

SCOMM

75:9

MARICULTURE SEMINAR

FISH EXPO - SEATTLE, WASHINGTON - OCT. 29, 1987

First speaker: John Fitz, Washington Department of Agriculture (Pro-fish farming)

Washington has done a "Mariculture Statement" (we should get a copy). It identifies 11 or 12 sites for development - so far three have been approved.

Environmental concerns

Question of disease introduction

Washington restricts importation, has strict regs.

Disease in net pens "never happens"

In 25 years of fish farming in Norway - no threat of disease from pens to wild stocks

Genetic intermingling - not concerned

Pollutants

Siting is most important in preventing problems

Question of whether omega 3 factors in fish oil of farmed fish is really lower than natural fish - he says no difference, fish wouldn't grow if the omega 3 fatty oils were missing.

Department of Agriculture is the "lead agency" in WA

Very pro-development of fish farming

Speaker supports idea of creation and support of ASMI-style agencies - says fishermen should donate more to seafood marketing efforts.

Questions of TBT use - says complaints of TBT use in fish pens is unfair comparison since, "TBT is used on commercial fishing nets." (! ?) However, he notes that TBT has not been used on nets in WA for last two years.

Use of Antibiotics - not concerned since it is O.K. with the USDA

United Nations Worldwatch Institute publication describes a crisis in seafood availability in the future - so there is a need for fish farming.

Roger Painter, Alaska Mariculture Association

There is not just one market worldwide - very distinct separate markets for farmed and natural stocks.

Consumption of salmon per capita doubled between 1980 and 1985 (from .04 lbs. to .08 lbs.). Then in 1986 it dropped quickly back to .05.

Prices to fishermen way up this year at a time when harvest was lowest in 10 years.

Wants "couple hundred" fish farms in Alaska - says this many could be "easily accomodated" along the vast shoreline on AK.

Consistency of supply, quality, diversity will determine size of overall salmon market.

Sale of brood stock from public and private hatcheries to fish farms has big potential in AK - could help to support the hatcheries.

Kate Graham, Exec. Dir. of United Fishermen of Alaska

We DO NOT need fish farming in AK. Other forms of mariculture are fine.

Advantages of fish farming have been way overstated

Not the boon for job-creation that some suggest

In B.C. few jobs have been created

Fishermen and others were promised many

"spin-off" jobs - but hasn't happened.

Have been told it is a "good business for families" but takes \$500,000 to start one - not a "Mom and Pop" deal.

Requires big back-up cash - investors, banks, big business.

1990-91 predicted to be sudden huge influx of farmed fish on market - big shake-out worldwide - if AK started now our farms would be ready to begin marketing right then.

Question of state money

Hatchery program now short of \$ in AK and managment of fisheries also short. Causes management on the conservative side. Add farms and the state must fund management and patrolling of that industry - money likely to come out of already underfunded comm. fish programs and short them even more. Huge loss of potential income in not being able to manage comm. fisheries on maximum sustainable yield basis.

Alaska has STRONG natural fish stocks.

Need study of exactly how much the fishing industry contributes to

3

AK economy - spin-offs - fishermen spending their income in state. Is huge impact beyond ex-vessel prices of fish -- groceries, gas, ship yards, housing, etc.

If salmon farming hurts commercial fishing industry AT ALL, it's too much.

Bill Sibets, Puget Sound Gillnetters Assoc.

Not true that farmed fish won't compete with caught fish. It is in the markets yearround right next to our fish already. (Mariculture people keep saying they'll hold fish for off-season of commercial fishing).

Discussed the "head long rush" in the AK legislature to cram through salmon farming legislation. Says issue needs slow careful consideration - if it doesn't get that, fishermen must take a stance of flat rejection of it.

Question and Answer Session

Discussion of fish farming in Europe

High tech, growing - limited only by availability of fish food. But others argued that no, markets are the limiting factor

Alaskans recognized in attendance:

Sen. Sturgulewski and her aide Frank Homan

Sen. Zharoff and his aide Karl Ohls

Rep. Adelhide Herrman

Rep. Sam Cotten

Terry Ottness (aide to Sen. Jones)

Kate Tesar and Doug Rickey (aides to Rep. Grussendorf)

Brent Paine (aide to Rep. Reiger, and member of AK Mariculture Assoc. Board)

Earl Kryger (ATA)

Bob Blake (UFA)

Pete Isleib

Former aide to Sen. Faiks (Cook Inlet fisherman and attorney)

John Gissberg

Bill Hall (C-FAB)

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Handed out at doorway
as people left Expo
Mariculture Seminar



UNITED FISHERMEN OF ALASKA

SALMON FARMING ISSUES

A new pen rearing industry will divert increasingly scarce State money and personnel from existing fisheries programs. If it doesn't, then the State won't be able to regulate it. If we allow salmon farming in Alaska, we have a choice: either less commercial fishing management or an unregulated pen rearing industry.

Presently, the State has strict regulations which protect wild stocks from disease and genetic problems. As British Columbia fishermen have found out, economics dictate how long such stringent regulations remain in effect. Soon after the Canadian pen salmon industry got started, wild stock protection measures fell by the way-side. Under pressure from the new industry, Atlantic Salmon were allowed into B.C. and a Pacific salmon genetic stock complex was moved from the Stikine River to the Sunshine Coast - an extremely imprudent distance to transport stocks because of genetic pollution. The importation of foreign stocks or new species have onerous implications to health of wild stocks. The Norwegian Government is concerned enough about genetic pollution from escaped pen salmon (10% of the fish in their streams are escaped pen salmon) from their industry, that they are freezing wild stock sperm to maintain genetic integrity.

Proponents suggest that pen rearing is (a) biologically feasible; (b) there is high product demand; (c) the rest of the world is making money at it; (d) private industry will front the cost of the whole thing ---- THEREFORE: we should do it!!! These are the very same arguments which the Delta Barley Farmers used to justify initiating that industry, yet they found that the rest of the world wouldn't pay the price for Delta barley; look at what this fiasco cost the State.

Proponents are exaggerating the potential economic benefits of salmon farming in Alaska. Capital and operating costs in this industry are so high that Alaskan-owned small-scale operations can't make it. In stead, we'll have large corporate operations, funded and controlled by non-Alaskans. The bulk of the profits will be siphoned out of the State.

Salmon farming will not create thousands of new jobs for Alaskans. New technology means minimal staff. In British Columbia, for example, only a few positions became available, and these were at the lower end of the pay scale. Norwegian investors insisted that the upper range jobs be filled by Norwegians.

If we allow salmon farming in Alaska, the new operation will have product ready for market in 7 years: exactly the time a worldwide "Shake-out" is predicted for farming business will be most vulnerable. It will be a case of "Last on - First off."

Salmon farming is not an industry which can exist without government subsidies. In 1983, Norway, the most successful salmon farming country, subsidized their industry by \$5.2 million. Their budget for 1987 has been set at \$11.7 million. Direct subsidies include air transportation, price supports, marketing, and a guaranteed minimum income for fish farmers, to mention a few.

Mariculture proponents are strongly lobbying all of the legislators. Let legislators like Representative Johnny Elliot, and Max Greenberg or Senators Dan Clarks and Dick Udell have fishermen living in their districts, but claim fishermen don't care about this issue, since they never hear from their fishermen. Call - Write - or Show up your Legislator on this issue.

Tlingit and Haida Indian Tribes of Alaska.

MARICULTURE EDUCATION WORKSHOPS

Central Council of Tlingit and Haida Indians of Alaska invites you to attend community workshops to discuss the pros and cons of mariculture, and inform you about mariculture income and employment opportunities. Panelists include members of U/A Marine Advisory Program and T&H Mariculture Association. Central Council will report on a special research project recently completed.

Invited Guests

Residents intersted in learning
about mariculture opportunities;

Local Fish and Game

Advisory Committees

City Officials

Village Corporations Officials

IRA and T&H Council Members

Sealaska Board and Management.

