procedures requires annual certification and farmers should check with the FRED Division (465-4160) before placing 1990 orders.

Tom Bettinger, Coast Oyster Co., Box 327, Quilcene, WA 98376. (206) 765-3345. Linda Kuiper, Kuiper Mariculture, 3025 Plunkett Rd., Bayside, CA 95524. (707) 822-9057.

The 60-day filing period ending on Oct. 30 for the Southeast region was the first opportunity for new shellfish farming sites in one and one-half years, and the interest level was strong. The 13 farmers holding permits approved prior to the 1988 passage of an aquatic farming bill will be grandfathered into the program. Three permit holders did not submit applications and will lose their grandfather rights.

State officials say the permitting schedule was lengthened because nearly every application had to be returned for more information. The number of active applications after this first screening had dwindled to about 50 and more dropouts were anticipated by the late December deadline for applicant responses to agency requests.

Of the 54 original applications submitted, 19 were located in the Stikine-Admiralty Island district (Petersburg-Yakutat), 18 in the Prince of Wales Island area, six in Wrangell Narrows, five on Etolin Island and four in Sitka Sound. Oysters were the species of choice on all applications except a handful of proposals for oyster-mussel farms.

The 1988 law requires the Department of Natural Resources (DNR) to create aquatic farming districts and hold 60-day application periods at least once a year. It also requires a 30-day public notice and a public hearing for each district. A DNR official said the agency plans to schedule a 60-day filing period for areas north of Yakutat "next spring."

The lengthy permitting process stretching from Sept-May will push the successful applicants against the start

of the growing season, and further delays could jeopardize 1990 plantings. The applications still must go through the coastal consistency process, agency review, and public hearings.

As the requests for additional information were issued, the state notified applicants they could opt for a "site suitability" permit which involves much less red tape, but only provides for limited growth studies and environmental monitoring work for one year. The "site suitability" permits do not provide a preference right for a site and the animals raised in growth studies can not be sold or transferred to commercial production.

Alaska Oysters: How High is too High?

by Rodger Painter

So, you can grow a great oyster in Alaska, but can you sell it at a profit? As production from existing farms grows and the number of licensed farms increase, this question is becoming increasingly important to growers trying to figure out how to move product at a profit.

Although farmers have had to work hard to open sufficient sales channels, in-state markets have accommodated nearly all Alaska's production to date at acceptable price levels. Most farmers have been able to obtain \$.37-.50/oyster, but major Alaska buyers are wary of buying large quantities at price levels running 30-40 percent above Puget Sound or East Coast product.

Many of Alaska's early oyster farms have increasingly larger crops in the water, and 1990 should bring a major increase in product. And, with the state back in the business of processing applications after a year and one-half hiatus, production is likely to spiral in the remainder of the decade.

While in-state markets have room for expansion, the state's population base probably is not large enough to support more than a couple dozen developed farms. Only small amounts of Alaska oysters have been marketed in the Lower-48, and a survey of buyers in the Seattle area revealed that none was even aware Alaska had shellfish farms.

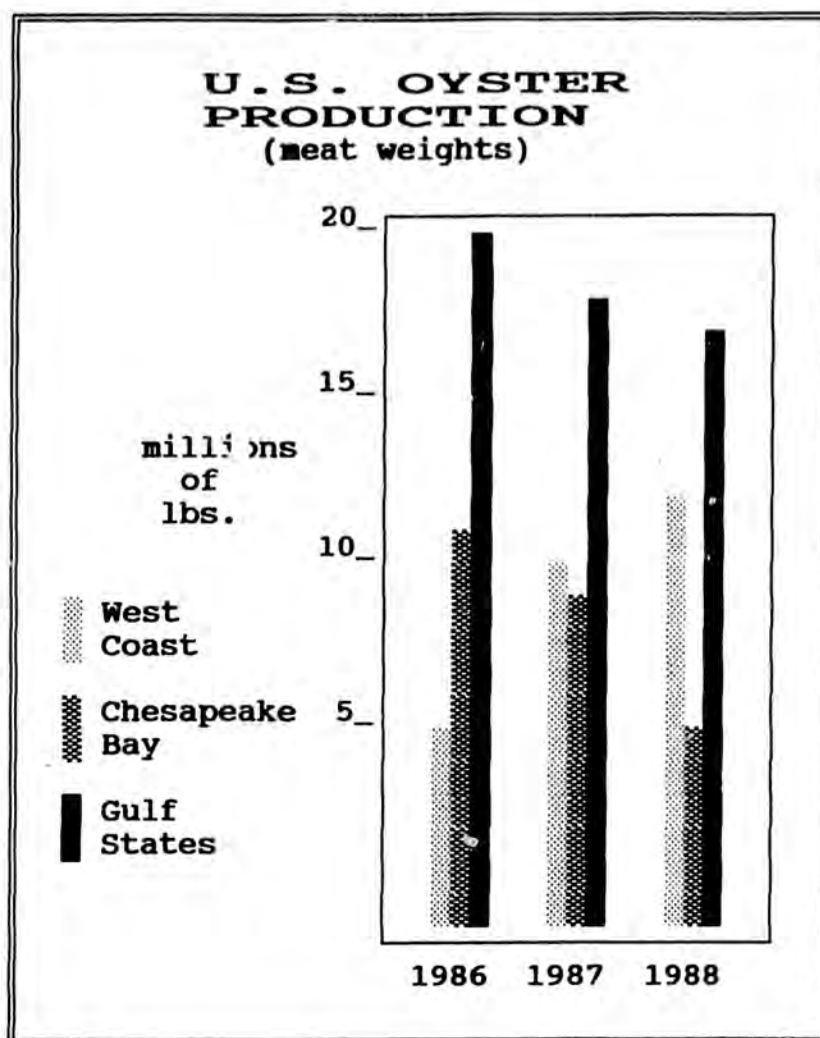
Alaska oysters compare very favorably with the best product on the market. Some growers say the cold waters which prevent spawning ensure the animal puts its energy into producing a higher fat content. Whatever the reason, Alaska oysters tend to be plump and succulent during the summer months when Lower-48 oysters turn soft and milky during spawning.

This creates a good market niche for Alaska oysters, but the long-heralded "triploid" oyster promises to undercut much of that opportunity. "Triploid" means these oysters have three sets of chromosomes rather than the normal two, and, consequently, are sterile.

After years research and development, Coast Oyster Company of Puget

PART 2

This series examines the outlook for shellfish farming in Alaska. The first article examined oyster markets. Next: Scallops--Flop or Future Superstar.



Rise of the Pacific Oyster

This graph shows that U.S. production of oysters has dramatically shifted in recent years. Particularly striking is the decline of Chesapeake Bay and corresponding rise of West Coast production. The West Coast production is based upon estimates by the Pacific Oyster Grower's Association, Dr. Ken Chew (University of Washington), and Seafood Leader; it is higher than government figures because of widespread under-reporting. The Gulf and Chesapeake figures are from the National Marine Fisheries Service. When imports are included, two out of three oysters consumed in the United States are the Pacific oyster. Washington State appears destined to become America's leading oyster producer within a few years. This graph is taken from *SHELLFISH FARMING IN YAKUTAT: A Feasibility Study of Shellfish Farming in Yakutat, Alaska* by Sea Culture of Alaska for the City of Yakutat.

5-mo. Oysters

A shellfish farming study in Yakutat has produced market-sized Pacific oysters in five months. The project planted 5,000 oyster spat in May and about 10 percent of the crop reached 2-3 inches by October.

Dr. Mike Kaill, who was lead project biologist and is mariculture coordinator for the Alaska Department of Fish and Game, cautions that the results may be unusual because of the record warm summer. Kaill said the absence of major storms in the area also may have resulted in unusual plankton levels.

Nevertheless, Kaill said, the results are extremely encouraging because growth rates in Alaska average between two and three years. If the growth experience continues, Yakutat farms should produce marketable oysters within two growing seasons (16-17 months).

Sound (the world's largest oyster farming company) has begun moving substantial amount of the product to market. While there are many skeptics among established Puget Sound growers, Coast committed half of its production to triploids in 1989.

Although the Pacific oyster clearly is a rising star in seafood markets, the competition for Alaska growers in Lower-48 markets will be tough. Production in Washington and British Columbia is expected to increase sharply over the coming decade, particularly in the half shell trade as many Puget Sound growers are converting some or all of their production from shucked products.

These factors suggest Alaska farmers will have to figure out how to lower their prices--and production costs--to move very large quantities of product. Interviews with Puget Sound and Alaska oyster growers suggest that Alaska costs are, perhaps, double those of larger Washington farms and three times higher than Gulf Coast states.

Dave McMillan, general manager of the 120-year-old Olympia Oyster Co., said his company keeps very tight control of its costs and it can produce a half-shell oyster for \$1.00. Other growers speculate that production costs in Louisiana and nearby states might be about \$1.10 per oyster.

Tim Tirrell, owner/operator of Under Sea Farms in Cordova, said he figures he would need to receive about \$.41 each for his oysters "to make a go of it at my present costs." Tirrell hopes to bring his unit costs down through economies of scale as his production increases and he tightens management practices through experience.

Tirrell planned to sell about 30,000 oysters this year, but was sidetracked by the Exxon Valdez oil spill. However, he now has about 2 million animals in the water and his production will climb rapidly over the next few years.

Don Nicholson, who claims to be the only Alaska mariculturist who makes a living solely from his farming income, said he has about \$.35 each into his marketable oysters. Nicholson sells oysters in Southeast

oysters in Southeast and Anchorage for about \$.50 each.

Research conducted for a shellfish farming feasibility project in Yakutat shows a farm planting about 500,000 spat per year might expect to have annual costs of about \$147,000 (including financing, salaries for a manager and casual labor) for three-year growth and \$127,000 for two-year growth. This works out to a unit cost of about \$.40 for the three-year scenario and \$.35 for two-year growth.

Review of the cost projections for a farm planting 1.5 million spat annually reveals significant economies of scale in oyster farming. The three-year growth scenario for a 1.5 million spat farm showed a unit cost of about \$.245, while costs for the slower growing animals were \$.29.

While the unit costs of the smaller farm models closely parallel the figures provided by Tirrell and Nicholson, the accuracy of the figures for the larger farm won't become clear until Tirrell or some other farm reaches comparable levels of production.

Even the lower unit production costs projected by the larger farm models are high when compared to the competition and average market prices. Wholesale price in Lower-48 markets for half shell oysters might average about \$3/dozen or \$.25 each, although some specialty oysters go for up to \$4/dozen or \$.33 each.

The gap between established market prices and Alaska production costs suggests Alaska farmers will have to focus on in-state markets and smaller-scale Lower-48 buyers seeking high quality specialty products. As Alaska oyster farms mature into more efficient, higher volume operations with lower unit costs, market opportunities are likely to become much broader.

Northern Species Raised in Unique Hawaiian Farm

by Rodger Painter

Numbed fingers fumble to remove oysters from a fouled lantern net hanging 40° F. ocean waters or wearily chip a growing coat of ice from pens in howling arctic storms, there isn't a northern aquatic farmer alive who wouldn't trade places with George Lockwood in a minute.

Lockwood grows chinook and coho salmon, eastern oysters, abalone, sea urchins and *Macrocystis* kelp where ocean temperatures average 78-83° F. and massive sun screens are used in mid-winter to block the relentless sun. Paradise on earth to a northern aquatic farmer has to be Lockwood's Ocean Farms of Hawaii.

Salmon lazily swim through a lush forest of kelp in a four-acre saltwater pond. Filtering the nutrient-rich pond waters are cages of eastern oysters. Nearby stand rows of tanks holding "condominiums" inhabited by abalone and sea urchins dining on the cultivated kelp. Then there's the salmon hatchery and smolt tanks, processing room, ice machine, water quality and pathology labs, generators for full backup power, machine shops and other support services.

Many of these activities take place under a sprawling black web roof

designed to block out the hot Kona sun. The temperature under the roof is comfortable and dozens of technicians briskly move from project to project.

Three more of the massive 15 million gallon ponds are being carved out of volcanic flows by huge bulldozers, while thousands of feet of 16-inch stainless steel pipeline gleam in the hot Kona sun. The pipelines are assembled on-shore before being eased into the ocean to siphon cold, nutrient-rich waters from 2,000 feet under the surface.

"We create our own environment here," said Lockwood. With the ability to manipulate water temperatures to perfect levels throughout the year, it's difficult to imagine a better environment for growing salmon and bivalves. Warm surface ocean water is mixed with the 46° F. water from the lower pipelines to create the perfect temperature for each of the diverse operations of the farm.

A tour of the 21-acre farm is a mind-boggling experience for a visitor accustomed to the comparatively modest salmon and shellfish farms of the West Coast, B.C. and Alaska. Consider, for example, the pipelines necessary to supply Ocean Farms once the new ponds are put into production. Each 16-inch stainless steel pipeline is 6,000 feet

**"We create
our own
environment
here."**

George Lockwood

long and provides a flow of 2,000 gallons per minute. The pipelines reach an offshore depth of 2,000 feet, and must pass through a rugged surf zone. Ocean Farms has two of these pipelines in operation and four more are under construction.

[The water is not pumped from 2,000 feet down. The water inside the pipeline rises to the same level as the water outside the line in a manner similar to a straw stuck in a glass of liquid. Consequently, the farm only has to pump the water from sea level to the ponds and culturing tanks.]

The farm was started in 1984 as a spinoff from aquaculture research at the Natural Energy Laboratory of Hawaii's facility at Ke-ahole Point near the Kona airport on the Island of Hawaii. [See article on page eleven.] Originally Hawaiian Abalone Farms, the company's name was changed after it diversified into other products.

Lockwood, who took over as president in 1985, is a hands-on manager who travels around the farm on a golf cart purchased used from a nearby resort hotel. As he moves through the facility, Lockwood stops to check the bond on a new pipeline joint, moves a hazard sign over a hose crossing an aisleway, walks around a working bulldozer to inspect progress on the new ponds, examines a sea urchin seeding operation and checks rows of instrument panels, while continually monitoring a beehive of construction and farming activity over a radio scanner.