Meeting Schedule

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Kake Community Hall	November 6, 1987
Kake, Alaska	12 Noon

PTI # 2627

Tongue Empire 10/12/87

Dick -
Attached
are some
hand-outs
from this
workshop
(I attended
the one in

Angoon). The program was done by
Roger Painter and Eric (Something?)
"from T&H. (Evidently Roger wrote the
Mariculture. Threat or Promise?" piece under contract with
T&H & BIA)



CENTRAL COUNCIL

tlingit and haida indian TRIBES of alaska
320 West Willoughby Avenue • Suite 300
Juneau, Alaska 99801

FIFTY-SECOND GENERAL ASSEMBLY
Central Council of Tlingit and Haida Indian Tribes of Alaska
April 16-18, 1987
Juneau, Alaska

Resolution 87/88-19

Title: Requesting Public Information on Mariculture

Submitted by: Delegate Robert Loescher

WHEREAS, the development of a mariculture industry in Alaska could provide significant new economic opportunities in Southeast Alaska, particularly in economic depressed communities; and

WHEREAS, a recent Attorney General's opinion has interpreted existing State laws as authorizing the farming of finfish, shellfish and sea vegetables; and

WHEREAS, many very important public policy concerns have been raised during legislative consideration of bills relating to mariculture development; and

WHEREAS, current law provides insufficient public policy guidelines for State agencies to follow for regulating and promoting the mariculture industry; and

WHEREAS, legislative clarification of public policies regarding mariculture development is vital if the industry is to occur in a manner providing optimum economic benefits to Alaska Natives and other residents of coastal Alaska; and

WHEREAS, the Cowper administration must decide how it will implement current law and develop a comprehensive approach for State agencies to deal with what may become a significant new industry in coastal Alaska; and

WHEREAS, residents of Southeast communities and coastal Alaska have insufficient information upon which to base short- and long-term decisions regarding mariculture development; and

WHEREAS, the first session of the Fifteenth Legislature appears prepared to adjourn without fully resolving the mariculture issue;

NOW, THEREFORE, BE IT RESOLVED by the General Assembly of the Central Council of the Tlingit and Haida Indian Tribes of Alaska that the Honorable Steve Cowper, Governor of Alaska, appoint a work

group composed of State and tribal officials to develop a comprehensive proposal for promoting and regulating the mariculture industry, and recommend statutory changes necessary to ensure optimum economic benefits to coastal Alaskans for legislative consideration by January 30, 1988; and

BE IT FURTHER RESOLVED that the Fifteenth Alaska Legislature appoint an interim committee to make recommended amendments to House Bill 108 and Senate Bill 106; and

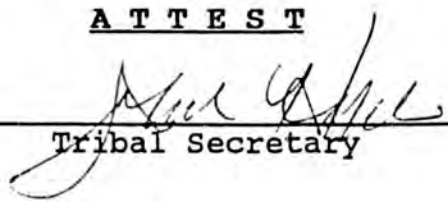
BE IT FURTHER RESOLVED, that the State provide a good program for public education, particularly in rural Southeast and other coastal communities, on issues relating to mariculture development over the next eight months.

ADOPTED this 18th day of April, 1987, by the Fifty-Second General Assembly of the Central Council of Tlingit and Haida Indian Tribes of Alaska, in session at Juneau, Alaska.

C E R T I F I E D


President

A T T E S T


Tribal Secretary

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MARICULTURE — Threat or Promise?

Issues Related to Mariculture Development in Alaska

1

October 1987

by Central Council for Tlingit and Haida Indian Tribes of Alaska
with support from
Bureau of Indian Affairs
and
Sealaska Corporation

1

Introduction

Proposals to create a mariculture development policy for Alaska sparked one of the most intense debates of the 1987 legislative session. The level of interest is reflected in the 1,200 copies of the report Aquaculture in Alaska distributed by the House Research Agency in the first six months of 1987. The document was the most requested piece of information from the legislative information offices during the session.

Supporters say mariculture is one of Alaska's most promising economic opportunities and could create thousands of year-round jobs in depressed coastal communities. The proponents claim sea farming could take place in an environmentally sound manner with a minimal threat to wild stocks. These supporters say farmed production would complement wild harvests by helping Alaska maintain its share of world seafood markets now being captured by foreign aquaculture producers.

The opposition to mariculture focuses on salmon farming which some commercial fishermen fear could lower prices to the fishing fleets for wild harvests because of market competition. Opponents also voice concern over the potential of salmon farms to spread exotic diseases to wild stocks. Fishermen and environmentalists have asked the state to proceed slowly on mariculture because sea farms could displace other uses of public waters and uplands.

After holding lengthy public hearings over the teleconference network and gathering other testimony during sessions in several coastal communities, the legislature passed a 13-month freeze on licenses and permits for finfish farming to allow additional time for discussion of the complex issues. Additional legislative action is expected before the moratorium lapses in July 1988.

This paper discusses the pros and cons of the primary issues raised during debate over the pending legislation. It was developed as part of a mariculture education project for Southeast Native villages by the Central Council of Tlingit and Haida Indian Tribes of Alaska, Bureau of Indian Affairs, and the Sealaska Corporation.

Economic Opportunity

In its February 1987 report Aquaculture in Alaska, the House Reserach Agency estimated a salmon farming industry with a 44 million pound annual production "could realistically produce a total employment effect of about 1,920 jobs and a payroll of \$48.8 million on gross sales of \$132 million. A salmon farming industry of this magnitude would have an economic impact that is roughly comparable to the present Alaska logging industry in terms of employment." No estimates are available for other forms of mariculture.

"Salmon farming is a particularly appealing industry for Native and village corporations with large coastal landholdings and could become an important aspect of village economies," the House Research report concluded. "Salmon farming is not a labor intensive enterprise, but it does utilize the skills of local residents and brings in year-round income."

When his legislation to create a mariculture policy was introduced, Rep. Johnny Ellis said in a speech that approval of the bill was "one of the most important steps this legislature can take to help create new jobs for Alaskans and stimulate non-petroleum dependent economic growth."

This contention was hotly debated by opponents. Earl Krygier, executive director of the Alaska Trollers Association (ATA), told the legislature: "We contend that proponents are exaggerating the potential economic benefits of salmon farming in Alaska. Without strict controls, which are not contemplated by these bills, pen-rearing operations will not be small, Alaska-owned businesses.

"The few Alaskan jobs they will provide will be at the lower end of the technical and pay scales of these operations," Krygier said. "To the extent that Alaskans are involved, either as investors in foreign dominated ventures or as independents, their position will be precarious. This industry is headed for a major shake out worldwide, and small, late entrants will be the most vulnerable."

Petersburg fisherman Gerry Merrigan emphasized a point made by many fishermen in a letter to legislators: "Salmon pen-rearing would not introduce new jobs, it would merely displace historic ones (fishing)."

Market Competition

One of the most commonly voiced concerns about salmon farming is the potential for displacing markets for wild salmon, thereby lowering the prices paid Alaska fishermen.

Typical of the comments were these from a letter to legislators by Petersburg troller Julie Hursey: "Pen-reared fish are predicted to flood the market, and produce a glut as soon as 1990, and if this happens, the price of all salmon will decline, so all gear groups will be affected."

The United Fishermen of Alaska put it this way in a letter to Governor Steve Cowper: "Most people agree that the initial competitive affects will be and are being felt by the Southeast troll fishery and the Southeast, Copper River, Cook Inlet, Kodiak, Bristol Bay, False Pass, Yukon and Kuskokwim gillnet fisheries. Alaska

pen-reared salmon will directly compete with these products. These fisheries primarily involve Alaska residents: they live here, spend their money here, and comprise a large part of the population of coastal towns. Because of this competition, establishing Alaska salmon farming could cripple the very economies it is supposed to enhance."

Proponents counter these arguments by pointing to recent growth in seafood consumption and say the marketplace can absorb enormous new quantities of seafood. In testimony before the legislature, Rodger Painter, executive director of the Alaska Mariculture Association, said, "We believe there is tremendous potential for growth of salmon markets in the United States. American per capita consumption of salmon climbed from .1 to .8 pounds between 1970 and 1985. This represents a very small percentage of the total seafood market, and can be improved through vigorous marketing, continuity of supply and product diversity."

Two recent market studies shed some light on the issue of market impacts. An April 1987 study by the University of Alaska (Salmon Farming in Alaska: Economic Feasibility and Socioeconomic Impacts) concluded: "...it appears that Alaska salmon farming will largely complement, rather than displace the traditional fishery. The increases in world production are likely to have significant effects on the Alaskan traditional fishery. However, incremental Alaskan production is likely to have only marginal effects on the Alaskan traditional fishery."

A 1986 survey of major U.S. seafood buyers by the UA Sea Grant Program (The Marketing Relationship between Pacific and Pen-raised Salmon: A Survey of U.S. Seafood Wholesalers) showed little overlap between the fresh markets for farmed salmon and the frozen gourmet salmon outlets targeted by traditional fisheries, but warned future increases in pen-reared production could change that situation.

Disease

Earl Krygier of the Alaska Trollers Association articulated a primary concern of many fishermen in a July 1987 article in the National Fisherman: "The threat from disease is an entirely different ballgame. A very credible recent study [by Dr. Arthur Whiteley, Professor of Zoology at the University of Washington] clearly shows a relationship between pathogenic bacteria and salmon net culture. We [in Alaska] produce 45 percent of the world's wild salmon and we don't want to gamble with disease in that population. Uneaten food and fish excrement produce a highly fertile bacteriological environment. If you're in Norway, and you don't have any wild stocks and you gamble, what the hell. You don't have anything to lose."

A response to Krygier's statement in the July issue of the Alaska Mariculture Association's newsletter said: "Control of disease is one of the challenges inherent in aquaculture and other forms of animal husbandry. The concerns voiced by Mr. Krygier are very similar to statements by some fishermen when Alaska's salmon ranching program was being debated in the legislature during the 1970s. The success of Alaska's private and public hatcheries and the resulting strong support of fishermen testify to the ability of salmon culturists to

effectively deal with disease."

The AMA newsletter quoted several experts with opinions running counter to Dr. Whiteley's contentions about the threat of disease transmission from farmed to wild stocks. Dr. Donald Weston, in a report for the University of Washington (The Environmental Effects of Floating Mariculture in Puget Sound), said: "While fish held in culture are likely to show more frequent appearance of disease than wild fish, disease does not appear to be transmitted to the wild populations. The bacterial diseases of salmonids in mariculture are not transmissible to humans...Increased bacterial abundance in sediments beneath a mariculture facility is quite probable, but it has not been demonstrated that this increased abundance is of any significance in terms of human health."

In testimony to the Pacific Fisheries Legislative Task Force on Feb. 7, 1987, Dr. Whiteley urged a cautious approach to salmon farming: "The important question...is not whether these organisms pose a present health threat, or ecological threat. The proper question is: can these organisms, and this ecosystem, and these humans tolerate the eutrophic burden that will be imposed by a full blown fish pen industry? it is our belief that there are many too many questions that need resolution, of a public health nature, before we proceed further."

Brian Allee, director of the Division of Fisheries Rehabilitation, Enhancement and Development (FRED), testified that the Department of Fish and Game believes the biological concerns of fish farms and existing salmon hatcheries are "functionally similar. Based on this assumption, the statewide disease and genetics policy should be applied to the fish farm permit, in order to reduce the risk of damage to the wild stocks of salmon, which are a common property resource. Both policies have been well developed and the implementation of these policies will serve as more than sufficient control."

Tidelands Management

Although most opposition to mariculture was directed at salmon farming, much concern was expressed during legislative hearings over the potential of all forms of sea farming to displace traditional uses of public waters.

Laura Dameron of the Southeast Alaska Conservation Council told legislators: "We would like to request a moratorium on issuing permits until each region has done a planning process and has decided what the existing uses for the areas that mariculturists would like to use are, and what would be the best use, and hopefully place an upper limit on how many areas will be used for mariculture in each area. In that way recreation and subsistence users, all the existing users, will be planned for as well."

In calling for a moratorium on all mariculture permits and licenses, a May 6, 1987 press release by the United Fishermen of Alaska said: "One of the big issues is the siting problem. These operations are being located in protected bays and inlets that have traditionally been used for recreational boating and fishing, for anchorages, and for commercial fishing operations. Siting concerns

apply equally to shellfish and to finfish farms."

Sylvia Garađy of Tolkeen testified before the House Resources Committee that local residents are getting inadequate notice about proposed oyster farms on Prince of Wales Island: "They are issuing those permits, and they are not asking anybody what other uses are already in existence for a certain area...they are putting oyster farms in key anchorages which could be a matter of life and death if a fishing boat can't get in there when they have to get in there. The thing that really concerns us is that we have nothing to say about this. We feel the state permit process does not have a specific place for public input or for handling public concerns."

Mariculture supporters presented testimony stressing that Alaska's 33,000 miles of largely undeveloped coastline contains many sites where no conflicts will occur. Matt Dick, president of the Kodiak Mariculture Association, told lawmakers: "I think that there are a lot of areas around Kodiak. I've been in this area for ten years, commercial fishing and have done other activities on the water over the entire island, and I know personally that there are many areas where a shellfish farm could be placed with no conflict. The whole question comes down to how can we find those areas. I would like to see...an extension of the permitting process that would provide more public access, allow a longer comment period."

The Alaska Mariculture Association stressed in legislative testimony that sea farming can occur in a manner that does not displace other users: "The state should require that mariculture permits be found compatible with existing uses and the public be given adequate notification of proposed mariculture permits. We also believe that mariculture is no different than any other new use of public lands and waters. While we are not asking for preferential use of the tidelands, we don't want to be treated differently than other tideland users."

Who Pays for State Regulation

Upon introduction of his mariculture legislation, Rep. Johnny Ellis told his colleagues in a speech on the house floor: "I have worked closely with the private sector to develop this legislation, and I am pleased to tell you that the bill asks for no state loans or subsidies. Sea farmers want mariculture to be industry driven so it responds to the marketplace and not to the level of government spending."

An Alaska Mariculture Association position paper said: "While it is true that mariculture development will require the expenditure of state funds for processing permits and protecting public health and the environment, it also is true that economic diversification is one of Alaska's most important goals. The legislature must balance the need to continue important existing government services with the goal of creating new jobs and attracting new venture capital." AMA also told lawmakers that it would support creation of a mariculture products tax to help offset regulatory costs.

The cost of implementing state programs to support a mariculture industry was a primary concern to many commercial fishermen. The United Fishermen of Alaska letter to Gov. Cowper commented: "Finfish

farmers are asking you to take money away from programs you are now funding and use it to establish their project in Alaska. It's unrealistic to think that money will not come from commercial fishing programs, since it surely won't come from the domestic violence budget. It seems unreasonable to make further cuts to a healthy, successful industry to start a program with uncertain chances of success."

A position paper by the executive board of directors of the Prince William Sound Aquaculture Corporation agreed: "We are in a time that the state isn't even able to fund ongoing projects that for a relatively small investment can potentially produce significant economic gain. It seems irrational for the state to even consider the development of a new venture (salmon farming) that will not only require considerable state support but further is most likely not even comparable to existing established programs in terms of its potential long term benefits."

Brood Stock

Advocates of salmon farming say they are interested in purchasing at fair market cost surplus salmon eggs from private non-profit and state hatcheries to use for the initial brood stock needs of the industry. Proponents say private hatcheries could meet future needs, although continued sales of surplus stocks might be attractive new sources of revenue to public and private hatcheries.

In a speech at the Southeast Alaska Marine Trade Fair, Brent Paine of the Alaska Mariculture Association said: "State and federal hatchery managers have stated that there are sufficient surplus stocks of eggs in public and private hatcheries to satisfy the initial needs of an Alaska salmon farming industry. In fact, sales of surplus eggs to salmon farmers could provide a significant new source of revenue to help our ocean ranching programs."

The United Fishermen of Alaska and other critics are skeptical about the projected surpluses of salmon eggs. "Current legislation states fish farmers can get surplus eggs from hatcheries, but no one has yet defined the word 'surplus,'" said UFA in its letter to Gov. Cowper. "There are no state hatcheries operating a full design capacity--they are only operating at their funding level and could produce much more for the state's economy if they had more money. Instead of further funding, six state hatcheries may be closed because of budget cuts. Exactly what is the surplus the fish farmers plan to take?"

The Alaska Mariculture Technical Work Group, which was composed of representatives from numerous state and federal agencies and support groups, in late 1986 projected sufficient surpluses. The group's report explained: "Alaska now has well developed public and private hatchery programs releasing large numbers of (chinook and coho) smolts...Many of these programs achieve large enough returns to satisfy brood needs, provide catches to common property fisheries and allow terminal area cost recovery harvests."

Don Collingsworth, commissioner of fish and game, later said in a letter to Rep. Ellis: "Enclosed you will find a table which lists the

estimated number of salmon eggs that might have been available during 1986. Of these 88.6 million eggs, 4.6 million were chinook salmon, 23.2 million were coho salmon, 40.8 million were chum salmon, 2.0 million were pink salmon, and 20.0 million were sockeye salmon eggs." Collinsworth said "we expect that more eggs might be available" as surplus from future hatchery returns.