Ocean Farms of Hawaii isn't eager for publicity and Lockwood only rarely consents to show a visitor around the farm complex. Lockwood, the founding president of the California Aquaculture Association, explains that Ocean Farms is still in the research and development phase.

What in the heck is OTEC?

Aquaculture was an afterthought at the Natural Energy Laboratory of Hawaii. After the OTEC research station was established, someone asked, hey, why not use the cold ocean water for fish farming? Thus, said the lab's tour guide, began some of the world's most unique aquaculture research. Ocean Farms of Hawaii was the first research project to move outside of the research compound and into commercial production. By the end of 1989, three other companies had followed. One company is growing Maine lobsters, and two others specialize in algae and kelp. Three other companies are now starting new research projects: a Japanese company working with Japanese flounder; a Florida firm farming mahi mahi; and an Hawaiian company raising pearl oysters. Another researcher is experimenting with algae to clean industrial smokestacks. Oh, yes, OTEC is short for Ocean Thermal Energy Conversion. The warm water boils ammonia which is hit with the cold water to create steam. The steam powers a turbine producing electricity.

While Lockwood is reluctant to provide much information on production levels, investment capital, wholesale prices and other business details, it's clear that salmon will play a major role in the company's future. The small cluster of wooden net pens occupying one corner of the operational four-acre pond suggests the company currently has a modest production of salmon. [Lockwood said experiments with salmon free to roam throughout the pond shows that net pens are more efficient and there's little difference in growth rates and overall performance.] The new ponds will focus on salmon production and net pens will occupy most of the surface area.

Eyed coho and chinook eggs are imported from Washington, Oregon, Chile and New Zealand, but the farm took its first step toward a self-contained system this year with its initial egg take from its own broodstock. There have been no signs of disease in any of the salmon and Lockwood intends to keep it that way. One shipment of eggs was turned back when BKD (bacterial kidney disease) was discovered.

Lockwood is optimistic about the future of farmed Pacific salmon, and says he can't understand the interest in Atlantics which he described as "not a very good fish" for consumers.

Ocean Farms raises kelp strictly to feed its abalone and sea urchins. [The kelp grows up to 18 inches per day.] Stocks of abalone and sea urchins originally were imported from California and Japan, but the operation now supplies its own seed for all four species. The abalone are sold primarily as juveniles, while the urchins are harvested for the Japanese uni market.

Eastern oysters are favored over Pacifics because of the strong market demand and ease of obtaining seed from Maine hatcheries, Lockwood said.

While Lockwood declined to say how much money is tied up in the farm,

Ocean Farms clearly has enormous capital requirements and operating expenses must be high with 100 employees on the payroll. One knowledgeable source at the Natural Energy Laboratory speculated front-end costs might be in the \$8 million range. Lockwood said investment capital has been furnished by a group of private investors including himself, a Japanese businessman and the Hawaiian Electric Company.

When asked if Ocean Farms products are priced out of the marketplace, Lockwood responded that local sales to Hawaiian resort hotels and upscale restaurants are very good, and markets in Japan and the Mainland are accessible and strong. Ocean Farms also is looking at the South Pacific resort hotel trade.

An old brochure of Hawaiian Abalone Farms features two abalone options: 8 "juvenile abalone in the shell," recipes, herbs and Kona coffee, \$135; and 16 abalone and trimmings, \$220. The price included costs for air delivery any where in the continental U.S. within two days of harvest.

Even at those prices, Ocean Farms will have to sell a lot of seafood to turn a profit. If the company's marketing skills come close to rivaling Lockwood's expertise at creating the ultimate farming environment--for fish and farmer alike--you can expect to hear a lot more in the future about Ocean Farms of Hawaii.

MEMBERS CORNER

AMA members wishing to communicate with readers of the *Alaska Mariculture Report* are encouraged to send contributions to this section.

OYSTER SEED/EQUIPMENT.

Westcott Bay Sea Farms is selling 3-5 mm seed for \$9 per 1,000; 5-8 mm for \$11; and 9-12 mm for \$14. [Discounts available for 500,000.] Orders under 25,000 charged \$35 for handling. Shipping costs additional. Westcott offers lantern nets (9-30 mm) in the 5- and 10-tier versions and pearl nets (3-9 mm). 4071 Westcott Drive, Friday Harbor, WA 98250. (206) 378-2489.

MUSSEL ROPE. Coconut fiber rope is proven highly effective and inexpensive for natural mussel spat settlement. Trials in Halibut Cove Lagoon were promising. Write: J.H. Wertheim, C&W Trading Co., Westport, CONN 06880.

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Alaska Mariculture Report

Published by the
Alaska Mariculture Association

THE NEWS INSIDE

TASK FORCE SIDESTEPS 'YES' OR 'NO' ANSWER. The Alaska Finfish Farming Task Force says fish farms could have "little or no adverse effect" on wild stocks and environment, but stops short of an endorsement.

OYSTERS, OYSTERS, OYSTERS. Agencies sift through 54 SE farmsite applications. So you got a great product, but can you sell it at a high enough price to recover your costs. Yakutat research project grows oysters in five months. New hatcheries certified. Rise of the Pacific oyster.

MARICULTURE IN PARADISE. Salmon, abalone, sea urchins and oysters flourish in a subtropical farm.

ALASKA MARICULTURE ASSOCIATION

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Alaska Legislative Digest

An Inside View of Alaska Policy

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Consultant: State Can't Retrieve \$1 Billion Investment

January 23, 1990
No. 3/90

End to AHFC Mortgage Subsidies?

An end to Alaska Housing Finance Corp.'s interest rate subsidies on home mortgages is now considered likely, involving a gradual phase-out of the program, sources close to the special House-Senate housing task force say. The task force had extensive meetings last week to hammer out details on a package of AHFC bills that will likely be introduced this week. The subsidy phase-out will apply to a declining dollar amount, so that in the first year, the amount of financing eligible for the subsidy falls from \$90,000 (as under current law) to \$70,000, then to \$50,000 in the second year. At \$50,000, the program will match guidelines for existing federal programs, in effect returning AHFC to its original role of helping low and moderate income home-buyers. The phaseout is in lieu of a more abrupt termination, which would raise concerns in the bond market, legislators say. Other AHFC changes being discussed, that could be part of new legislation: Giving AHFC more budgetary, purchasing and hiring autonomy, and exempting it from the cumbersome state procurement code. Part of the reason AHFC is behind the curve on its foreclosures is that the agency was unable to hire sufficient staff to work with problems loans several years ago, impeded by lack of money and state hiring procedures. Other ideas (Cont. on Pg. 8)

The Oilspill Hearings: Key Bills to Watch

Two House bills to watch in the wake of extensive oilspill hearings in House Resources Committee, which continued last week, are HB-315, a governor's bill on criminal penalties for pollution, and HB-409, Rep. Mike Davis' bill on civil penalties for pollution. The latter measure includes provisions enhancing Dept. of Environmental Conservation's ability to gain access to oil terminals and other industrial facilities. HB-315 is in House Judiciary; HB-409 is in Resources, and may be up for action this week. Judiciary may wait on HB-315, to work on the bills together. Meanwhile, putting the Alaska Oil Spill Commission's extensive recommendations into actual legislation may take longer than thought due to the complexity of issues involved. Governor Cowper is interested in pursuing (Cont. Pg. 8)

Inside this week's Digest:

- *** Local government, rural school boundaries, House C&RA takes up a new version of Rep. Larson's HB-1. Pg. 2
- *** 'Forward funding' for schools likely to move, but no checks mailed until session end Pg. 2
- *** A new plan to share fish tax revenues between coastal cities and boroughs Pg. 2
- *** The politics of Gov. Cowper's Education Endowment P. 3
- *** Status of Bills, New introductions, committee and floor actions Pg. 4 and 5
- *** Finfish farming moratorium: Lots of sponsors, but support is 'soft', compromise possible Pg. 6

HEARD IN THE HALLS: The state administration reportedly will ask for \$250,000-\$300,000 in funding for the prestigious northern countries conference next fall; if money doesn't come through, the conference may be cancelled.

... Local Government/ Schools ...

Fish Tax Revenue Distribution

Cities in organized boroughs would get a greater share of raw fish tax revenues under HB-422, introduced by Rep. Mike Navarre. Under present law, municipalities in unorganized boroughs receive 50% of all raw fish tax revenues collected by the State, while the State keeps the other 50%. But cities within organized boroughs must split their 50% share with the borough. *HB-422 provides for a different distribution of raw fish tax revenues, with all the money going to cities within the boroughs (an amendment under discussion would allow cities to share with boroughs).* This is justified, sponsors say, in that services to fishermen and processors are provided mainly by cities, and not borough governments.

Early-Funding for Schools

HB-16, early funding for education, is scheduled again before House HESS Committee this week. The crux of the issue is the general fund appropriation figure (now \$527 million), which will undergo further discussion before the bill leaves the committee. Meanwhile, the Senate has introduced an early funding bill of its own, SB-387, which passed out of the Senate C&RA Committee last week. Sen. Al Adams unsuccessfully proposed two amendments, one to raise the funding formula instructional unit from \$60,000 to \$66,000, the other to add \$60 million school construction appropriations to the bill. Neither was adopted and the bill left the committee in the same shape that it had come in. Prospects for the bills' early passage are good since the state's revenue picture is healthy this year. *But in any case, funding levels won't be secured until the money is actually transmitted, at the end of the session.*

Solid Waste, Recycling Grants? Local and regional governments may see the availability of funds for solid waste management and recycling programs. A working group in the House has been meeting to discuss possible legislative initiatives to improve solid waste management and recycling, with a goal of getting a package of solid waste and recycling bills before the legislature this year. Ideas include planning, technical and financial assistance for development of programs at the local level. *Solid waste management is becoming a critical issue for municipalities, with strict new EPA federal guidelines.*

New Version of HB-1

House Community and Regional Affairs Committee started work last week on a substitute version of Rep. Ron Larson's HB-1, to encourage formation of local governments. The substitute would require: (1) a new state panel on municipalities, to enhance incentives for borough formation; (2) require the Local Boundary Commission to conduct a boundary study of the unorganized borough; (3) require the LBC to notify the director of elections of each region that should be incorporated as a borough and each area that should be annexed. The director would then order an election in each area to determine whether voters desire incorporation or annexation; (4) charge the Dept. of Community & Regional Affairs with preparing a provisional home rule charter for boroughs to be incorporated (voters in the region could later petition for amendments to the provisional charter); (5) require the director of elections to schedule a charter election, in areas that approve borough incorporation. The commission would in turn prepare a home rule charter to be presented to the voters. (6) require the director of elections to hold an election in each borough scheduled for incorporation.

Those testifying before the committee expressed concern over the cumbersomeness of the proposed election process, but were pleased that the draft substitute does not call for mandatory borough formation. Rep. Larson has not pushed HB-1 (the original bill merged rural REAA school districts) because although neither bill has left its committee of first referral, they have largely accomplished what Larson had set out to do. In the last three years, two new boroughs have been formed and nine or ten other areas are now making inquiries about borough formation. Also, the LBC is working on a study of the unorganized borough in Alaska. Larson sees HB-1 as 'educating' people on benefits of borough formation.

Minimum Electrical Standards: SB-357, amending statutes to reflect the 1990 update of minimum electrical standards approved by the American National Standards Institute and published in the National Electrical Code, flew through the Senate last week. The bills allows Dept. of Labor to amend regulations to comply with updated standards. *No substantial changes have been made to the previous minimum standards, which apply to the state, boroughs, and cities.*

Is 'The Endowment' a now or later issue ?

Endowment: Either way schools are it !

The Education endowment! This is an issue that sooner or later will squirm its way into the front lines of political battle in Juneau —most likely in the latter days of the session. The Senate will not be likely to give the issue an easy ride, and like all big issues, the endowment will come only with a session end 'price.' This constitutional proposal is about three things.

(1) It is about schools, and at some time in the future providing a sizable funding base for Alaska school operations.

(2) Whether its designers intended so or not, the endowment is also about the permanent fund, and beginning to talk with the public now about what fund income might be used for when our oil is going, going —gone!

(3) The endowment is also about state fiscal policy. Does the unique character of our oil driven state revenue base, plus the existence of such an unusual feature as the permanent fund, justify, or even virtually require, designation of certain revenues, despite our firm commitment to a general fund concept.

Endowment: A funding priority for schools

Clearly a decision for the endowment is a decision that sets schools apart from all other state needs as a priority. Is this a good idea? Well, that's one question each legislator must consider. However, schools are in fact now the state's top area of spending, and as the state finds its revenue stream constricting in the future, schools will garner a larger and larger percentage of total state spending. In fact most states commit a far greater percentage of budget to schools than does Alaska. Of course, this is in part due to our excess revenue situation. We have extra cash to spend for other things. In many states, with more normal revenue conditions, the direction our finances will trend towards, education commands up to 50% of state budget, and sometimes more. Now, keep in mind these states are income and sales taxing states, where citizens are obviously very vigilant.

Will saving now protect the dividend later ?

What this means is that one way or the other, schools will increasingly become the overwhelming state funding priority by the end of the decade. We may or may not decide to save an additional increment for schools through the education endowment. But, if we don't, doubtlessly when the squeeze is on in a decade or so, and we debate permanent fund policy as a function of necessity, and not our political druthers, you can bet schools will be at the center of the issue anyway. And at that time it is really likely to be a situation of trading dividends for schools. Oddly, by saving through an endowment that dividend v. schools shootout may be averted, at least for a time.

Moving toward a state funded system

Another thing we might consider is, that by the end of the decade of the 1990s schools might have become primarily a state responsibility. Certainly passage of HB-37, and creation of a total state school construction program points in that direction. Next, there is growing interest in going (back) to a statewide teacher's salary schedule, and thereby moving the school collective bargaining process to Juneau. This would be another step along the line towards full fiscal responsibility for schools. Such a process might be quite constructive too, allowing Juneau to be the fiscal bad guy. This might put teachers and school boards on the same side trying to build real education —focusing on teaching and school building level policy that enhances both teaching and learning.

... Status of Bills ...