Where to Get More Information on Mariculture Issues

Minutes of legislative hearings:

House Resources Committee
P.O. Box V
Juneau, AK 99811

Studies:

(Aquaculture in Alaska, Report 87-B)
House Research Agency
P.O. Box Y
Juneau, AK 99811

(Salmon Farming in Alaska: Economic Feasibility & Socioeconomic Impacts)
Division of Business Development
Department of Commerce & Economic Development
P.O. Box D
Juneau, AK 99811

(The Marketing Relationship between Pacific and Pen-raised Salmon: A Survey of U.S. Seafood Wholesalers, Report 86-3)
UA Marine Advisory Program
590 University Ave., Suite 102
Fairbanks, AK 99709-1046

Position papers:

United Fishermen of Alaska
Senate Building, Suite 306
175 South Franklin St.
Juneau, AK 99801

Alaska Trollers Association
130 Seward St., Suite 213
Juneau, AK 99801

Alaska Mariculture Association
130 Seward St., Suite 201
Juneau, AK 99801

Handed out at doorway
as people left Expo
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EDUCATION
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Marine Fisheries 10/12/87



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Tlingit and Haida Indian Tribes of Alaska
320 West Willoughby Avenue • Suite 300
Juneau, Alaska 99801

FIFTY-SECOND GENERAL ASSEMBLY
Central Council of Tlingit and Haida Indian Tribes of Alaska
April 16-18, 1987
Juneau, Alaska

Resolution 87/88-19

Title: Requesting Public Information on Mariculture

Submitted by: Delegate Robert Loescher

WHEREAS, the development of a mariculture industry in Alaska could provide significant new economic opportunities in Southeast Alaska, particularly in economic depressed communities; and

WHEREAS, a recent Attorney General's opinion has interpreted existing State laws as authorizing the farming of finfish, shellfish and sea vegetables; and

WHEREAS, many very important public policy concerns have been raised during legislative consideration of bills relating to mariculture development; and

WHEREAS, current law provides insufficient public policy guidelines for State agencies to follow for regulating and promoting the mariculture industry; and

WHEREAS, legislative clarification of public policies regarding mariculture development is vital if the industry is to occur in a manner providing optimum economic benefits to Alaska Natives and other residents of coastal Alaska; and

WHEREAS, the Cowper administration must decide how it will implement current law and develop a comprehensive approach for State agencies to deal with what may become a significant new industry in coastal Alaska; and

WHEREAS, residents of Southeast communities and coastal Alaska have insufficient information upon which to base short- and long-term decisions regarding mariculture development; and

WHEREAS, the first session of the Fifteenth Legislature appears prepared to adjourn without fully resolving the mariculture issue;

NOW, THEREFORE, BE IT RESOLVED by the General Assembly of the Central Council of the Tlingit and Haida Indian Tribes of Alaska that the Honorable Steve Cowper, Governor of Alaska, appoint a work

group composed of State and tribal officials to develop a comprehensive proposal for promoting and regulating the mariculture industry, and recommend statutory changes necessary to ensure optimum economic benefits to coastal Alaskans for legislative consideration by January 30, 1988; and

BE IT FURTHER RESOLVED that the Fifteenth Alaska Legislature appoint an interim committee to make recommended amendments to House Bill 108 and Senate Bill 106; and

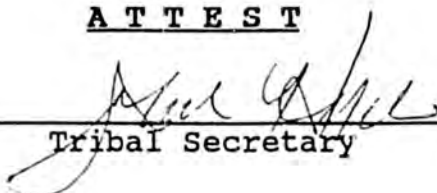
BE IT FURTHER RESOLVED, that the State provide a good program for public education, particularly in rural Southeast and other coastal communities, on issues relating to mariculture development over the next eight months.

ADOPTED this 18th day of April, 1987, by the Fifty-Second General Assembly of the Central Council of Tlingit and Haida Indian Tribes of Alaska, in session at Juneau, Alaska.

C E R T I F I E D


President

A T T E S T


Tribal Secretary



CENTRAL COUNCIL

Tlingit and Haida Indian Tribes of Alaska
320 West Willoughby Avenue • Suite 300
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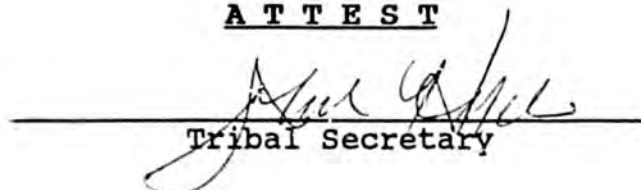
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A T T E S T


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MARICULTURE — Threat or Promise?

Issues Related to Mariculture Development in Alaska

October 1987

by Central Council for Tlingit and Haida Indian Tribes of Alaska
with support from
Bureau of Indian Affairs
and
Sealaska Corporation

Introduction

Proposals to create a mariculture development policy for Alaska sparked one of the most intense debates of the 1987 legislative session. The level of interest is reflected in the 1,200 copies of the report Aquaculture in Alaska distributed by the House Research Agency in the first six months of 1987. The document was the most requested piece of information from the legislative information offices during the session.

Supporters say mariculture is one of Alaska's most promising economic opportunities and could create thousands of year-round jobs in depressed coastal communities. The proponents claim sea farming could take place in an environmentally sound manner with a minimal threat to wild stocks. These supporters say farmed production would complement wild harvests by helping Alaska maintain its share of world seafood markets now being captured by foreign aquaculture producers.

The opposition to mariculture focuses on salmon farming which some commercial fishermen fear could lower prices to the fishing fleets for wild harvests because of market competition. Opponents also voice concern over the potential of salmon farms to spread exotic diseases to wild stocks. Fishermen and environmentalists have asked the state to proceed slowly on mariculture because sea farms could displace other uses of public waters and uplands.

After holding lengthy public hearings over the teleconference network and gathering other testimony during sessions in several coastal communities, the legislature passed a 13-month freeze on licenses and permits for finfish farming to allow additional time for discussion of the complex issues. Additional legislative action is expected before the moratorium lapses in July 1988.

This paper discusses the pros and cons of the primary issues raised during debate over the pending legislation. It was developed as part of a mariculture education project for Southeast Native Villages by the Central Council of Tlingit and Haida Indian Tribes of Alaska, Bureau of Indian Affairs, and the Sealaska Corporation.

Economic Opportunity

In its February 1987 report Aquaculture in Alaska, the House Reserach Agency estimated a salmon farming industry with a 44 million pound annual production "could realistically produce a total employment effect of about 1,920 jobs and a payroll of \$48.8 million on gross sales of \$132 million. A salmon farming industry of this magnitude would have an economic impact that is roughly comparable to the present Alaska logging industry in terms of employment." No estimates are available for other forms of mariculture.

"Salmon farming is a particularly appealing industry for Native and village corporations with large coastal landholdings and could become an important aspect of village economies," the House Research report concluded. "Salmon farming is not a labor intensive enterprise, but it does utilize the skills of local residents and brings in year-round income."

When his legislation to create a mariculture policy was introduced, Rep. Johnny Ellis said in a speech that approval of the bill was "one of the most important steps this legislature can take to help create new jobs for Alaskans and stimulate non-petroleum dependent economic growth."

This contention was hotly debated by opponents. Earl Krygier, executive director of the Alaska Trollers Association (ATA), told the legislature: "We contend that proponents are exaggerating the potential economic benefits of salmon farming in Alaska. Without strict controls, which are not contemplated by these bills, pen-rearing operations will not be small, Alaska-owned businesses.

"The few Alaskan jobs they will provide will be at the lower end of the technical and pay scales of these operations," Krygier said. "To the extent that Alaskans are involved, either as investors in foreign dominated ventures or as independents, their position will be precarious. This industry is headed for a major shake out worldwide, and small, late entrants will be the most vulnerable."

Petersburg fisherman Gerry Merrigan emphasized a point made by many fishermen in a letter to legislators: "Salmon pen-rearing would not introduce new jobs, it would merely displace historic ones (fishing)."

Market Competition

One of the most commonly voiced concerns about salmon farming is the potential for displacing markets for wild salmon, thereby lowering the prices paid Alaska fishermen.

Typical of the comments were these from a letter to legislators by Petersburg troller Julie Hursey: "Pen-reared fish are predicted to flood the market, and produce a glut as soon as 1990, and if this happens, the price of all salmon will decline, so all gear groups will be affected."

The United Fishermen of Alaska put it this way in a letter to Governor Steve Cowper: "Most people agree that the initial competitive affects will be and are being felt by the Southeast troll fishery and the Southeast, Copper River, Cook Inlet, Kodiak, Bristol Bay, False Pass, Yukon and Kuskokwim gillnet fisheries. Alaska

pen-reared salmon will directly compete with these products. These fisheries primarily involve Alaska residents: they live here, spend their money here, and comprise a large part of the population of coastal towns. Because of this competition, establishing Alaska salmon farming could cripple the very economies it is supposed to enhance."

Proponents counter these arguments by pointing to recent growth in seafood consumption and say the marketplace can absorb enormous new quantities of seafood. In testimony before the legislature, Rodger Painter, executive director of the Alaska Mariculture Association, said, "We believe there is tremendous potential for growth of salmon markets in the United States. American per capita consumption of salmon climbed from .1 to .8 pounds between 1970 and 1985. This represents a very small percentage of the total seafood market, and can be improved through vigorous marketing, continuity of supply and product diversity."

Two recent market studies shed some light on the issue of market impacts. An April 1987 study by the University of Alaska (Salmon Farming in Alaska: Economic Feasibility and Socioeconomic Impacts) concluded: "...it appears that Alaska salmon farming will largely complement, rather than displace the traditional fishery. The increases in world production are likely to have significant effects on the Alaskan traditional fishery. However, incremental Alaskan production is likely to have only marginal effects on the Alaskan traditional fishery."