Bills Introduced in the House

HB-422 by Navarre, Swackhammer (Fish tax revenue to local governments) To C&RA, FIN
 HB-423 by Davis, Boyer et al. (approp., Fairbanks school construction, rehab.) To HESS, FIN
 HB-424 by Governor (Anchor River, Fritz Creek critical habitat area) To RES
 HB-425 by Taylor, Hudson et al., (Special approp. to Permanent Fund) to SA, FIN
 HB-426 by Jacko, Foster (Notice on adopting, changing, repeal regulations) to C&RA, FIN
 HB-427 by Shultz, Phillips et al. (dividend hold harmless provisions) To C&RA, SA
 HB-428 by the Governor, (FY 1990 Supplemental appropriations) To FIN
 HB-429, by L&C Committee (Subrogation provisions, motor insurance) To L&C, JUD
 HB-430, by L&C Committee (overtime wages, established work week) To L&C, FIN
 HB-431, by L&C Committee (Approp., tourism, airport marketing) To L&C, TRANS and FIN
 HB-432, by Grussendorf, Ulmer et al. (prohibiting fin-fish farming) To RES, JUD
 SSHB-252, by Koponen, Ulmer et al. (taxation of personal income, tax credits) To SA, FIN
 SSHB-415, by Barnes, Furnace, et al. (Subsistence hunting and fishing) To RES, JUD
 SSHB-425, by Taylor, Hudson et al (Spec. approp. to Permanent Fund) To SA, FIN
 HB-433, by Koponen, Larson (1990 Arctic winter games) To C&RA, FIN
 HB-434, by L&C Committee (restrictions state employees during, after state service) .. To L&C, SA & JUD
 HB-435, by Jud. Committee, (definition public servant, criminal code) To SA, JUD
 HB-436, by Davidson, Hoffman et al. (preservation historic archeological resources) To RES, JUD
 SSHB-125, by Hudson, Ulmer (health, education) to HESS, FIN
 SS HB-332, by Hoffman, Davidson (Goodnews Bay Critical Habitat Area) to RES, FIN
 HB-437, by Taylor (child care) To HESS, FIN
 HB-438, by Ulmer (adoptions) To HESS, JUD
 HB-439, by Gov. (Marine Hwy. program receipts

New House Bills (Cont.)

(Cont. from left) funding..... To Trans, FIN
 HB-440, by Gov. (Soviet Far East Commission) To Foreign Trade, SA, FIN
 HB-441, by Gruenberg, Ellis, et al (controlled substances)..... To HESS, JUD
 HB-442, by Tourism Comm. (Ak tourism marketing council)..... To Tourism, L&C
 HB-443, by Zawacki (approp., Anchorage water and sewer) To C&RA, FIN
 HB-444, by Zawacki (Kenai water system upgrade) To C&RA, FIN
 HB-445, Koponen, Ellis (student loans) To HESS

House Resolutions Introduced

HJR-68, by Jud Committee, appointment of Alaskan to Ninth Circuit court) To SA, JUD
 HJR-69, by Spec. Foreign Trade Comm. (include Aleuts under visa-free travel) To Trade, SA
 HJR-70 by Spec. Foreign Trade Comm. (Alaska as future summit conference site) Trade, SA
 HJR-71 by Spec. Foreign Trade Comm., (Most favored-nation status to USSR)..... Trade, SA

House Committee Actions

HB-396 from SA, (retirement status, probation officers) 5 do pass To FIN
 CSSB-202(JUD) from JUD, (factors in presumptive term, criminal sentencing) 3 do pass..... To RULES
 CSSB-226 (JUD) from JUD (possession of firearm while under influence) 3 do pass, 2 no rec ... To JUD
 CSHB-53 (JUD) from JUD(driving, operating aircraft, water vehicle while intoxicated) 4 do pass.... To FIN
 HJR-35, from FIN (rights of states) 9 do pass, To Rules
 CSHB-19, from HESS (child foster care) 5 do pass To JUD
 HB-431 from L&C, (approp., international tourism, airport marketing) To Trans

House Floor Action

SJR-25, Upgrade Resurrection Creek Road, Chugach National Forest..... PASSED 35-0

(Continued Page 5)

... Status of Bills ...

House Action (Continued)

CSSJR-48(RES) Pref. shore-based processors, coastal communities in fish allocations PASSED 33-0
 CSSJR-46(SA) Joint Commission in Congress, status of Alaska natives PASSED 37-0
 HB-208 (student loans) returned to RULES

Senate Bills Introduced

SB-391, by Coghill, Halford et al. (municipal tax exemption farm land, greenhouses) To RES, FIN
 SB-392, by Coghill (development credit, access to land) To RES, FIN
 SB-394, by Fahrenkamp (eligibility, state group insurance) To HESS, SA, FIN
 SB-395, by Coghill (Permanent Fund dividend hold harmless) To SA, JUD, FIN
 SB-396, by Governor (supplemental operating approp., Dalton Highway) To Trans, FIN
 SB-397, By Eliason, Jones, et al, prohibiting finfish farming To RES, FIN
 SS SB-19, by Sturgulewski, Kelly et al. (seizure property in alcohol, drug cases) To JUD, FIN
 SS SB-193, by Adams (teacher certification) To HESS, FIN
 SS SB-288, by Sturgulewski (real estate commission) To L&C
 SS SB-394, by Fahrenkamp (state group insurance) To HESS, SA, FIN
 SB-398, by Pearce (day care) To HESS, FIN
 SB-399, by Gov. (state office leases) To SA, FIN
 SB-400, by Sturgulewski (approp., vendor claims) To SA, FIN
 SB-401, by Gov. (rights of corrections workers) to L&C, FIN
 SB-402, Gov. (Soviet Far East Commission) To SA, FIN
 SB-403, by Eliason (Stan Price St. Wildlife Area) To C&RA, RES, FIN

Senate Resolutions Introduced

SCR-37, by Fischer (change Anchor Point Ave. in Anchor Point to Milo Fritz) To Trans
 SJR-63, by Frank, Binkley, et al. (setting constitutional

Senate Resolutions (Continued)

(Continued) limit to session To SA, JUD, FIN

Senate Committee Actions

SB-334, from HESS (waivers under Medicaid, disabled) 2 do pass, 1 no rec, two fiscal notes ... To FIN
 CSHB-165(JUD), from JUD (disposition anatomical parts) 2 do pass, 2 no rec To Rules
 SCR-29, from FIN (investment of state public trust funds) 3 do pass To Rules
 SCR-37, from Trans (change name Anchor Pt. Ave. to Milo Fritz Ave.) 3 do pass, 1 no rec To Rules
 CSSCR-25(FIN), from FIN (expansion, state transportation system) 6 do pass, fiscal note out To Rules
 SB-334, from FIN, (waivers under Medicaid, disabled) 6 do pass To Rules
 SS SB-341, from SA (approp., disaster relief fund) 2 do pass, 1 no rec To HESS, FIN
 CSSB-357(L&C), from L&C (state, borough, city electric codes) To Rules
 HCR-32, from RES (mountain named after Bruce McGhan), 5 do pass To Rules
 SB-178, from Rules (reporting requirements agencies under minerals policy act) To Calender
 SJR-47, from L&C (FDIC liquidation policies) To Rules
 SJR-58, from RES (citizen parti. in oil contingency plans) To Rules
 SB-343, from FIN (retirement incentive plans) to Rules
 CS SB-349, from L&C (motor vehicle franchises) To FIN
 SJR-55, from Trans (restructuring weather service) To Rules
 CS SB-158 from JUD (controlled substances) To Rules
 SB-326, from HESS (local health planning) To FIN
 SB-355 (sex offenses) To Rules
 SB-386, from Trans (pedes. crossing) To JUD
 SB-387, from C&RA (approp. to DOE, K-12 support early funding) To HESS
 SB-178 (agency reporting requirements, state minerals policy act) PASSED 18-0

Senate Floor Actions

... Resources ...

Finfish Moratoriums!

Companion bills prohibiting finfish farming have been introduced in the Senate and House by Sen. Dick Eliason and Rep. Ben Grussendorf. SB-397 has 15 co-sponsors. Senate Resources has yet to schedule a hearing on the bill, and action in that committee is reported not likely soon. Sen. Eliason hopes to get the finfish moratorium rolling early, so that there can be resolution on the issue before the current moratorium expires July 1. Eliason opposes finfish farming in Alaska because of environmental concerns, disease problems created by intermingling of farm fish and wild stocks, and potential harm done to the image of Alaska salmon as "wild and pure". Reportedly the House will await action in the Senate before acting on its own finfish farming prohibition bill, HB-432.

Reports are that despite large numbers of co-sponsors on finfish moratorium bills, many legislators, including some co-sponsors, would like to see some compromise. One possibility being discussed would allow freshwater salmon farming, where there would be little likelihood of intermingling with wild stock.

Bottomfish Use: House Judiciary Committee took up HB-394 last week, relating to the use of pollock. The bill is being held in committee for more work. Two members of the North Pacific Fishery Management Council have been asked to work on language defining "waste." The committee also wants to address the issue of bycatch of pollock while fishermen are involved in another fishery, such as long-lining of halibut. Department of Law staff has suggested some technical changes to the bill as well.

Impediments to Mining: An agency reporting measure on impediments to mining moved fast through Senate committees and passed that body last week, 18-0. The bill, SB-178, outlines requirements for eight state agencies to review statutes, administrative regulations, and procedures affecting mineral exploration and development, to determine deficiencies or inconsistencies contrary to the State mineral policy act passed last year. Agencies will be required to conduct an annual review until 1994, when the Alaska Minerals Commission sunsets. An agency review was conducted once before, and the program is now being resurrected on an annual basis. The bill is now in House State Affairs and will also go to Resources in the House.

Mineral Commission Recommendations

The Alaska Minerals Commission met with Gov. Steve Cowper and Senate Resources Committee in Juneau, presenting the commission's 1990 annual report and legislative recommendations, aimed at further stimulating the state's reawakening mining industry.

Specific proposals:

- Allowing the new 3% net profits production royalty (established by new legislation last year) as a deductible expense under the state mining license tax;
- Mineral assessments on state land, along with surveys of competing values, should be required before mineral closures are made.
- Geologic and geophysical mapping of the state should be continued, building a data base on resource inventory and advertising the state's interest in encouraging mining exploration.
- Support for SB-34 (state land withdrawn from mineral location) and SB-35 (multiple use of state land), introduced in 1989.
- Alaska should expedite ongoing inventory of historic RS2477 access corridors across federal lands, and aggressively assert rights to these corridors, particularly in inaccessible areas.
- Support for HB-159 and SB-181, exempting mineral lands from taxes by municipalities on ore reserves in the ground. A similar exemption for oil and gas reserves now exists in state law.
- Repeal of the state unitary tax as it applies the coal. *Interestingly, the commission did not endorse unitary tax changes for all mining investments, or give specific endorsement to SB-119, the governor's bill that would allow 'waters' edge' corporate income tax accounting for foreign-owned firms.*
- *Implied criticism of the Alaska Railroad:* "It is imperative that the Alaska Railroad be responsive to the needs and concerns of its industry clients by providing quality professional service at competitive rates," an indirect reference to perceived problems in the railroad's ongoing negotiations with Idemitsu Alaska on coal tariff rates from the proposed new Wishbone Hill mine near Palmer.
- On state land reclamation, the commission urged "enough site specific flexibility (to be) included in legislation and regulation to allow for local conditions...programs should be based on performance rather than design standards."
- On work-site flexibility, the commission urged legislation to allow work schedules based on project conditions, permitting efficient use of labor.

... Business ...

Access to State, Local Agency Data:

Several communications and information bills are before House State Affairs Committee. HB-405, by Rep. Kay Brown, received its first public hearing last week in State Affairs. The bill would assure public access to state and municipal government's electronic data, and would set up a structure for state and municipal agencies to provide public access to records, and a means for agencies to recapture costs of providing such services. Issues discussed at State Affairs included the burden on public agencies to provide information in formats requested by the public, complaints from people who don't want their names added to commercial mailing lists (applicants for fishing licenses or permanent fund dividends, etc.) HB-405 will stay in State Affairs for further work.

Computer "Hacking" Laws: Rep. H.A.

(Red) Boucher's new HB 378, designed to strengthen current laws pertaining to criminal use of computers, is aimed at bringing Alaska law more in line with that of other states. Existing law does not provide for prosecution of individuals for destruction of hardware, or for disruption or denial of computer services, Boucher's staff says. Committee staff is currently working with the Department of Law on the bill; it is expected to be heard by the State Affairs committee this week or next.

Department of Information Services:

Another bill, part of a package of information technology bills introduced by Boucher and Rep. Brown, creates a new Department of Information Services. If HB-397 passes, it will take the Division of Information Services out of the Department of Administration and gives it departmental status. Charge of the new department will be to manage the state's information resources. HB-397 received its first public hearing in House State Affairs. The committee heard from Ed Levine, a Florida legislative staffer, who said that HB-397 is "right in line" with efforts in other states to more effectively manage information.

University Information Technology: HB

402, also introduced by Rep. Boucher, calls for establishment of a center for information technology at the University of Alaska Anchorage, appropriating \$940,300 for the center's first-year (Cont. right)

operational costs. Eventually, the CIT would be expected to be self-supporting through fees charged for services. The bill is now in State Affairs Committee but is not expected to be heard until the committee receives recommendations from the university as to how the state and the university can work jointly on the project.

Boat Operators: P&I Insurance

Legislation which would provide for non-duplication of insurance requirements for commercial fisheries vessels doing work other than commercial fisheries has been introduced by Sen. Zharoff. This bill was introduced in response to a common situation last year in Prince William Sound, when commercial fishing vessels were chartered to work on the oil spill. While commercial fishing, vessel owners are not required to have workmen's compensation insurance, nor unemployment insurance for their crewmembers. Instead, vessel owners are required to be covered by P & I (protection and indemnity) insurance.

In Prince William Sound last year, captains of vessels performing oil spill functions were told by Department of Labor that they would be required to obtain workmen's compensation insurance and unemployment insurance for their crews, therefore strapping vessels owners with duplicative insurance requirements. SB 338 seeks to exempt vessel owners from the requirement that they obtain insurance additional to the currently required P & I coverage. Committee action is not expected for two or three weeks, as Senate staff works with the Departments of Labor and Law to revamp the bill to better carry out its original intent.

Auto Franchises: Sen. Jim Duncan's SB-349

(new auto franchises) passed out of Senate Labor and Commerce Committee with no substantial changes, and is now in Finance. SB-349 requires that all dealers of new cars in Alaska be franchised by the car manufacturer, in response to concerns from constituents about the dealings of brokers who buy up quantities of cars in the lower 48, and sell them as "new" cars in Alaska. Brokers may continue their dealings as before, as long as they represent themselves as the original owner of the car. SB-349 is primarily a consumer protection measure, barring non-franchise owners from representing their merchandise as "new."

Phasing out AHFC's Home Mortgage Subsidy (Cont.)

(Continued from Page 1) The Ernst & Young report said that if legislators move quickly, the subsidy program can be ended with virtually no effect on housing markets. Interest rates are now below AHFC's subsidy threshold, so that a temporary "window of opportunity" is available to eliminate the program without harmful effects. Ernst and Young said AHFC's generous home-loan subsidies has effectively drained away the value of almost all of \$1 billion in state equity contributions, and unless subsidies are eliminated or the state puts more cash into AHFC (an unlikely prospect) AHFC's capital base, and its ability to provide any housing assistance, will be eroded. If subsidies are eliminated, the effect will be to increase AHFC's liquid net assets by \$43 to \$91 million, depending on market conditions and interest rates, over the next five years, the consultant group said.

The state has invested over \$1 billion in Alaska Housing Finance Corp., \$808 million of which was appropriated to overcollateralize loans so that Alaskans could get the benefits of interest rate subsidies. As of June 30, 1989, AHFC had \$300 million in retained earnings, but these were mainly a result of interest earned on state contributions. Without those contributions, AHFC would show a deficit, Ernst & Young said. AHFC also showed \$519 million in assets not pledged as collateral for bonds; but "a fairly significant portion of these assets may not be liquid, if collectable or realizable at all," Ernst & Young said. After adjusting for assets considered non-liquid, Ernst & Young estimated AHFC's real unrestricted net assets at only \$10 million, as of June 30.

In the Wake of Oilspill Hearings: Bills to Watch (Cont.)

(Continued from Page 1) legislation whether introduced by the administration or legislators, but details are yet to be worked out. Two things that impressed House members sitting through extensive spill hearings: First, in terms of enforcing tanker structural and design standards, interstate compacts may be the best way to go. Such compacts have the best chance of withstanding challenges under federal preemption, legal advisors told legislators. Compacts are complex to negotiate, however, and getting four states and British Columbia, for example, to agree on structural changes like double-bottomed hulls and bow-thrusters on tankers will involve lengthy negotiations.

Secondly, potential advantages of such a compact were illustrated by spill scenarios developed by the commission's consultants. One involved a sinking of a large tankship 50 miles off the British Columbia coast (on current routes), spilling 75 million gallons. Studies indicated this would wash ashore all the way up into Southeast Alaska. But a tanker route 100 miles offshore, which could be required under a compact, would result in oil touching shore at one isolated point, studies showed.

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New Spending Limits!

Several proposals for state 'Graham-Rudman'-type spending limits are in the hopper, including one by Sen. Paul Fischer and three in the House. House Fiscal Policy Subcommittee and Rep. Steve Reiger have separate spending limit bills in that would freeze spending at 1989 levels, in effect working a gradual reduction through inflation. Rep. Randy Phillips has two fiscal reform measures in: Phillips' HB-384 would roll back state spending \$150 million yearly through FY 1995, then cap the budget. A second bill, HB-383, would require all appropriation measures, particularly the budget, to be passed and to the governor by the 90th day, leaving the last 30 days of the session for the legislature to deal with policy issues.

ALASKA STATE LEGISLATURE • SENATE

SENATOR RICHARD I. ELIASON

LABOR & COMMERCE COMMITTEE, CHAIRMAN

RESOURCES COMMITTEE

RULES COMMITTEE

SPECIAL COMMITTEE ON HIGH SEAS

SALMON INTERCEPTION

SELECT COMMITTEE ON

LEGISLATIVE ETHICS



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

ELIASON PROPOSES LAW TO BAN COMMERCIAL FISH FARMING

¹⁹⁹⁰
JAN. 19, 1989. Senator Dick Eliason (R-Sitka) today introduced legislation to prohibit commercial finfish farming in Alaska.

"It's clear to me that the serious risks to Alaska and our fishery resources far outweigh any potential benefits from finfish farming. We stand to lose much more than we could ever gain," Eliason explained. "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, referring to co-sponsorship of the bill by many Senate members.

Prior to introducing the legislation, Senator Eliason studied the final report of the Finfish Farming Task Force, a non-legislative group which released its final recommendations to the legislature earlier this week. One of the report's recommendations is that the legislature act to resolve the finfish farming issue, rather than extending the current moratorium.

The question of whether to allow the commercial farming of finfish has plagued the state Legislature for several years. Two consecutive moratoriums temporarily prohibiting finfish farming have been enacted, the last of which expires July 1 of this year.

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ALASKA STATE LEGISLATURE · SENATE

SENATOR RICHARD I. ELIASON

LABOR & COMMERCE COMMITTEE, CHAIRMAN

RESOURCES COMMITTEE

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1/19/90

SETTLING THE FISH FARMING DEBATE:

NOW IS THE TIME TO SAY "NO"

Senator 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 finfish 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 there 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 speak of "employment" and "economic development." The truth is that fish farms employ very few people, approximately 3 people per farm. Is that worth risking harm to resources which currently support, among other things, Alaska's commercial fishing industry: our largest employer and second only to "Big Oil" in terms of its value to the state in dollars? Furthermore, I am concerned about the fact that most of the private sector investment in any finfish farming industry in Alaska will not be by Alaskans. Even if the industry were to make a profit here, much of it would leave the state.

We are fortunate to have resisted jumping into such a volatile enterprise -- lucky that during our moratoriums we have been able to learn from others' mistakes. We have seen genetics and disease problems cropping up at Norwegian fish farms, water contamination problems in Washington, and some of British Columbia's leading fish farms on the brink of bankruptcy, due in part to a glut of farmed salmon on the world market requiring many to sell below cost.

A couple of other good things emerged from the extended debate stimulated by the proposal of mariculture legislation. The question of shellfish and sea vegetable cultivation was divided from the fish farming issue during the course of legislative work on the issue. This has, in turn, given rise

to a fledgling industry to which Alaska has given both its blessing and the benefit of a comprehensive regulatory process.

Another positive aspect of the long discussion on the issue was the great degree of public participation which was achieved. Public awareness of the implications of launching a fish-farming industry in Alaska led to the expression of concern, and finally staunch opposition from the majority of Alaskans interested in the issue.

In response to all that we have learned, the responsible course of action is for the legislature to now move swiftly in adopting legislation prohibiting finfish farming and thus settling the debate once and for all.

BY SEN. ELIASON, Jones, Kerttula, Zharoff, Duncan, Adams, Binkley, Coghill, Faiks, Fischer, Halford, Kelly, Rodey, Szymanski, Uehling

IN THE SENATE

SENATE BILL NO. 397

IN THE LEGISLATURE OF THE STATE OF ALASKA

SIXTEENTH LEGISLATURE - SECOND SESSION

A BILL

For an Act entitled: "An Act prohibiting finfish farming; and providing for an effective date."

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

* Section 1. FINDINGS. Based on a legislative examination of the potential effects of allowing finfish farming in the state on the common property resources and on the overall economic well-being of the state; the number of serious concerns associated with finfish farming and the need for study of finfish farming that has caused the legislature to enact two moratoriums on finfish farming and establish a nonlegislative task force to study the issue and to report its findings and recommendations to the legislature; a review of the final report of the Alaska Finfish Farming Task Force which notes several possible benefits and some serious risks of finfish farming; the need for the legislature to take action before the current moratorium on finfish farming expires on July 1, 1990; the recommendation of the task force that the legislature not extend the moratorium, but make a final determination to either allow or prohibit finfish farming; and the testimony and evidence received; the legislature finds that

(1) the state has the healthiest stocks of wild salmon and other wild finfish in the world and benefits from thriving commercial, sport, and subsistence fisheries for these fish and a growing tourism industry related to sport fishing;

(2) the people, economy, and environment of the state are dependent in large measure upon the continued health of the state's wild finfish

resources;

(3) 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 genetically manipulated farmed fish, degradation of water quality near finfish farms, and land use conflicts over the siting of commercial finfish farms;

(4) the state has invested significantly in marketing efforts to promote Alaskan finfish as wild and natural fish products, and this investment in developing the reputation of Alaskan finfish would be lost by allowing commercially farmed finfish to be produced and marketed from Alaska;

(5) the cost to the state to regulate the commercial finfish farming industry would be high;

(6) few jobs would be generated by a commercial finfish farming industry in the state;

(7) the state is responsible for ensuring the protection and wise use of the renewable natural resources of Alaska and providing a framework for a sound economy;

(8) a long-term decision must be made regarding the future of commercial finfish farming in the state;

(9) avoiding harm to the state's wild finfish, land, and water resources must take precedence over the development of a new speculative and potentially harmful commercial finfish farming industry;

(10) the best interests of the state are served by prohibiting commercial finfish farming.

* Sec. 2. AS 16.40 is amended by adding a new section to read:

Sec. 16.40.210. FINFISH FARMING PROHIBITED. (a) A person may not grow or cultivate finfish in captivity or under positive control for commercial purposes.

- 1 (b) This section does not apply to
- 2 (1) the fishery rehabilitation, enhancement, or development
- 3 activities of the department;
- 4 (2) nonprofit corporations that hold permits under AS 16.-
- 5 10.400;
- 6 (3) the incidental sale of finfish held for scientific or
- 7 educational purposes under a permit issued by the department;
- 8 (4) rearing and sale of finfish for aquariums or ornamental
- 9 ponds.

10 * Sec. 3. This Act takes effect July 1, 1990.

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SCOMM

75:19

PUBLIC OPINION MESSAGE

DEAR: SENATOR ELIASON

NAME: JANE WILLIAMS

TITLE:

ADDRESS: 1048 NORRIS LANE

CITY: FAIRBANKS

ZIP: 99712

PHONE: 567-4979

BILL NO: HB 432

SUBJECT: PROHIBITION OF FINFISH FARMING

MESSAGE: WORLD FISH MARKETS DEMAND UPLAND FISH FARMING. ALASKA IS ALREADY TWENTY YEARS BEHIND. GIVE LEGISLATIVE SUPPORT AND LONG TERM LOANS FOR THE DEVELOPMENT OF THE ALASKAN FISH INDUSTRY - FROM EGG TO FROZEN FILLETS. WE HAVE THE CLEAN COLD WATER, THE SPACE, THE POWER AND THE KNOWLEDGE. UPLAND FISH FARMING IS A NATURAL FOR ALASKA. GO FOR IT. I OPPOSE HB 432 IN ITS PRESENT FORM. AMEND BILL TO ALLOW UPLAND FISH FARMING. EOM

POMID: 07103018

DATE: 04/03/90

TIME: 10:30:18

LIONAME: FAIRBANKS LIO

COPIES: REPRESENTATIVES REPRESENTATIVES SENATORS

BARNES

BOYER

COLLINS

DAVIDSON

DAVIS, M.

ELLIS

FOSTER

GOLL

GRUSSENDORF

HOFFMAN

JACKO

KUBINA

LEMAN

MARTIN

MILLER

PETTYJOHN

RIEGER

SHULTZ

TAYLOR

WALLIS

BOUCHER

BROWN

COTTEN

DAVIS, C.

DONLEY

FINKELSTEIN

FURNACE

GRUENBERG

HANLEY

HUDSON

KOPONEN

LARSON

MACLEAN

MENARD

NAVARRE

PHILLIPS

SHARP

SWACKHAMMER

ULMER

ZAWACKI

ADAMS

BINKLEY

COGHILL

DUNCAN

FAHRENKAMP

FAIKS

FISCHER

FRANK

HALFORD

JONES

KELLY

KERTTULA

PEARCE

POURCHOT

RODEY

STURGULEWSKI

SZYMANSKI

UEHLING

ZHAROFF

Tank Farming

PUBLIC OPINION MESSAGE

DEAR: SENATOR ELIASON

NAME: PAUL STODDARD

TITLE:

ADDRESS: P.O. BOX 70916

CITY: FAIRBANKS

ZIP: 99707

PHONE: N/R-

BILL NO: HB 432

SUBJECT: PROHIBITION OF FINFISH FARMING

MESSAGE: I WOULD LIKE TO SEE THE BILL AMENDED TO PERMIT PEN-RAISED FISH THAT
ARE NOT TO BE RELEASED INTO THE WILD. THIS COULD BE A VIABLE INDUSTRY THAT
WOULD NOT ENDANGER NATURAL SALMON RUNS. EOM

POMID: 07110808

DATE: 04/12/90

TIME: 11:08:08

LIONAME: FAIRBANKS LIO

COPIES: SENATORS

RODEY

FAIKS

KERTTULA

COGHILL

PUBLIC OPINION MESSAGE

DEAR: SENATOR ELIASON

NAME: KENNETH CREWDSON

TITLE:

ADDRESS: 200 W. 34TH AVENUE,#204

CITY: ANCHORAGE

ZIP: 99503

PHONE: 344-2071

BILL NO:

SUBJECT: MARICULTURE

MESSAGE: I WHOLE HEARTLY SUPPORT SENATOR FAHRENKAMP'S POSITION ON THIS ISSUE.
ALASKA NEEDS A STRONG MARICULTURE INDUSTRY FOR ALL SPECIES AND TYPES.DO NOT LET
SENATOR ELIASON'S POSITION PREVAIL. HEED CAREFULLY THE STATEMENTS OF PAUL FUHS.
RESPECTFULLY. /CMR

POMID: 03093703

DATE: 04/12/90

TIME: 09:37:03

LIONAME: ANCHORAGE LIO

COPIES: SENATORS

FAHRENKAMP

KERTTULA

FRANK

HALFORD

STURGULEWSKI

ZHAROFF

KETCHIKAN DAILY NEWS * PIONEER PRINTING * MEMO

.....from the desk of Lew Williams, Jr.