A 1986 survey of major U.S. seafood buyers by the UA Sea Grant Program (The Marketing Relationship between Pacific and Pen-raised Salmon: A Survey of U.S. Seafood Wholesalers) showed little overlap between the fresh markets for farmed salmon and the frozen gourmet salmon outlets targeted by traditional fisheries, but warned future increases in pen-reared production could change that situation.

Disease

Earl Krygier of the Alaska Trollers Association articulated a primary concern of many fishermen in a July 1987 article in the National Fisherman: "The threat from disease is an entirely different ballgame. A very credible recent study [by Dr. Arthur Whiteley, Professor of Zoology at the University of Washington] clearly shows a relationship between pathogenic bacteria and salmon net culture. We [in Alaska] produce 45 percent of the world's wild salmon and we don't want to gamble with disease in that population. Uneaten food and fish excrement produce a highly fertile bacteriological environment. If you're in Norway, and you don't have any wild stocks and you gamble, what the hell. You don't have anything to lose."

A response to Krygier's statement in the July issue of the Alaska Mariculture Association's newsletter said: "Control of disease is one of the challenges inherent in aquaculture and other forms of animal husbandry. The concerns voiced by Mr. Krygier are very similar to statements by some fishermen when Alaska's salmon ranching program was being debated in the legislature during the 1970s. The success of Alaska's private and public hatcheries and the resulting strong support of fishermen testify to the ability of salmon culturists to

effectively deal with disease."

The AMA newsletter quoted several experts with opinions running counter to Dr. Whiteley's contentions about the threat of disease transmission from farmed to wild stocks. Dr. Donald Weston, in a report for the University of Washington (The Environmental Effects of Floating Mariculture in Puget Sound), said: "While fish held in culture are likely to show more frequent appearance of disease than wild fish, disease does not appear to be transmitted to the wild populations. The bacterial diseases of salmonids in mariculture are not transmissible to humans...Increased bacterial abundance in sediments beneath a mariculture facility is quite probable, but it has not been demonstrated that this increased abundance is of any significance in terms of human health."

In testimony to the Pacific Fisheries Legislative Task Force on Feb. 7, 1987, Dr. Whiteley urged a cautious approach to salmon farming: "The important question...is not whether these organisms pose a present health threat, or ecological threat. The proper question is: can these organisms, and this ecosystem, and these humans tolerate the eutrophic burden that will be imposed by a full blown fish pen industry? it is our belief that there are many too many questions that need resolution, of a public health nature, before we proceed further."

Brian Allee, director of the Division of Fisheries Rehabilitation, Enhancement and Development (FRED), testified that the Department of Fish and Game believes the biological concerns of fish farms and existing salmon hatcheries are "functionally similar. Based on this assumption, the statewide disease and genetics policy should be applied to the fish farm permit, in order to reduce the risk of damage to the wild stocks of salmon, which are a common property resource. Both policies have been well developed and the implementation of these policies will serve as more than sufficient control."

Tidelands Management

Although most opposition to mariculture was directed at salmon farming, much concern was expressed during legislative hearings over the potential of all forms of sea farming to displace traditional uses of public waters.

Laura Dameron of the Southeast Alaska Conservation Council told legislators: "We would like to request a moratorium on issuing permits until each region has done a planning process and has decided what the existing uses for the areas that mariculturists would like to use are, and what would be the best use, and hopefully place an upper limit on how many areas will be used for mariculture in each area. In that way recreation and subsistence users, all the existing users, will be planned for as well."

In calling for a moratorium on all mariculture permits and licenses, a May 6, 1987 press release by the United Fishermen of Alaska said: "One of the big issues is the siting problem. These operations are being located in protected bays and inlets that have traditionally been used for recreational boating and fishing, for anchorages, and for commercial fishing operations. Siting concerns

apply equally to shellfish and to finfish farms."

Sylvia Garady of Tolkeen testified before the House Resources Committee that local residents are getting inadequate notice about proposed oyster farms on Prince of Wales Island: "They are issuing those permits, and they are not asking anybody what other uses are already in existence for a certain area...they are putting oyster farms in key anchorages which could be a matter of life and death if a fishing boat can't get in there when they have to get in there. The thing that really concerns us is that we have nothing to say about this. We feel the state permit process does not have a specific place for public input or for handling public concerns."

Mariculture supporters presented testimony stressing that Alaska's 33,000 miles of largely undeveloped coastline contains many sites where no conflicts will occur. Matt Dick, president of the Kodiak Mariculture Association, told lawmakers: "I think that there are a lot of areas around Kodiak. I've been in this area for ten years, commercial fishing and have done other activities on the water over the entire island, and I know personally that there are many areas where a shellfish farm could be placed with no conflict. The whole question comes down to how can we find those areas. I would like to see...an extension of the permitting process that would provide more public access, allow a longer comment period."

The Alaska Mariculture Association stressed in legislative testimony that sea farming can occur in a manner that does not displace other users: "The state should require that mariculture permits be found compatible with existing uses and the public be given adequate notification of proposed mariculture permits. We also believe that mariculture is no different than any other new use of public lands and waters. While we are not asking for preferential use of the tidelands, we don't want to be treated differently than other tideland users."

Who Pays for State Regulation

Upon introduction of his mariculture legislation, Rep. Johnny Ellis told his colleagues in a speech on the house floor: "I have worked closely with the private sector to develop this legislation, and I am pleased to tell you that the bill asks for no state loans or subsidies. Sea farmers want mariculture to be industry driven so it responds to the marketplace and not to the level of government spending."

An Alaska Mariculture Association position paper said: "While it is true that mariculture development will require the expenditure of state funds for processing permits and protecting public health and the environment, it also is true that economic diversification is one of Alaska's most important goals. The legislature must balance the need to continue important existing government services with the goal of creating new jobs and attracting new venture capital." AMA also told lawmakers that it would support creation of a mariculture products tax to help offset regulatory costs.

The cost of implementing state programs to support a mariculture industry was a primary concern to many commercial fishermen. The United Fishermen of Alaska letter to Gov. Cowper commented: "Finfish

farmers are asking you to take money away from programs you are now funding and use it to establish their project in Alaska. It's unrealistic to think that money will not come from commercial fishing programs, since it surely won't come from the domestic violence budget. It seems unreasonable to make further cuts to a healthy, successful industry to start a program with uncertain chances of success."

A position paper by the executive board of directors of the Prince William Sound Aquaculture Corporation agreed: "We are in a time that the state isn't even able to fund ongoing projects that for a relatively small investment can potentially produce significant economic gain. It seems irrational for the state to even consider the development of a new venture (salmon farming) that will not only require considerable state support but further is most likely not even comparable to existing established programs in terms of its potential long term benefits."

Brood Stock

Advocates of salmon farming say they are interested in purchasing at fair market cost surplus salmon eggs from private non-profit and state hatcheries to use for the initial brood stock needs of the industry. Proponents say private hatcheries could meet future needs, although continued sales of surplus stocks might be attractive new sources of revenue to public and private hatcheries.

In a speech at the Southeast Alaska Marine Trade Fair, Brent Paine of the Alaska Mariculture Association said: "State and federal hatchery managers have stated that there are sufficient surplus stocks of eggs in public and private hatcheries to satisfy the initial needs of an Alaska salmon farming industry. In fact, sales of surplus eggs to salmon farmers could provide a significant new source of revenue to help our ocean ranching programs."

The United Fishermen of Alaska and other critics are skeptical about the projected surpluses of salmon eggs. "Current legislation states fish farmers can get surplus eggs from hatcheries, but no one has yet defined the word 'surplus,'" said UFA in its letter to Gov. Cowper. "There are no state hatcheries operating at full design capacity--they are only operating at their funding level and could produce much more for the state's economy if they had more money. Instead of further funding, six state hatcheries may be closed because of budget cuts. Exactly what is the surplus the fish farmers plan to take?"

The Alaska Mariculture Technical Work Group, which was composed of representatives from numerous state and federal agencies and support groups, in late 1986 projected sufficient surpluses. The group's report explained: "Alaska now has well developed public and private hatchery programs releasing large numbers of (chinook and coho) smolts...Many of these programs achieve large enough returns to satisfy brood needs, provide catches to common property fisheries and allow terminal area cost recovery harvests."

Don Collingsworth, commissioner of fish and game, later said in a letter to Rep. Ellis: "Enclosed you will find a table which lists the

estimated number of salmon eggs that might have been available during 1986. Of these 88.6 million eggs, 4.6 million were chinook salmon, 23.2 million were coho salmon, 40.8 million were chum salmon, 2.0 million were pink salmon, and 20.0 million were sockeye salmon eggs." Collinsworth said "we expect that more eggs might be available" as surplus from future hatchery returns.