Dick:

Thank for your letter
on Fish Farms, We are printing.
I talked in the Lloyd
Jones last week and
he and I wondered if
ASMI is doing anything
to advertise natural
or Alaska salmon, or
promoting Alaska salmon.

.....from the desk of Lew Williams, Jr.

"If it's Alaska salmon
it is nature's food,
no Alaska salmon comes
from farms -"

Another alternative
may be to have the
regional aquaculture
associations raise
farm salmon and
use the profits to
subsidize natives

KETCHIKAN DAILY NEWS * PIONEER PRINTING * MEMO

.....from the desk of Lew Williams, Jr.

Rich (you could expect
that from a left wing
Democrat).

Anyway, as the
Fishing economy goes,
so go I.

You may be interested
in the attached clip.

P.S. Your paper is on the way.

Nebraska — home to salmon?

Fish farm near Lisco raises Coho variety

By R. LYNN ABEL
Regional Correspondent

LISCO — Even in the middle of the arid, treeless prairie, life is born and sustained, from what appears to be nothing but an empty grassland, life springs forth in the aquatic form.

Cold Water Fish Farms Inc., located about one mile south and east of Lisco, is a new business on the prairie. Coho salmon are raised from eggs to one-pound fish at the fish farm.

Currently Cold Water Fish Farms has about 200,000 salmon in different developmental stages.

Eggs are shipped from Washington and Oregon and incubated until they are two inches long (fingerlings), then grown in huge tanks where pumps deliver 1,700 gallons of fresh Nebraska water per minute.

All equipment is connected to an alarm system which is then connected to the living quarters. The alarm is activated in the event of power outages or pump failure. A back-up system includes battery operated lights and a propane powered auxiliary pump.

Two full-time employees hand feed a commercially made food, all day long, for 12-15 months until the salmon weigh $\frac{3}{4}$ to 1 pound.

Dale Hiedi, manager of Cold Water Fish Farms, oversees the operation. Hiedi brings 30 years experience, from Alaska and Washington, to the fish-farming business in Nebraska.

The company's long-term goal is to process one to two million pounds of



Photo by R. Lynn Abel

MATT QUEEN causes quite a stir as he hand feeds a tank of fish.

salmon each year, according to Matt Queen, the grandson of Cold water Fish Farms president, Walter Queen.

Walter Queen said they plan to expand the company to include another building for growing tanks by this spring, and to have a processing plant in full operation by mid-summer.

The processing plant will gut, bone, chill and pack the salmon into 1-10 pound boxes for the retail and wholesale markets.

The future processing plant will employ 14-15 people for its operation.

Matt Queen said the farm has had a number of visitors and that in the future they will conduct tours on Wednesdays from 1-4 p.m. by appointment.



THESE YOUNG SALMON wriggle around their tank, living the good life.

Nebraska Star Herald 3/6/90

Sent by Lew Wms.
db Ketchikan

PUBLIC OPINION MESSAGE

DEAR: SENATOR ELIASON

NAME: GARY L. SINKOLA

TITLE:

ADDRESS: PO BOX 84243

CITY: FAIRBANKS

ZIP: 99708

PHONE: 474-8871

BILL NO:

SUBJECT: FISH FARMING

MESSAGE: WHY IS ANYONE IN THIS STATE AGAINST FARMING OF ANY KIND? IF IT ISN'T GROWN IT HAS TO BE MINED. THERE IS ROOM FOR MINERS, FARMERS, TEACHERS, ENVIRONMENTALISTS, ATTORNEYS AND BUREAUCRATS. THERE SHOULD BE NO ROOM FOR GREEDY STRIFE MAKERS WHO WOULD DENY PERSONAL INITIATIVE AND HONEST LABOR.

EOM

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DATE: 03/12/90

TIME: 14:11:41

LIONAME: FAIRBANKS LIO

COPIES: REPRESENTATIVES REPRESENTATIVES SENATORS

BARNES	BOUCHER	ADAMS
BOYER	BROWN	BINKLEY
COLLINS	COTTEN	COGHILL
DAVIDSON	DAVIS, C.	DUNCAN
DAVIS, M.	DONLEY	FAHRENKAMP
ELLIS	FINKELSTEIN	FAIKS
FOSTER	FURNACE	FISCHER
GOLL	GRUENBERG	FRANK
GRUSSENDORF	HANLEY	HALFORD
HOFFMAN	HUDSON	JONES
JACKO	KOPONEN	KELLY
KUBINA	LARSON	KERTTULA
LEMAN	MACLEAN	PEARCE
MARTIN	MENARD	POURCHOT
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PETTYJOHN	PHILLIPS	STURGULEWSKI
RIEGER	SHARP	SZYMANSKI
SHULTZ	SWACKHAMMER	UEHLING
TAYLOR	ULMER	ZHAROFF
WALLIS	ZAWACKI	

January 24, 1990

The Honorable Dick Eliason
Box V
Juneau, Alaska 99811

Dear Senator Eliason;

I understand that presently you are pushing for a bill to institute another moratorium on finfish farming. I understand that you and your constituents are against any finfish farming that could compete in the marketplace. A second reason for your stand is your concern for introduction of disease and genetic pollution into the wild stock.

As a constituent of yours, I find your concern for marketplace competition very shortsighted. Presently, the market is being flooded with farmed salmon by others rather than Alaskans. This present situation is due to the past restrictive laws on finfish farming in Alaska. Alaska could have presently been one of the leaders in this area had it not been for the moratorium. At this stage in the game it will be difficult for a viable finfish farm to develop especially for the smaller farmer. Other countries and states already have the market filled and production capital in place. I ask you to reconsider your stand and not let us fall any further behind. Additionally, another ban would forestall individuals in developing other finfish farming opportunities such as Arctic char, blackcod, and halibut. There will always be a market for low price salmon and a high price market for "Wild" salmon. These markets have not disappeared due to the influx of rancher salmon.

Your concerns for disease and genetic pollution problems are more well founded; however they can be and are now presently controlled. The technology for disease control is there and was been instituted in Alaska. Presently, state and PNP hatcheries are pumping out millions of pathologically certified salmon fry. Additionally, these fry are introduced into the wild which has caused a greater amount of genetic pollution that could ever be realized by a farming industry. I have not heard many fisherman in the past years complain about catching hatchery raised salmon. In fact, many fisherman are now targeting these runs.

In conclusion, I would like to ask you what gives you and others in the industry the right to hold back a better idea? Management of wild stocks in Southeast is an impossible feat; the stocks will slowly fall into ruin and fishing will become a dying industry much like what has happened in the lower 48. Fish farmer and fisherman can work together. It has happened in B.C. and Scandinavia. Listen to the recommendations of the Finfish Task Force they have looked at both sides of the issues. There are many like myself that envision a personal farm of my own and a thriving finfish farming community in Southeast.

Sincerely,

Mark & Lou Ortega
1308 SMC Rd.
SITKA, AK 99835

MARICULTURE: IS THE EMPEROR WEARING ANY CLOTHES?

by Paul Fuhs, Mayor
City of Unalaska

Those of us who are closest to Alaska's fishing industry have realized for years that many countries throughout the world are benefitting from the economic rewards of farming the seas or mariculture.

At an Anchorage conference titled "North Pacific Fisheries: Business Development and Policy," business, scientific and diplomatic delegates from seven countries related how mariculture is an important, integral thrust of their fisheries strategy for the 21st Century.

How did Alaska fare?

Here we had to rather sheepishly report that although we are recognized as having some of the world's best environmental conditions and seafood industry infrastructure, the development of aquatic farming has been stymied by a series of delays and moratoriums imposed by the political process. The politicized nature of the process is apparent by introduction of legislation to ban all forms of finfish farming before legislators had a chance to study the recommendations in a long-awaited report by a citizen task force.

The international delegates were surprised to discover the legislature had imposed a three-year moratorium on fish farming at a time when the state was struggling to diversify its economic base. Alaskans concerned about the future of rural Alaska should be just as perplexed at the rationale for denying renewable resource development opportunities.

Opponents of mariculture in Alaska have claimed that the fishing industry vehemently opposes the development of fish farming. Yet, here in Dutch Harbor where more fish is processed than anywhere else in Alaska, we are willing to look into the future and take a strong stand in favor of mariculture.

We have shipped hundreds of millions of pounds of fish meal from Dutch Harbor directly to foreign fish farms. The seafood raised on the farms eventually is imported back into the United States, adding to our immense foreign trade deficit.

If Alaska wants to remain a global seafood power, it is foolish to ignore what is happening in the rest of the world. The Alaska salmon industry is being hammered in world markets because it cannot provide what consumers want the most: high quality fresh seafood on a year-round basis. Any rational economic analysis of the situation has to conclude that Alaska would be far better off to supplement the wild production with farmed products.

Mariculture also would provide a productive use for the billions of pounds of fish waste now dumped into our waters and allow processors to operate on a year-round basis, stabilizing employment and reducing overhead from facilities now closed for much of the year. By converting the waste into fishmeal, pollution of our coastal waters also will be reduced.

By increasing the "backhaul" of fresh seafood during the offseason for wild fisheries, mariculture also could help the

We have
tremendous
natural stocks
& healthy
fishing industry
now.

Do any of the
others?

They also
defend
trawling!

Rural
Alaska is
very dependent
on healthy
stocks for
subsistence.
There would be
almost no job
created for them
in fishfarming

Mariculture: Is the Emperor Wearing Any Clothes?

Page Two

transportation industry improve rates and frequency of service to isolated rural communities. And, even the construction and manufacturing industries could benefit from mariculture development. In short, the development of fish farming could be one solid step toward helping Alaska get off a government-based economy. This is particularly important in the rural areas where many of the farms would be located.

For most politicians, however, it is easier to sit back and avoid getting involved in this "controversial" issue. On the other hand, if the emperor isn't wearing any clothes, someone has to have the courage to stand up and say it.

An examination of some of the charges leveled against mariculture is enlightening.

Fish farming threatens the wild stocks and environment. This issue was addressed recently by the Alaska Finfish Farming Task Force, a citizen task force which included a fisheries biologist, economist, salmon fisherman, fish farming advocate and an at-large member. After thoroughly examining the range of issues, the task force unanimously concluded that a properly regulated fish farming industry "poses little or no adverse effect on wild stocks [or] the environment."

The task force pointed out that fish farming uses techniques nearly identical to those employed in Alaska's hatchery system which will release about 1.8 billion salmon this year to intentionally mingle with wild stocks. Incongruously, the recent legislation would even prohibit land-based fish farming in enclosed tanks where there is no opportunity for adverse impacts on wild stocks.

The cost of regulating the mariculture industry will take money away from management of the commercial fisheries. While it's true that it will cost money to properly regulate mariculture, the Alaska Mariculture Association (AMA) has proposed that fish farmers would pay the same amount of taxes levied on wild catches. AMA also has proposed limiting the number of fish farming licenses granted each year, an approach that could limit the cost of regulation.

Only large foreign corporations could afford the cost of fish farming, and Alaskans would not benefit. The people I am aware of who want to farm fish in Alaska are Native corporations, fishermen, seafood buyers, hatchery operators, and family-style businesses which lend themselves well to farming operations. The reality is that a fish farm can be started with less money than it takes to purchase a permit, vessel and gear in some Alaska salmon fisheries and a fraction of the cost of entering the bottomfish industry.

Some foreign and corporate venture capital may be attracted to Alaska for investment in fish farms, but is this bad? Name a major industry in Alaska that isn't fueled by foreign or corporate investments. Doesn't Alaska actively solicit foreign investment capital for other industries?

Just the opposite is now occurring. For example, the Sealaska Corporation has exported capital to invest in a Puget Sound salmon farm because fish farming isn't legal here. An Alaska hatchery

Mariculture: Is the Emperor Wearing Any Clothes?
Page Three

operator also is negotiating with the Soviets in a joint venture fish farm in Siberia. Wouldn't it be ironic if it is easier to do business in the Soviet Union than Alaska?

The cost of limited entry permits have shot up beyond the reach of many Alaskans and the permits are leaving rural areas at an alarming rate. This has had a devastating effect on many coastal villages where people have traditionally fed their families from the sea but can no longer afford to participate in the fisheries. Mariculture would provide a stable, year-round income to these villages where there are few other economic opportunities.

A recent report by the National Fisheries Institute (Approaching 2001: the Seafood Industry in the 21st Century) recognized the importance of fish farming to the seafood industry:

"The advent of aquaculture will improve the overall distribution of seafood as producers meet market needs for fresher fish, delivered more frequently, to more remote parts of the country."

Fish farmers and traditional harvesters both have a role to play in the future of the Alaska seafood industry, and they have a responsibility to meet and reach some practical compromise. The legislature also has the responsibility to weigh the findings of the Alaska Finfish Farming Task Force in the shaping of rational state policies controlling fish farm development.

Mayor Fuhs is president of the Alaska Mariculture Association and co-chairman of Ports Alaska. He also has been a municipal leader in establishing Alaska bottomfish industry and developing Alaska/Soviet Far East trade.

Contact: Paul Fuhs, 581-1251, City of Unalaska

Alaska Mariculture Association

Dear Legislator:

Few debates in recent memory have been as polarized as fish farming in Alaska. The barrage of charges and countercharges would have you believe that fish farming is either (1) a golden economic opportunity for Alaska or (2) certain death for the fishing industry.

As you might expect, the reality is not so black and white, and may be found somewhere in the shades of gray between the two extremes. As you prepare to deal with the impending expiration of the three-year moratorium on finfish farming, AMA urges you to examine the facts and make a decision on what's best for Alaska overall.

The process of sorting out fact from fiction is eased greatly by the findings of the Alaska Finfish Farming Task Force. In its recent report, the task force put to rest many charges by opponents of fish farms:

"If the legislature decides to allow finfish farming, it is imperative that the necessary regulatory framework be in place in advance of any farming activity. If this caveat is satisfied, the task force concludes that fish farming would have little or no adverse effect on wild stocks [or] the environment."

The task force also noted that:

"Current market conditions for farmed salmon are poor. However, a developing finfish farming industry may find some marketing opportunities."

The Alaska Mariculture Association concurs that global salmon markets have been glutted and the authorization of finfish farming will not result in a rush to establish salmon farms, but we also are convinced the long-range outlook is still very positive and development in Alaska will occur. The bankruptcies among Canadian and Norwegian salmon farms follow a classic pattern of over-capitalization in a booming industry when production temporarily exceeds demand.

Alaska Mariculture Association
Page Two

This means there will be few foreign investors interested in speculating in an unproven region such as Alaska. Those who do invest here are likely to have strong ties to the state: Native corporations, seafood processors, fishermen and others with current Alaska business investments.

Salmon culture in net pens offers the best opportunity for development of either small or large finfish farms in Alaska, but other opportunities are available, such as land-based or marine culture of arctic char, land-based salmon farms, and net pen rearing of black cod. These opportunities appear to be more narrow than salmon farming and their potential hinges on market development, cost of production, solution of technological roadblocks and other factors.

Enclosed is an opinion piece by Unalaska Mayor Paul Fuhs which was distributed to Alaska and seafood industry newspapers. Mayor Fuhs also is president of AMA.

Please contact me with any questions. We look forward to working closely with you this session as you consider pending aquatic farming legislation.

Sincerely,

Rodger

Rodger Painter
Executive Director

Fisheries Cabinet Recommendation
Cowper Administration Position on Mariculture
March 13, 1987

Mariculture may provide substantial economic benefits to our coastal communities and help diversify and stabilize our economy if it is developed in an orderly fashion which provides the maximum benefit to Alaskans while ensuring protection for our fisheries resources, other resource users and the environment. In order to accomplish these objectives, any legislation authorizing a mariculture industry must satisfy the following principles:

1. The mariculture industry must benefit Alaskans.

The mariculture industry must be developed in a manner which does not result in unfair competition with existing fisheries or cause undue economic displacement in our coastal communities. Legislation should, to the extent possible under the law, provide for local hire at mariculture facilities and give preferential access to mariculture permits and mariculture related tidelands leases to Alaskans.

2. The mariculture industry must pay for itself and the state should get a fair return for the use of state resources.

Legislation should contain provisions for recovering administrative and other state costs associated with managing the industry. The legislation should also ensure that the state gets a fair return for the use of tidelands and other resources.

3. The development of the mariculture industry in Alaska should be done in an orderly fashion which encourages a stable, dependable industry.

Legislation should provide general criteria which will lead to the development of a regulatory program which discourages speculation on permits and tidelands leases, encourages sound financial planning, and provides for a diverse industry ranging from "Mom and Pop" ventures to larger corporate operations.

4. The mariculture industry must meet all state and federal requirements for human health, product quality and sanitation.

Legislation should ensure that mariculture facilities meet all state and federal requirements for human health, safety, and sanitation. Legislation should also require that mariculture products meet or exceed

all state and federal product quality and human health standards, and provide the means to ensure that state regulators can protect human health and product quality.

5. Mariculture activities must be managed to ensure protection of the biological integrity of natural plant and animal stocks.

Legislation must address the issues of pathological and genetic protections for natural sea vegetable and fish stocks.

6. Mariculture activities must be managed in a manner which ensures adequate environmental safeguards and habitat protection.

Legislation must ensure that mariculture facilities are sited, designed and operated to protect air and water quality, to provide for proper disposal of wastes, and to minimize adverse effects to important fish and wildlife habitat.

7. Mariculture facilities must be sited to minimize land-use conflicts, maintain navigation and ensure access to upland areas.

Legislation should provide guidance for siting facilities to minimize conflicts with other tidelands users, reducing visual and aesthetic impacts, maintaining navigation and ensuring access across state tidelands.

8. Broodstock acquisition for mariculture purposes should be carefully regulated, especially for species subject to limited entry fisheries.

Legislation should contain provisions limiting the acquisition of broodstock for species subject to limited entry fisheries. Legislation should grant the Department of Fish and Game the authority to regulate the acquisition, transport, and propagation of mariculture broodstock, and provide the Board of Fisheries the ability to resolve allocation decisions regarding broodstock acquisition if necessary.

Penco Ak

3620 PENLAND PARKWAY
ANCHORAGE, ALASKA 99508

March 9, 1990

Representative Fran Ulmer
Alaska State Legislature
P.O. Box V (MS 3100)
Juneau, AK 99811

Dear Representative Ulmer:

Our governor and the legislature have been advising Alaskans of the coming shortfall in state funding. And that is very important. We must all prepare for these leaner years. Of major importance is the strong statewide effort being made to build up our present strengths. What can be done to help new businesses locate here?

Two bills to ban a now legal industry fly in the face of all that logic, as they afford an unfair economic protection to the commercial fishing industry. If you pass SB397 or HB432, can Usibelli get you to outlaw the production of charcoal because it might compete with coal? Will the timber industry ask you to outlaw plastic houses because they produce timber? Will big oil be able to get legislation restricting the production of synthetic oil because Exxon sells real oil?

Worldwide production from fish farming is growing dramatically (see attached graph); look what has happened already. Alaska's market share will continue to erode. We need to produce more seafood to maintain our share. They could be mutually supportive. Why don't we produce both?

The disease issue, excuse the expression, is a red herring. The legislature's own task force, Alaska Finfish Farming Task Force, set up to review this issue in part concluded in its summary, "The finfish farming industry can be accommodated without significant threat of disease to wild and hatchery stocks...." This legislation is simply a drive by special interests to protect their own turf. As the task force recognized, Alaska's ocean ranching program is very similar to fish farming. Sources that are quoting "fish farm using net pens produces pollutant equivalent to untreated sewage from about 10,000 people" are either mistaken or deliberately trying to mislead you. That is not what the original study by Donald Weston of the School of Oceanography reported. Pollution? Not true. See page 23 of Christopher C. Canterbury's essay of 1987, "The Prospect of Salmon Farming in Alaska".

Representative Fran Ulmer
March 9, 1990
Page 2 of 2

Dutch Harbor is one of the largest fish ports in our nation and in the world. They would like to see if fish farming would work (see Paul Fuhs' article), but they won't even be able to try if you pass this bill.

Please nickname this the "Ostrich Bill", as if it passes as presented, history will show that this legislature had its head in the water, its eyes closed, and its ears shut as the rest of the world passed us by. Regardless of the positive scientific facts supporting this industry, the issue has become an emotional and a political one. It deserves a fair political compromise that will allow this new industry a chance to prove itself.

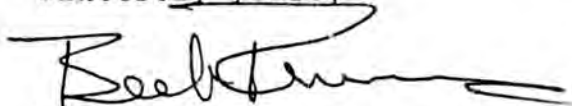
The opportunity is here to make this a positive law instead of a negative one.

Please consider the following ideas:

1. Allow upland fish farming for all species anywhere in the state and allow the private sector to see if it will work.
2. Allow pen rearing of non-salmon species in saltwater except for salmon as in #4 below.
3. Provide access, and encouragement, to farmers in gaining breed stocks from within the state.
4. Prohibit the import and export of live salmon stocks to and from Alaska.
5. Disallow pen rearing in saltwater for salmon, but only with a sunset review in two or three years. If it should be against the law today and it should still be against the law in two or three years, then it will be.

Please don't shut Alaska's door to a possible positive business that would diversify our economy statewide, that could especially help in rural areas, and be a plus to us all. I know you want more industry and jobs for our state--we've talked about it. Please call me at 276-2222 anytime and tell me what I can do to help.

Sincerely yours,

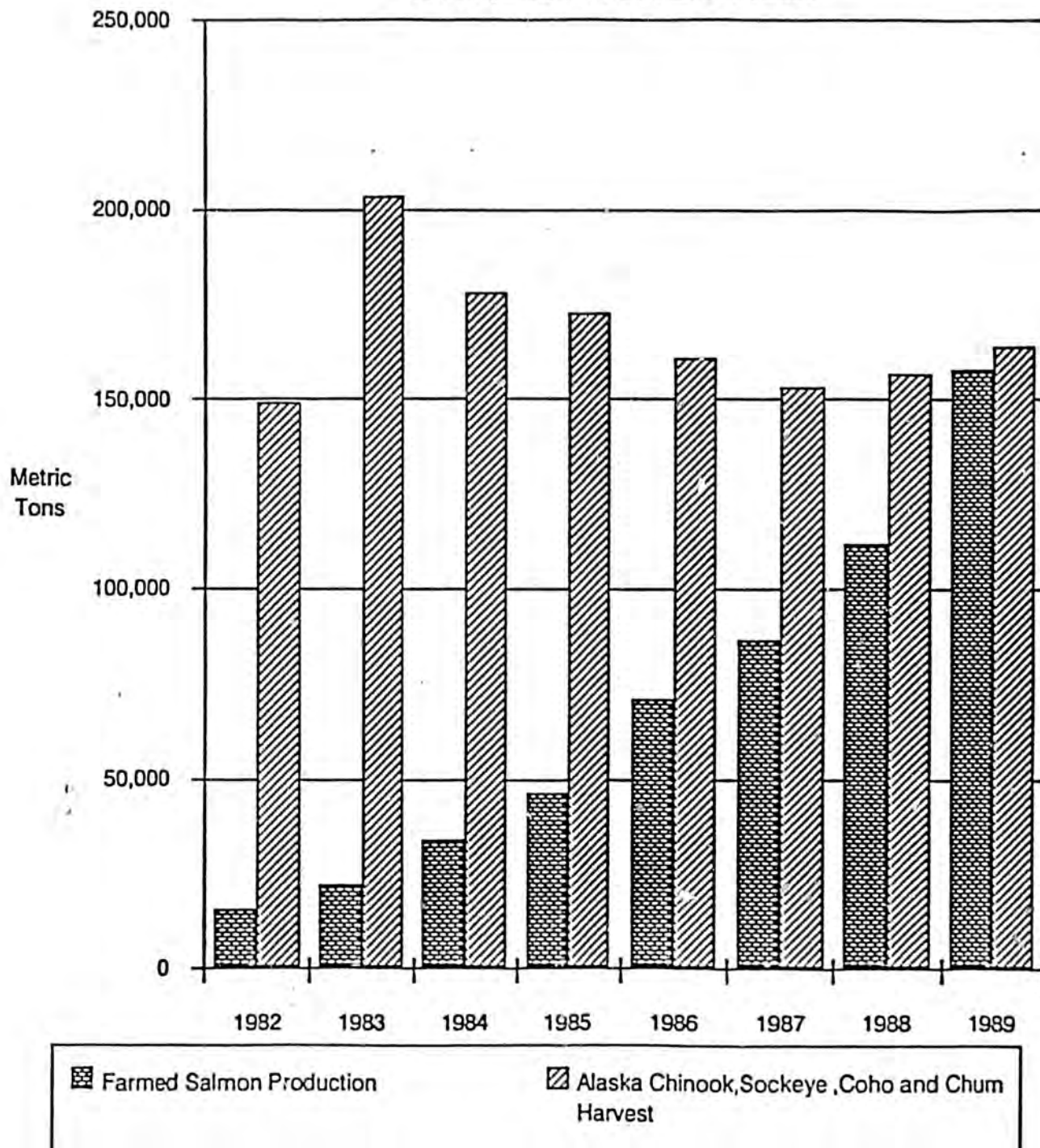


Bob Penney

BP/js
Enclosures

Comparison of World Farmed Salmon Production and the Alaska Harvest of Chinook, Sockeye, Coho and Chum Salmon from 1982 to 1989.

Sources: World Markets for Salmon: Pen Reared Salmon Impacts; ADCED, 1988
Fish Farming International; December, 1989
Alaska Department of Fish and Game Catch Statistics



"How will salmon farming affect water quality?"

Some environmentalists worry that feed, drugs and fish droppings from salmon farms might have a detrimental effect on water quality. However, no such problem has arisen. In Washington state, the EPA Water Quality Laboratory's seawater intake pipe is located in Clam Bay, 20 feet from the National Marine Fisheries Service net pen and 300 yards from Domsea Farm, the largest salmon farm in the world.¹⁶¹ The EPA has reported no problems in water quality resulting from the salmon farms. After measuring sediment deposits on the seafloor of Clam Bay, the EPA found that such farms have about the same effect on the ocean floor as a large dock.¹⁶² Drugs used in aquaculture should not have any dangerous effect on the environment. They are used rarely to begin with, and most medicated feed is eaten by the fish. Not much is left over to leach into the water, and what is left is quickly diluted.¹⁶³

Dr. Patrick Moore, of Greenpeace fame, supports salmon farming as a means for actually protecting water quality. "A billion dollar program in aquaculture equals a billion dollar insurance policy against water degradation," claims Moore.¹⁶⁴ He feels that fish in a farm will be like a canary in a coal mine; they'll be the first to notice water pollution. If salmon farmers notice pollution in their farms, they can take legal action since they have leasing rights to the water. Fish farming may be the answer for finding a way to regulate water pollution.

"What other needs must be met to support a salmon farming industry?"

One British Columbian farmer made an interesting comparison:

"Salmon farming is much like operating a vineyard. You need time to have the land assembled before you see the results, realize the quality of your grape. But before you have the grape, you have to have the expertise to produce the finest product of which you are capable."¹⁶⁵

Developing a salmon farming industry which is able to produce a large volume of high-quality fish efficiently takes a great deal of research, experimentation and education. The most successful countries have extensive

SCOMM

75:20

Anders
 1432 entry permits
 1961 Cremona
 3393 total

Janbar
 219 entry permits
 290 Cremona
 509 total

the new section 16.40.155
 comes under Article 2.