Where to Get More Information on Mariculture Issues

Minutes of legislative hearings:

House Resources Committee
P.O. Box V
Juneau, AK 99811

Studies:

(Aquaculture in Alaska, Report 87-B)
House Research Agency
P.O. Box Y
Juneau, AK 99811

(Salmon Farming in Alaska: Economic Feasibility & Socioeconomic Impacts)
Division of Business Development
Department of Commerce & Economic Development
P.O. Box D
Juneau, AK 99811

(The Marketing Relationship between Pacific and Pen-raised Salmon: A Survey of U.S. Seafood Wholesalers, Report 86-3)
UA Marine Advisory Program
590 University Ave., Suite 102
Fairbanks, AK 99709-1046

Position papers:

United Fishermen of Alaska
Senate Building, Suite 306
175 South Franklin St.
Juneau, AK 99801

Alaska Trollers Association
130 Seward St., Suite 213
Juneau, AK 99801

Alaska Mariculture Association
130 Seward St., Suite 201
Juneau, AK 99801

Renegade Norwegian farm salmon polluting wild runs

"Renegade" salmon from Norway's fish farms are destroying important characteristics and genetic differences between farm and river salmon, says Professor Harald Skjervold, following the discovery this autumn that up to 57 percent of the salmon stocks in some Norwegian rivers are of the farm variety.

If the genetic pollution continues at its present rate, the hereditary variations among some of the river species will be halved within seven years. Nature takes tens of thousands of years to fit the salmon to its special environment, and in the light of this fact, the present developments are alarming, says Skjervold.

The head of the Directorate for Nature Management, Helge Vikar, also finds the latest findings disquieting and stresses the vital importance of preserving the most valuable of the salmon species in the genes bank now being built up in Trondheim, incidentally the first of its kind in the world.

Sperm from 47 species of Norwegian river salmon were stored in the bank last year, and this number will be doubled by the end of 1987. Vikar blames the extensive genetic pollution in rivers on the import of smolt. This

import is not only responsible for spreading disease, it is also a major hazard for river salmon, says Vikar. He intends proposing to the Ministry of Environment that the Directorate be involved in the assessment of smolt import licenses.

Clipped from the
Fishermen's News
A reason to delete
salmon from the
mariculture Bill.

Ralph Luthin
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February



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FISH EXPO *continued*

truce and both make money, but the temptation to buy one more toy for the wheelhouse is too great. Pretty soon they don't have room enough in the wheelhouse for another piece of equipment, so they have to buy a bigger boat. Now they really have to catch fish!

Fourteen thousand fishermen milling around under one roof, that's a lot of flannel shirts. Some of them are multimillionaires, but you'd never know it by looking at them. They all look as if they need a manicure. The salesmen, on the other hand, look like a million dollars, in spiffy blue blazers and Rolex watches, giving their sales spiel to what look like poor relatives. (If you go to the show, wear your fishing clothes; you'll have more fun.)

The doors open at 10 A.M. (admission is \$5) and before you know it you're swept up into the show, the biggest commercial fishing show on earth. There are booths to the starboard, booths to the port—about 850 exhibiting companies this year—so many gadgets you don't know which way to look. Some of the booths are "manned" by very attractive women. That's always a good ploy with fishermen, and gets their attention in a hurry. I like that about fishermen. They're close to nature. I'm sick of all this androgyny.

"Are you interested in an automated longlining system?" a salesman asks you. "Well, sure . . ." and he explains the whole system to you. Fascinating. It'll cut up your bait for you, put it on the hooks, pull in the fish while you smoke a cigar, take them off the hooks, do everything but invest the profits. A neat package, you admit. "How much?" "Including the automatic baiter, \$50,000." You mull it over, and move on to the next booth.

What I really want is a machine that will clean the fish for me. They'll have those there, too, starting at around \$100,000. Or you could buy a filleting knife for around \$20. Maybe you'll even get one free. They give away a lot of free stuff here (well worth the price of admission), and everyone is carrying around a big bag of goodies as if it were Halloween and they were trick or treatin'. Last time I took in the show I got a fishhook tie clasp which I wear every time I put on a tie. I probably still have it.

In 1985, on-site sales at Fish Expo tipped the scales at around \$13.5 mil-

lion, with \$40 more million following in its wake. The big exhibitors are the U.S., Norway, Denmark, Canada, Iceland, Germany, Japan—about 40 countries in all. It costs a thousand dollars to rent a small booth, and some of these countries will rent enough space for a dozen booths, flags, native costumes, the whole bit; you round a corner and all of a sudden you're in Little Norway. I like the Norwegians best because they throw great parties at night. "Skoal!" "Skoal!" You betcha.

The parties this year ought to be terrific because Alaska fishermen (who figure heavily in the show) have been on a roll the last few years. "Red hot" is how John van Amerongen, editor of the *Alaska Fisherman's Journal*, sums up the 1987 season. "Whatever it lacked in volume of fish it made up . . . in price. Fueling the fire is greater competition in more compressed seasons, and it takes aggressive fishing and topnotch equipment to stay ahead of the pack these days."

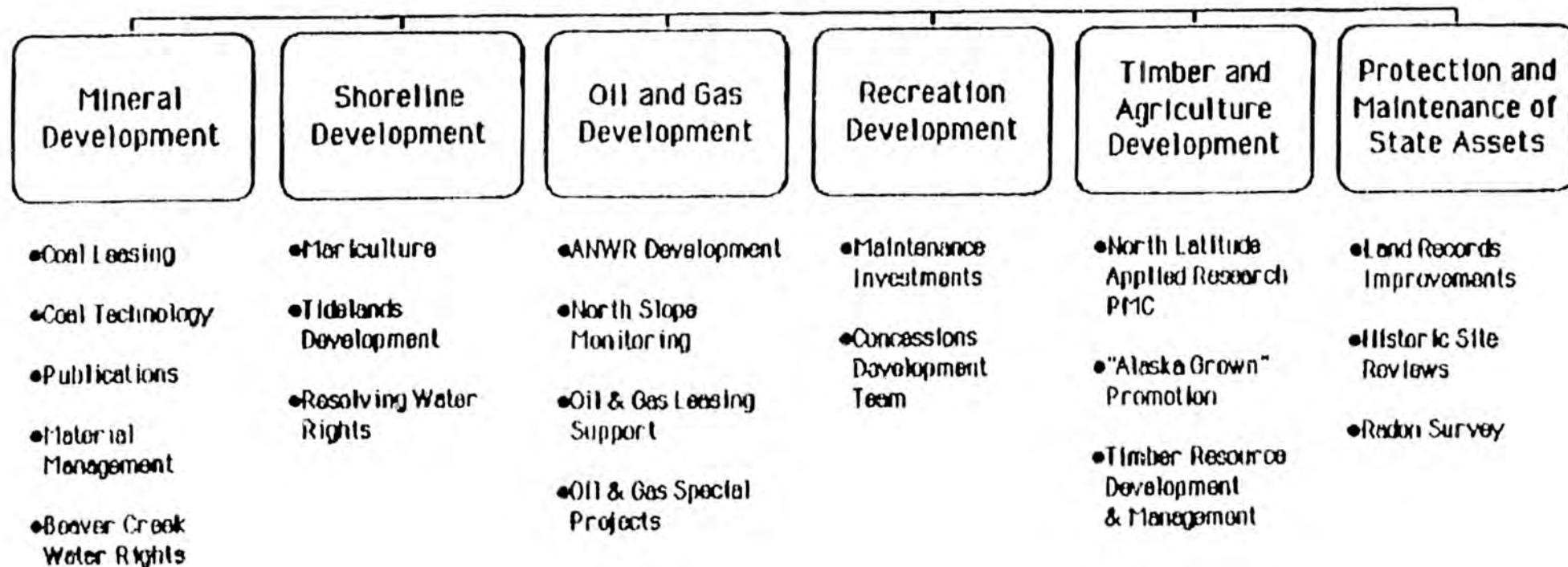
The final salmon tally for 1987 isn't in yet, but it could approach 100 million fish—for a value to fishermen in excess of \$400 million. Trollers in Southeast Alaska were getting \$3 a pound for king salmon with plenty of \$100 fish—big ones—coming over the rail. The high price was influenced strongly this year by heavy losses of farmed salmon in Norway from a disease called hitra.

Halibut were back stronger than ever, although the management of the fishery is still a mess. Halibut is one of Alaska's last open fisheries, which means you don't need a limited entry permit to fish for them (you can gear up at Expo and go yourself). What's happening is that so many fishermen are pouncing on the quotas that all the fish are taken in a matter of a few days—millions of pounds!—forcing bottlenecks at the processing plants, reduced quality and a limited amount of halibut going into the lucrative fresh market (because of the unavailability of planes to fly that much out at once). Anyway, nobody's mad at the halibut. An important part of Fish Expo is the free seminar program in which issues such as this are discussed.