"Agueda Janny"
 Article 2. is

Chapter 40 is
 "Commercial Use of Fish
 and Game"

Cowper Administration Position on Mariculture

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Interagency Mariculture Workgroup
Report on Activities Over the Legislative Interim

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MEMORANDUM

State of Alaska

TO: Fisheries Cabinet

DATE: January 12, 1988

FILE NO:

TELEPHONE NO: 465-4100

FROM:  Interagency Mariculture
Workgroup

SUBJECT: Report on Activities
Conducted During the
Legislative Interim

The Interagency Mariculture Workgroup is pleased to present to you this report on our activities conducted over the legislative interim. The products contained in this report are in response to the tasks the Cabinet outlined last May. In the report you will find eight issue papers on a variety of biological, land-use, water quality and product quality issues which are central to the mariculture debate. Other products include a matrix summarizing how four other areas address these subjects, a description of the on-going socioeconomic studies, and the uniform shellfish permitting system we developed. Additional information is contained in the appendices.

Background

Last legislative session, the issue of authorizing expanded mariculture in Alaska received considerable attention. In particular, the prospect of pen-rearing salmon in Alaska became one of the hottest topics in the state. The market success of the Norwegian salmon farming industry, and the growth worldwide in fish farming generally have spurred interest in all forms of mariculture in Alaska. During last year's session of the Alaska State Legislature, bills were introduced to legalize expanded mariculture activities, including salmon pen-rearing. Senate Bill 106 and House Bill 108 would "encourage the establishment and growth of an aquatic farming industry" in Alaska. The bills would establish a permit system which would be administered by the Department of Commerce and Economic Development for aquatic farms and private-for-profit hatcheries.

In response to this action in the Legislature, Governor Cowper directed the Fisheries Cabinet to review the mariculture issue and prepare a recommendation to him. The Cabinet, after careful consideration, prepared for the Governor a set of criteria for judging any authorizing legislation. The Governor approved these criteria, which were then presented to the Legislature.

Late in the session it became apparent that authorizing legislation was not going to pass. All parties became concerned that the questionable legal status of pen-rearing

salmon could lead to speculation on tidelands sites and a "gold rush" mentality similar to the situation which developed in British Columbia. The resulting confusion and inevitable litigation would not be to anyone's advantage, so a carefully crafted moratorium bill was introduced and passed in the waning hours of the session. This bill, Senate Bill 297, placed a moratorium which expires July 1, 1988 on issuing permits for most finfish farming. It also authorized shellfish farming and limited finfish farming in fresh water.

The Fisheries Cabinet met on May 19, 1987 to develop a plan of action for addressing the mariculture issue over the legislative interim. At that time the Cabinet identified two general tasks which needed to be performed.

First, the administration needed to develop a uniform approach to permitting shellfish mariculture. This has been done. The staff workgroup reviewed existing authorities and permitting procedures, and developed the consolidated permit application form to establish a uniform application process. In conjunction with this, the Department of Fish and Game prepared regulations authorizing a shellfish farm permit, and a Fish Transport Permit for holding and transporting shellfish for commercial farming purposes. This cleared the way to allow expanded shellfish mariculture activities.

The second task identified by the Cabinet was to systematically address the issues raised during the legislative hearings. Senator Eliason and Representative Herrmann presented us additional questions which needed to be addressed as well. The issue papers, matrix, and the socioeconomic studies are the products we prepared to address this task.

The issues papers are designed to briefly discuss and summarize a number of biological, land-use, product quality, and water quality issues which are central to the mariculture debate. The matrix briefly summarizes how British Columbia, Maine, California, and Washington address many of these same issues. The socioeconomic studies, which are in progress, will address the questions regarding markets and cost of production.

Also included in the appendices are copies of SB 297, the issues lists from Senator Eliason and Representative Herrmann, a list of the staff on the workgroup, and Governor Cowper's Position on Mariculture.

LAND USE
Department of Natural Resources

ISSUE:

How will the state encourage the development of tide and submerged lands through mariculture while at the same time minimize conflicts with existing uses?

DISCUSSION:

Mariculture is a new and expanding industry in Alaska, and may become a significant long-term use of tide and submerged lands. Currently, mariculture activities are being permitted on a case-by-case basis with little or no comprehensive planning. Notable exceptions include the Prince William Sound Area Plan and the Prince of Wales Island Plan. The state needs a comprehensive approach to planning for mariculture activities in order to ensure the stable growth of this new industry and to minimize conflicts with existing uses. Such an approach should provide guidance to minimize conflicts on individual proposals and address the potential cumulative impact of numerous mariculture developments taking place over time.

Some of the potential land use problems associated with mariculture include: displacement of public uses such as recreation and subsistence; conflicts with other commercial uses of tide and submerged lands; land speculation; impacts on adjacent land holders; and cumulative impacts over time from the incremental expansion of mariculture activities.

Displacement of Public Uses such as Recreation and Subsistence

Mariculture sites may block or inhibit public access to important recreation and subsistence use areas. The expectation and desire for seclusion when recreating in rural Alaska is highly valued by residents and visitors. If the sense of seclusion is lost, an important part of the aesthetics of many bays is lost, and the recreational experience is less valuable. A mariculture facility, particularly with caretaker facilities located in a smaller cove, will essentially eliminate that sense of seclusion for recreational users other than the permit holder. In essence, the tendency will be for traditional recreational users of the cove to try to find other secluded and aesthetically pleasing areas.

Subsistence is an important activity in most of the areas where mariculture may occur. Conflicts between mariculturists and subsistence users could occur as more and more facilities are developed over time. This could entail

direct competition for subsistence resources as new residents enter rural areas, or loss of subsistence opportunities if mariculture facilities are placed in important subsistence resource areas. Siting criteria can minimize most of these problems.

And finally, the mariculturist may not want any intrusions into his or her area. There could be concerns over pollution, theft, damage, interference, or just the loss of privacy. This could lead to conflicts between the farmer and other users, in the end excluding other uses of the coastal area.

Conflicts with Other Commercial Uses of the Tide and Submerged Land

The best sites for mariculture facilities may often be the best sites for other uses such as mineral or timber transfer and support facilities, log storage, commercial fishing grounds or anchorages, or commercial recreation development. Although mariculture is a new industry in Alaska, experiences in British Columbia and Washington have demonstrated there can be conflicts with other uses. The potential for such conflicts has already surfaced in Kodiak, Prince William Sound, and Southeast.

Besides the need for space, water quality standards for mariculture may preclude the use of favored sites for other commercial or industrial facilities. Forcing more stringent mitigation measures or alternative siting for timber or mineral transfer or tailings disposal could reduce or eliminate the economic viability of the resource extraction industry in a given area.

Conversely, mineral or timber transfer, log storage, and floating camps associated with resource development activities may limit the space available or degrade water quality for mariculture facilities, thus making mariculture development more difficult and less likely.

Land Speculation

British Columbia experienced a dramatic rush for Section 10 permits prior to 1986. These permits allow the holder to enter and occupy a site to conduct research for up to one year. It appears that these permits were being issued for large areas of land with little regard for potential impacts to the public. This created a gold rush image which resulted in a great deal of public concern, and subsequently a moratorium was imposed. Alaska does not have an investigative permit similar to the Section 10 permit but we could experience land speculation in other forms, most notably by applying for tidelands and leases to tie-up a site.

Land speculation in this case is described as obtaining land use rights with the intent of not using the land for the proposed use but selling those rights for a profit. This problem is not unique to mariculture and it can occur in any use of state land. Speculation can be greatly reduced by close monitoring of development schedules and writing conditions in the land use document that would allow the state to revoke that document if the development is not proceeding as proposed.

Impacts on Adjacent Land Owners

Mariculture can impact adjacent land owners in a variety of ways: loss of tidelands access or boat moorage, loss of view, noise and loss of privacy, loss of habitat or water quality. This has been a significant issue in Washington and British Columbia, and may become a matter of concern in Alaska as well.

The adjacent land owner has a number of ways to influence the siting of mariculture facilities. They can participate in development of state land use plans, coastal zone management plans, and local comprehensive plans. The adjacent owner or owners are notified by mail of pending applications and are given an opportunity to comment on the project. A 30-day public notice pursuant to AS 38.05.945 is required for leases and the local government or regional native corporation is also notified if the project is within their boundaries. The local government or regional native corporation may hold public hearings if necessary. The Department of Natural Resources reviews all of these comments and weighs the use and enjoyment of the adjacent owner against what is considered to be the state's best interest. These determinations are made on a case-by-case basis and may or may not include consideration of cumulative impacts.

Cumulative Effects of Expanding Tidelands Use

The vast majority of the tide and submerged lands in Alaska are owned and managed by the State of Alaska. The remainder is owned by the federal government or by individuals and first class cities that acquired the land pursuant to AS 38.05.820.

The State of Alaska allows the development of its tide and submerged lands by granting leases and permits. The sale of tide and submerged land to a private entity is presently not legal. AS 38.05.045 excludes tide and submerged land from the public land that can be sold.

Tideland permits may be issued for a term not to exceed 5 years (11 AAC 62.720). This permit allows the use of tide and submerged lands for mariculture but does not provide the

security of a lease and does not constitute a preference to a lease.

Leases for tide and submerged land are issued in two ways, by public auction or negotiation. Leases may be negotiated for a term up to 55 years to an adjacent upland owner or upland lessee if the lease is for water transportation or another water-dependent purpose (AS 38.05.075(c)). Leases may also be negotiated for a period of no more than 10 years if the appraised value of the transaction is \$5000.00 a year or less (AS 38.05.070(b)). All other tideland leases are offered at public auction and anyone may bid on the lease parcel (AS 38.05.075(a)). The procedures for processing a tideland lease in each case is the same with the exception of the negotiated leases which do not have a public auction prior to the issuance of the lease.

For most of coastal Alaska, mariculture facilities will be permitted on an individual basis. The impact from one or two farms may be minimal, but the cumulative effects of numerous farms on existing uses may be dramatic. Under current statutes, management and area plans provide a process for resolving use conflicts on a regional basis, and the best interest finding required under AS 38.05.035(e) provides a mechanism for resolving conflicts on individual permits/leases. Although a regional perspective is preferred, the cost of management and area plans prohibits their use as a routine method of sorting out problems and resolving conflicts. This lack of a regional perspective could lead to significant conflicts over time and is one of the major problems with the existing system.

In developing statewide guidelines, Alaska should evaluate what British Columbia experienced during its initiation to finfish aquaculture. They had an immediate need for coastal planning because they were seeing a loss of access, a loss of anchorages, impacts on upland owners, and impacts on recreation and tourism. British Columbia placed a moratorium on leases and licenses for finfish farming and began an inquiry into finfish aquaculture and its impacts. The inquiry was completed in 1986 and many of their recommendations could be applied to Alaska. Some of the recommendations that apply to land use in Alaska are as follows:

1. The government should develop an aquaculture policy which clarifies direction, agency roles, and the responsibilities of both government and the private sector for the industry. The inquiry indicated that a clear policy would alleviate public concerns over lack of controls and lack of protection of the public resource. It would also serve to offset creation of the image of an uncontrolled land rush, which has

generated misunderstanding and suspicion about government objectives.

2. Initiate land use studies that would identify sites of high value for other important coastal interests. Use these studies to direct aquaculture away from major resource and user conflict areas.
3. Local governments should be encouraged to develop or revise local zoning laws to address mariculture within their boundaries. This would also involve modifications of local coastal zone management plans.
4. The land management agencies should review their practices involving advertising and notification for proposed aquaculture facilities. This includes notification to local governments. The inquiry recommended a 60-day review period.
5. The land management agencies should require a commitment bond to reduce speculation and a clean-up bond in the event of abandonment.
6. The aquaculture industry should be encouraged to institute a program to provide anchorage, access, and emergency assistance to other coastal users.
7. Establish a minimum distance separation guideline for farms as a means of reducing impacts on upland owners and other resource users.

Fees

Current statutes and regulations provide only two methods to collect fees for use of state land. AS 38.05.085 provides for a percentage of the fair market value as determined by appraisal. The parcel is not reappraised for 25 years. There are fees attached to permits which may be set by the regions. These fees may not provide a fair return to the state for the use of its resources. Options to consider for legislation may include: 1) a percentage of gross receipts; 2) revise lease terms to require reappraisal every five years (private sector norm).

Preference

Current statutes provide only a preference for adjacent owners. Any preference for Alaskan's would require a change in statutes.

Other statutory changes might include a lottery for new sites or a negotiated lease as well as the high bid method currently available.

SUMMARY:

It appears that most land use problems associated with mariculture can be resolved through state land use plans and the permit review process. The most comprehensive procedure to determine areas of public use is to develop state land use plans, such as the Prince of Wales Island Area Plan and the Prince William Sound Area Plan. Developing comprehensive area plans is desirable but time consuming (2-3 years) and expensive. A streamlined process needs to be developed and implemented which evaluates land-use issues, including the cumulative effect of multiple mariculture operations. Such a process should include provisions for strong local participation and be designed to meet the needs of reconciling land-use conflicts in a timely manner.

While the land use plans address siting considerations they do not resolve current statutory restrictions such as: how fees are charged; should and can Alaskans be allowed a preference to lease tide and submerged land.

WATER QUALITY
Department of Environmental Conservation
Division of Environmental Quality

ISSUE:

Ensure that high water quality is maintained during mariculture operations and that measures are taken so that preexisting uses and activities can continue without adversely affecting mariculture activities.

DISCUSSION:

Mariculture requires clean water. Water quality in areas surrounding the culture facility, however, can be affected by both the mariculture activity itself and by other nearby uses or activities. The state needs to ensure that water quality is adequate for mariculture, that high water quality is maintained during culture operations, and that measures are taken so that preexisting permitted uses and activities can continue.

Two key water quality issues associated with mariculture are:

1. Changes in water quality caused by mariculture operations; and
2. Potential siting conflicts with other uses or activities.

1. Changes to water quality from mariculture operations

Mariculture facilities can have significant impacts on local water quality and habitats if not properly sited, operated, and monitored. The impacts on water quality can be in three areas: 1) the creation of water quality and environmental conditions unfavorable for the growth and survival of cultured species; 2) a reduction of water circulation near culture facilities; and 3) the introduction of toxic or deleterious substances to the water.

One of the major concerns with mariculture operations is the unfavorable changes in water quality and environmental conditions that may develop during normal facility operations. Specific changes that may occur include:

- a) increased concentrations of particulates and organic matter (feed and fecal material) as byproducts of the culturing activity which accumulate as organic-rich deposits beneath culture facilities;
- b) increase in fecal coliform bacteria and ammonia due to increased production of waste; and

- c) decrease in dissolved oxygen due to increased oxygen demand by the cultured organisms and the bacteria that feed on their waste.