The offshore fisheries in the North Pacific and Bering Sea, pollock, cod and sole, are thriving as the "Americanization" of the fishery proceeds apace. Until the Magnuson Act was passed in 1976, establishing a 200-mile U.S. zone, these waters were dominat-



Investing in Alaska: A "Kick-Start" Resource Development Strategy



AN ENTERPRISE BUDGET
FOR THE
DEPARTMENT OF NATURAL RESOURCES

Summary: Three Proposals

While the strategic objectives of the Department of Natural Resources have increased substantially from what they were in 1983 - particularly as related to its role as catalyst for resource development - the total budget level has been cut in half.

The Department is committed to quality management of Alaska's resources but it is clear that, in order to meet its responsibilities, some changes and some choices have to be made.

We have found that extreme budgetary distress opens a whole world of new tactics for achieving Department objectives: efficiencies, partnerships, joint ventures - in short, policy-making entrepreneurship.

We propose a new way of thinking about Alaska's resources: as the State's principle capital assets.

Unless the State invests in responsible maintenance and development of these assets, we will continue to foreclose income, job, and quality of life opportunities for Alaskans.

We propose a new way of evaluating when and how to invest public money for Alaska's resource assets: an Enterprise Budget.

An Enterprise Budget tells the Legislature and the public what it can expect for its investment dollar by identifying estimated returns in terms of measurable performance objectives.

We propose to help kick-start the economy through a combination of new, low-cost, high-return programs to provide new opportunities for private sector resource development.

The Need for Resource Investment

Alaska is a resource state. Our economic present and future is inextricably tied to the wise use of our oil and gas, timber, minerals, scenic beauty, land and water resources.

- When we talk about economic development in Alaska, we are talking about natural resources.
- When we talk about jobs in Alaska, we are talking about natural resources.
- When we talk about trade with the Pacific Rim, we are talking about natural resources.
- When we talk about tourism and Alaska's unique quality of life, we are talking about natural resources.
- When we talk about financing education - health care - public safety - environmental protection, we are talking about natural resources.

Resource management is the business of the Department of Natural Resources.

We manage the two largest oil fields in North America; the most extensive state park system in the U.S.; 33,000 miles of shoreline that is entering a new development stage with mariculture; the most extensive coal deposits in the U.S. which are only beginning to be mined; 8% of the softwoods in the U.S., which are only beginning to be harvested; the largest gas fields in the U.S., which are only beginning to be tapped.

In total, the Department of Natural Resources manages over 82 million acres of state-owned land and water resources.

No other state owns 28% of its land base. No other state is so dependent on the development of its own resources to support its economy.

Whether the Department of Natural Resources acts primarily as a caretaker and regulator - or as a catalyst and facilitator for development - depends largely on the funding level of the Department.

Unfortunately, at a time when the need is greatest for the Department of Natural Resources to be a catalyst for development, the budget level allows primarily for caretaker management; in some areas, marginal caretaker management.

- Proposals for new oil, gas, mining, timber, and recreation projects with significant economic potential are delayed for lack of staff to review, evaluate, and initiate the required public processes.

- Recreation/tourism facilities that once were open year round or at a minimum for a full seven month season now close their gates after a three month season.
- Resource inventory activities are shut down in some areas; reduced to minimal levels in others.
- Management of State contracts for sale or use of land and resources is backlogged, delaying start-up of revenues to the State.

The Department of Natural Resources is committed to quality management of Alaska's resources, but it is clear that as budget levels decline, some changes and some choices have to be made.

For the long-term, we need a way of thinking about and planning for resource management that helps us to make critical choices about which programs to eliminate, which programs to maintain, which programs to give priority.

For the short-term we need some strategies to kick-start Alaska's economy. In resource management that means making resource development opportunities available to the private sector.

The Long-Term Strategy: An Enterprise Budget

What is an "Enterprise Budget?"

It is simply a more businesslike way of thinking about the expenditures the State makes in the management, protection, and development of its resources and the return it receives from the conservation and use of these resources.

It is an approach to making critical choices about budgeting for resource management.

An Enterprise Budget requires a new way of thinking about natural resources.

It means treating Alaska's natural resources as our principle capital assets.

Unless the State invests in the responsible maintenance and development of these assets, we will continue to foreclose income, quality of life, and job opportunities for Alaskans.

An Enterprise Budget requires a new way of thinking about resource management.

If State expenditures for the management of public resources are, like the expenditures of any business, investments in the future...then there should be a clear expectation of return on those investments.

What can the public expect for its dollar?

An Enterprise Budget identifies the estimated return for dollars invested. The Department of Natural Resources already budgets on a project basis. An Enterprise Budget goes a step further spelling out economic objectives as well as measurable performance objectives for each project - objectives for both the protection and the development of land and water resources.

An Enterprise Budget tells both the Legislature and the public what return they can expect for their investment in the Department of Natural Resources.

It will take another year to fully implement an investment-oriented Enterprise Budget, but the start will be made in the FY 89.

The Short-Term Strategy: A Kick-Start for Alaska's Economy

To help revitalize Alaska's economy, new opportunities for private sector resource development must be offered on public lands.

The objectives are in sync with overall Department responsibilities, focusing on those related to marketable resources. Continued strong attention will be given to regulatory and conservation objectives and - as will be seen in budget proposals - regulation and conservation are components of each new program.

The objectives of the "kick-start" strategy are to:

- Concentrate management on those natural resources that merit public investment because they offer special potential for economic development;
- Create opportunities for those resources to be developed wisely;
- Concentrate management on those natural resources that merit public investment because of their environmental values and contribution to Alaska's quality of life, or because they require continuing maintenance investments to guarantee long-term productivity.

The strategy is to match market demand with available resources and northern latitude technologies.

The investment by the State will be \$2.9 million...or less than 3¢ per acre of land managed by the Department of Natural Resources.

HOW THE DEPARTMENT DEVELOPED THE "KICK-START" PACKAGE

The process of determining which investment strategies would "payoff" for the State included a three-stage culling. First, each Division was asked for their best kick-start proposals. Over \$8 million in budget increments were submitted. Then the Directors of each Division sat as "Board of Directors" and critiqued each increment. The individual packages were sent back to each Division for reworking before a final review by the "Board."

The final package of \$2.9 million is a best bet resource investment package recommended by the Department of Natural Resources as a whole.

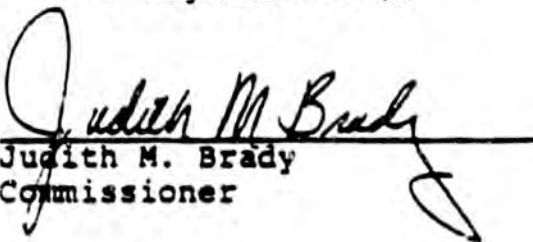
The narrative is presented by resource category, rather than Division category. In every instance, more than one Division is involved in making the strategy work.

In every instance, Divisions put together working teams to maximize the impact of the public dollar investment requested.

The result is 20 separate kick-start action items in six categories for a total investment by the State of \$2.9 million...or 3¢ per acre of land managed by the Department of Natural Resources.

Good On Us!

Congratulations to an outstanding Resource Management Team.


Judith M. Brady
Commissioner

MINERAL DEVELOPMENT

Investment Strategy

Alaska is an industrial and strategic mineral source of international importance. Current developments at Red Dog and Green's Creek, the operation of the Bima at Nome, and the export of Alaskan coal will further that reputation. But to assure maximum return from the development of our resources, we must do more. We must invest in the development of information on mining exploration, extraction, and recovery technologies unique to northern latitude environments. We must invest in the identification and development of new markets. We must, in short, capitalize on our own competitive advantages in mining.

But we must target these investments to those needs not capable of being met by private industry alone and guard against the temptation to spend public monies on projects of purely private benefit. By selecting projects in which there is a direct and present private need with public implications, promoting opportunities for adding value in-state, and assuring the protection of our environment and quality of life -- values which have their own economic importance -- we can use Alaska's mineral resources to build a stronger economy in the future.

Investment Initiatives and Returns

1. REESTABLISHING COAL LEASING. Both national and Pacific Rim companies have requested coal leases, but the leasing program has been suspended for two years for lack of funding. Resumption of the leasing process will bring returns both in terms of income (bonus bids, rents, royalties) and in much-needed jobs. This increment would enable lease sales to be held in the Matanuska Valley and the Healy area.

Investment: \$89,000

Estimated Returns: The State can expect approximately 200 new jobs as a result of both sales, assuming coal production begins, and approximately \$1,000,000 per year in new rents and royalties.

2. NORTH LATITUDE COAL TECHNOLOGY DEVELOPMENT. Making maximum economic use of Alaska's coal resources requires advances in coal technology in several areas, including coal drying, liquification, and basic coal chemistry. By investing modestly in this initiative the State has the opportunity to leverage a significant amount of federal research money into the solution of unique north latitude coal development and processing problems crucial to making Alaska coal competitive.