DEC has developed water quality criteria applicable to aquaculture operations (18 AAC 70.020). These criteria specify standards that must be met and maintained for aquaculture activities to take place. Specific criteria concern: fecal coliform bacteria, dissolved gas, pH, turbidity, temperature, dissolved inorganic substances, and sediments, among others. Mariculture operations, however, generate substantial amounts of waste products, unconsumed food and other debris which can settle, accumulate and affect nearby water quality and the benthic substrate.

The amount of organic matter which is produced and can subsequently accumulate below culture facilities is dependent upon several factors including the size of the mariculture facility, its production level, and environmental factors such as water depth, current velocity, flushing, and bottom topography at the facility site. This accumulation of wastes and sediments can also induce chemical and biological changes in the natural bottom habitat and water column.

An extensive accumulation of waste would stimulate the bacterial decomposition process. The biochemical oxygen demand (BOD) of this accumulated material can deplete dissolved oxygen in the water column, causing stress for the cultured organisms. Salmonids, for example, have a high dissolved oxygen requirement, 5.0 - 7.0 mg/l, which must be maintained in a crowded culture situation. Water quality criteria for aquaculture also specify that dissolved oxygen concentrations may not be less than 4.0 mg/l at any point beneath the water surface, and not greater than 17.0 mg/l in any location.

Another possible problem resulting from the deposition of excess food and feces is a change in the benthic macroinvertebrate community. Species unable to tolerate organic enrichment may disappear, and other more tolerant species become dominant. These changes may persist for the duration of the culture activity and for at least several years following its cessation.

Most, if not all of the unfavorable changes in water quality and environmental conditions can be avoided by properly siting mariculture facilities. Water quality problems would be anticipated only in areas of limited flushing or intensive culturing activity. Field studies rarely have shown organic deposition or dissolved oxygen to be a problem around culture facilities in well-flushed areas.

The second concern is that the culturing structure itself may reduce water circulation in the local area, particularly in the down-current direction. A number of variables can affect this flow reduction including flow rate, density of water, enclosure size and shape, degree of fouling, mesh type and material, and stocking density. This reduced circulation can also reduce dilution and dispersal of waste products from the culture facility. A reduction of this sort in water circulation, combined with an increased level of nutrients in the water from excess feed and feces, can promote phytoplankton blooms. This may be a particular problem in water bodies with naturally low levels of nutrients which normally result in nutrient-limited phytoplankton production. Some types of dinoflagellate blooms are associated with paralytic shellfish poisoning (PSP) and may pose a health hazard to humans who consume shellfish. Other dinoflagellate blooms can directly affect fish health and growth rates. These and other phytoplankton blooms also compete with cultured organisms for available dissolved oxygen, which could exacerbate problems of low oxygen stress. These water quality problems would be most likely to occur in areas of inadequate flushing or intensive culturing activity.

The third concern for water quality is that toxic or deleterious substances could be introduced during mariculture operations. The major problem substances include, but are not limited to, antibiotics, anti-fouling agents, and pathogens and parasites that could affect product quality and be transmitted to consumers. Chemical usage is highly regulated but also needs to be closely monitored. The accumulation of chemicals or pathogens in the cultured product must also be carefully monitored. Additional concerns regarding regulation of antibiotics, antifouling agents and shellfish pathogens are covered in the issue paper prepared by the Division of Environmental Health on the use of chemicals and additives.

Research has shown that properly sited and operated facilities will avoid many of the water quality problems described above. The state needs to develop siting criteria and guidelines to use in permitting these facilities. Specifically, criteria for tidal volumes, flushing action, currents, and water depth need to be developed. Certain of these criteria will need to be specific to the species being cultured, as environmental requirements may vary. It is also vital to have adequate information about the proposed facility during the permit review so that potential water quality problems can be avoided.

2. Potential siting conflicts with other uses or activities

The most suitable sites for mariculture facilities often are the most suitable sites for other water-dependent and water-related activities. Because mariculture facilities need clean water to operate, they may be incompatible with other activities in the surrounding area. Proper siting of the mariculture facility and subsequent monitoring of activities that occur around them are critical. A mariculture facility proposal may be submitted for an area which has historically been used for other activities, and these activities may not easily coexist. For example, some preexisting activities could have a discharge that would be detrimental to the cultured organisms. Non-point sources of pollution (e.g., sediment runoff from upland activities) may also affect water quality of embayments suitable for mariculture facility siting.

Another specific area of potential conflict with mariculture operations is the discharge for sewage from upland development, caretaker facilities associated with the mariculture project, and boat traffic. Shellfish are filter feeders and thus easily concentrate fecal coliform bacteria and heavy metals in their bodies. The National Seafood Sanitation Program has set strict standards for fecal coliform levels and heavy metal concentrations in shellfish. Currently, all shellfish growing areas in the state must be certified by DEC, Division of Environmental Health. In addition, all shellfish that will be marketed must also be certified by the Division of Environmental Health to ensure the the product is within safe limits. The State of Alaska Water Quality Standards also specify the levels of allowable fecal coliforms that are required by designated water use. These levels vary depending on the use under consideration. For example, in waters designated for industrial use, the allowable level of fecal coliforms (FC) is not to exceed 200 FC/100ml, based on a minimum of five samples taken over a period of 30 days. The allowable level of fecal coliforms for harvesting and consumption of raw mollusks or other aquatic life is 14 FC/100ml. Since all marine waters are classified to protect all uses, the most stringent use requirements prevail (e.g., 14 FC/100ml).

Siting conflicts arise when an area has historically been used for something other than mariculture and mixing zones have been established which allow fecal coliform or other water quality parameters to be above acceptable limits for an adjacent proposed mariculture operation. The determination before the department is whether to reduce the size of mixing zones for existing uses to allow mariculture facilities in the vicinity, or whether to find that the area is unsuitable for mariculture. DEC also needs to determine how long fecal coliforms persist in marine waters and the

size of contaminated areas. Information of this sort will give us an idea of the necessary separation distance between mariculture facilities and sewage discharges. It is essential information for the responsible permitting of mariculture facilities.

Summary

Mariculture requires clean water. Two key water quality issues associated with mariculture are changes in water quality caused by mariculture operations and potential siting conflicts with other uses and activities. The impacts on water quality can be in three areas: 1) the creation of water quality and environmental conditions unfavorable for the growth and survival of cultured species; 2) a reduction of water circulation near culture facilities; and 3) the introduction of toxic or deleterious substances to the water. Most, if not all of the unfavorable changes in water quality and environmental conditions can be avoided by properly siting and operating mariculture facilities. The state needs to develop siting guidelines to be used in permitting these facilities.

The most suitable sites for mariculture facilities often are the most suitable sites for other water-dependent and water-related activities. Because mariculture facilities need clean water to operate, they may be incompatible with other preexisting activities. The state needs to take measures to ensure that preexisting permitted uses and activities can continue.

DISEASE
Department of Fish and Game
Division of Fisheries, Rehabilitation,
and Development

ISSUE:

Protect native and hatchery stocks from potential disease arising from salmon farming operations.

DISCUSSION:

All populations of fishes, whether in saltwater or fresh, in the wild or in captivity, at some time contain disease agents such as bacteria, viruses, fungi, and invertebrate parasites. In Alaska, endemic disease agents are present throughout wild stocks and the marine environment. Many are opportunistic, causing disease primarily when the fish are crowded or stressed. However, it is extremely important to recognize that populations of fishes differ in the disease agents they carry, and that diseases newly introduced to fish populations can be very devastating.

To control disease in the ocean ranching program, Alaska set in place stringent regulations that govern the movement of salmon and their gametes within the state, and prohibited the import of any fish species or their gametes for aquaculture purposes. These regulations have applied for some 16 years and include requirements for thorough broodstock screening for disease agents, routine treatment of eggs to prevent disease outbreaks, annual inspections and strict reporting requirements, and the destruction of stocks if the state finds that this is necessary to control disease. The state's prohibition on importing species ensures that no new diseases are introduced into the state. For example, many chinook salmon stocks in Washington and Oregon carry IHN virus. Importing these fish could introduce new strains of IHN virus to indigenous stocks. Similarly, importing Atlantic salmon would bring the risk of importing exotic viral and bacterial diseases not found in Alaska. This could have serious impacts on the health of existing native and hatchery stocks, and must be avoided.

To maintain adequate protection of existing fishery resources, any future fish farming industry must be governed by the same fish health regulations currently governing Alaska's ocean ranching program. The species made available for farming should be from native or hatchery stocks having complete and acceptable disease histories. Prohibitions on importing species including Atlantic salmon must be maintained. This way, any diseases would be those already present in wild populations, not exotic diseases which could cause serious harm to the native stocks. All transport and possession of fishes and their gametes needs to be closely

controlled through Fish Transport Permits, and strict reporting and inspection requirements need to be enforced.

However, extending the Department of Fish and Game's fish health services to this new industry cannot be accomplished without the addition of new staff and monies to support these activities. Private sector fish health practitioners could pick up some of this additional workload. Such private practitioners would need to be certified by the state and monitored on a routine basis to ensure acceptable performance, but presently there are no private sector fish health practitioners currently operating in-state.

SUMMARY:

Assuming that imports of Atlantic salmon or other fish species to Alaska remain prohibited, that the state continues to meet its responsibilities in fish disease control, and that monies are provided for additional fish health services, this new industry can be accommodated without the threat of disease to existing native and hatchery stocks of fish.

GENETICS
Department of Fish and Game
Division of Fisheries Rehabilitation,
Enhancement, and Development

ISSUE:

Ensure that salmon farming does not impact the genetic integrity of existing natural and hatchery stocks of salmon and trout.

DISCUSSION:

Preserving the genetic diversity of Alaska's fishery resources has been recognized as an important fisheries management goal. This is especially true for the state's enormous salmon resources.

Alaska, in maintaining the health and perpetuity of its salmon resources, subscribes to the theory that identifiable units of salmon (populations, stocks, races) have through natural selection become adapted to the particular watershed that serves as home. This adaptation is preserved in the genetic make-up (gene pool) of the stock. State fisheries managers have sought to maintain stock diversity to ensure the long-term health of our salmon populations. Loss of stock diversity can occur through dilution brought about by interbreeding with other stocks. For these reasons, Alaska at the outset of its salmon ocean ranching program set in place stringent regulations that govern the movement of salmon and trout within the state and prohibited the import of salmon and trout for aquaculture purposes.

The Department of Fish and Game's genetics policy prohibits the importation of live salmonids (salmon family) into the state, and does not allow stocks to be transported between major geographic areas, such as Southeast, Kodiak Island, Prince William Sound, Cook Inlet, Bristol Bay, and AYK/Interior. The policy has been adopted in order to protect Alaska's diverse natural salmon and trout stocks.

Any new aquaculture venture, such as salmon farming, must be governed by the same policy, transport regulations, and statutes that have applied to the salmon ocean ranching program for the past 16 years. This is particularly true for provisions prohibiting the importation of exotic species, such as Atlantic salmon. Atlantic salmon are actually a trout and are the ecological counterpart of Alaska's indigenous or native steelhead trout. Since these species have not evolved together and thereby have not developed mechanisms to avoid competition with steelhead

trout or other trout, there is a concern about negative impacts on Alaska's indigenous trout.

Therefore, the genetics policy advocates the use of locally adapted stocks of salmon and trout of natural or hatchery origin because this will maintain the state's genetic diversity. This is important in the event of escape or "leakage" through holes in nets or other damage. The magnitude of impact on natural stocks is a function of numbers of fish that escape and that survive to spawn. It is assumed that low levels (less than 5 percent) of escapees can be managed by properly designed net-pen rearing units. Impacts on natural stocks from salmon farming would be minimized because of the policy of using locally adapted stocks.

SUMMARY:

Assuming that imports of exotic species such as Atlantic salmon or other fishes remain prohibited, that current regulations and policies remain in place, and that "leakage" of fish from the pens is kept low, salmon farming can be accommodated without the threat of impact to the genetic integrity of native and hatchery stocks of salmon and trout.

Broodstock
Alaska Department of Fish and Game
Division of Fisheries, Rehabilitation,
Enhancement and Development

ISSUE:

Availability of salmon eggs, fry, and smolts for salmon farming.

DISCUSSION:

The current form of salmon aquaculture in Alaska is ocean ranching. In this system, adult salmon return to their point of release after undergoing an extensive marine migration and contribute to the commercial, sport, subsistence, and personal-use fishery. This ocean ranching program is made up of public and private nonprofit (PNP) freshwater hatcheries and estuarine, juvenile net-pen rearing facilities. Enabling legislation created the public system in 1971, and in 1974, legalized the PNP Program.

Ocean ranching is not only the most successful form of aquaculture in Alaska, it is the largest program in North America and about the third largest in the world being Japan and Russia. The combined public and PNP ocean ranching harvest to the common property fishery in 1987 was in excess of 16 million salmon; this is projected to grow to 34 million for an estimated gross value of approximately \$79 million by 1993. In terms of evaluating the economic impact of the statewide ocean ranching program on the Alaskan economy, it represents \$75 million in resident-only personal income and 2,030 jobs for Alaskans. It is in the context of a successful and building ocean ranching program that we need to evaluate the availability of salmon smolts for the proposed salmon farming industry.

When salmon farming is initially legalized in Alaska, a major factor limiting development will be the availability of smolts for these saltwater farms. The current public and PNP ocean ranching program produces salmon smolts which, as adults, contribute to the common property fishery. Since the common property fishery harvest is regulated by the Alaska Board of Fisheries, it also follows that the availability of smolts is also part of the allocation process. The principle reason salmon smolts would be surplus to the common property fishery is that the present ocean ranching program is operating below capacity due to funding constraints. However, if the salmon smolts are determined by the Board of Fisheries to be surplus to the common property fishery, then they could be sold by the Commissioner. Under existing law, only the state through the Commissioner of the Department of Fish and Game (ADF&G) can sell eggs, fry, or smolts. The PNP hatcheries are