Investment: \$75,000

Estimated Returns: Approximately \$200,000 in federal research funds could be obtained by the State as a result of this investment and directed towards Alaska research groups including the University of Alaska and MRL. The ultimate pay-off in 10 to 20 years will be world market sales of competitively priced, clean burning Alaska coal.

3. ACCELERATED PUBLICATION AND DISTRIBUTION OF GEOLOGIC DATA. There is a well documented correlation between the publication of state geological survey reports and increased mineral exploration and claim staking. Moreover, state geo-surveys are critical to the resolution of state, federal, and private land use and ownership issues. But while a significant amount of survey data has been developed, publication has been slowed by budget cuts. This initiative proposes accelerated publication of reports through inexpensive in-house desktop publishing.

Investment: \$100,000

Estimated Returns: Savings of at least 50% of previous publication costs through use of innovative black and white and color processing techniques and desk top publishing for document paste-up and lay-out tasks. Saved dollars and staff time will be used to publish additional reports and maps. As a result, more private sector exploration of lands with mineral potential could occur. If development occurs as a result of mineral discovery, private sector jobs will be created and rents and royalties will be earned by the landowner.

4. INDUSTRIAL MATERIALS DEVELOPMENT AND MANAGEMENT. Sand, gravel, riprap, and associated industrial materials are valuable resource assets -- so valuable, in fact, that in those cases where the State has identified reserves and permitted their development, illegal and over-extraction is a real and present problem. Year to date receipts from material sales exceed \$1.2 million. This increment, funded by program receipts, will allow the state to continue reserving and selling industrial materials, protecting these deposits, and monitoring their extraction once they have been sold to ensure appropriate development and payments to the State.

Investment: \$205,000

Estimated Returns: At least \$680,000 can be returned to the State during FY 88 from sales to the 330 applicants with pending requests to purchase State materials.

5. RESOLUTION OF THE BEAVER CREEK WATER RIGHTS CONFLICT. Beaver Creek is highly mineral dominated by placer mining operations and a part Wild and Scenic River System. The federal government requested the adjudication of federal reserved water to protect the Creek's wild and scenic status. If the project is not funded for this project, mining activity on the Creek could be enjoined. This increment would permit the State to get on with the job of adjudicating the water rights, resolving the federal request and removing the cloud currently hanging over the miners.

Investment: \$59,000

Estimated Return: The water flow essential to protecting the river's wild and scenic status will be quantified and reserved, and approximately 50 miners will be allowed to continue placer mining operations.

SHORELINE DEVELOPMENT

Investment Strategy

Alaska's 33,000 miles of shoreline borders over 10 million acres of state-owned tidelands and submerged lands. Largely underdeveloped today, these lands are easily accessible to most of the State's people and enable the marine transport central to the distribution of many goods and services. Moreover, these lands are a storehouse of economic assets: fisheries, recreation sites, mariculture, ports and harbors, tideland leases for log storage and transfer, setnet sites, mineral development, and oil and gas development. The opportunities for revenue and job creation are significant, but there are both barriers to overcome and fragile resources to protect. The increments proposed here begin the task of moving ahead to develop these resources wisely.

Investment Initiatives and Returns

1. MARICULTURE. Rapidly expanding markets for finfish and shellfish mariculture products and Alaska's clear competitive advantages in the production and marketing of these products have spurred a boom in mariculture applications on state land. While a one-year legislative moratorium suspended new activity, dozens of potential operators are scrambling to obtain sites in Southeast Alaska and Prince William Sound. To assure that mariculture develops in a manner that maximizes the State's development potential while protecting public resources, this increment, which would be funded through program receipts, would allow the Department to process applications in a thorough and timely manner. Failure to do so will jeopardize both the economic opportunities and the resource itself.

Investment: \$77,200

Estimated Returns: At least \$220,000 per year will be returned to the State in new lease rental payments when the anticipated 200 mariculture lease applications are granted, and 1000 new jobs will be created when development occurs. Additional spin-off jobs will be created in seafood processing, transportation, cold storage, and marketing.

2. **TIDELANDS DEVELOPMENT.** Besides mariculture, the State's tidelands offer a wide range of other development opportunities -- and an equally wide range of management challenges. This proposed increment would permit the Department to meet these challenges: process tidelands lease applications, identify areas with development potential, broker and coordinate development with private investors, help communities, establish shoreline development priorities, and develop an innovative new permitting process designed to expedite the regulatory process while assuring the protection of unique coastal resources.

Investment: \$235,200

Estimated Return: Approximately \$415,000 in new annual rentals will be returned to the State after processing the 250 pending tideland applications. Major development projects associated with processing lease applications, including Greens Creek, Copper River, Alaska Lumber and Pulp, and Chilkoot Lumber, will generate up to 5,000 new private sector jobs.

3. **RESOLVING WATER APPROPRIATION ISSUES.** Water appropriation and use is an essential component of all shoreline development projects, especially mariculture and fish processing. For some time now, the Department has only been equipped to accept water rights applications, not resolve competing uses. The result is increasing water resource problems in rapidly developing areas. If we are to ensure the benefits of shoreline development and guard against the problem of overuse, we must have the increased capacity provided by the proposed increment, which would be refunded from program receipts.

Investment: \$61,400

Estimated Returns: Large scale development, including Greens Creek, Red Dog, and Quartz Hill mining operations, and Bradley Lake, Humpback Creek, Whittier Creek, and Katmai hydro-electric projects plus smaller scale development, including 25 seafood processors, 30 hatcheries, 100 small mining operations, 20 oilfield permits, and 150 public water supply systems will proceed in a timely manner because water appropriation issues will have been settled.

OIL AND GAS DEVELOPMENT

Investment Strategy

During fiscal year 1988, Alaska will receive approximately \$1.4 billion in revenues from oil and gas development -- more than 80 percent of the General Fund. These revenues support much of the infrastructure that drives the economic machinery of the State. And yet scant attention has been given to the mechanism that enables the receipt of these revenues -- the Department of Natural Resources -- or to the Department's responsibilities to ensure that the State continues to receive the revenues it is due and to represent the State's interests in the debate in Washington over the opening of the Arctic National Wildlife Refuge to exploration and development. Virtually nowhere in state government is the need for reliable investment more obvious, or the payoff more clear, than here. To help assure that the State's interests continue to be addressed, three increments are proposed.

Investment Initiatives and Returns

1. PROTECTING THE STATE'S INTERESTS IN ANWR. The State must be able to represent its sovereign and proprietary interests, including navigability claims, water use, proposed land exchanges, royalty interests, and subsurface values, in all ANWR discussions. The increment proposed would enable the State to achieve this objective, and to proceed smoothly and capably into the authorization and permitting phase should exploration and development occur.

Investment: \$48,000

Estimated Returns: Protection of State interests and State income during future oil and gas development in ANWR.

2. MONITORING EXISTING NORTH SLOPE LEASES. The Department currently does not have the capacity to effectively monitor some 91 leases that have been issued or need to be re-issued in the oilfield service area for the North Slope. Some lessees have declared bankruptcy, others have failed to make payments and left equipment and debris behind in their race to leave town. If the State is to maintain its position as a responsible manager of land it must be able to conduct regular field inspections, ensure responsive management by leaseholders, secure prompt payment, pull in the bonds posted by those who cannot meet their responsibilities, and/or re-lease the properties. With this increment, the Department will be able to more effectively monitor and enforce lease requirements and coordinate with industry to help avoid major cleanup problems. As a result, the north slope oilfields will continue to be the model for northern latitude development.

Investment: \$132,200

Estimated Return: Approximately \$178,000 in State income each year from the 91 existing leases, avoidance of unnecessary cleanup expenses, and protection of the land from environmental damage.

3. OIL AND GAS LEASING SUPPORT. In order to meet the State's responsibilities for title searches and analyses and thus avoid title conflicts which would slow or eliminate pending lease sales under the five-year leasing schedule, the Department requires an increment to support a land title analyst.

Investment: \$44,800

Estimated Returns: Scheduled 1988 oil and gas lease sales will go forward without delay because land title questions will have been answered. Exploration of leased areas by private industry could result in new oil and gas discoveries on state land, and provide new revenues for the State and jobs for residents.

4. OIL AND GAS SPECIAL PROJECTS. Oil and gas production from state land will begin its expected decline by the end of this decade unless new discoveries are made or new fields are brought on-line. It is imperative that revenues from current oil and gas production be maximized, that marginal field development be promoted, and that new strategies to enhance oil and gas production be implemented. This increment would fund a coordinator to ensure that these actions are taken.

Investment: \$92,300

Estimated Returns: Increased in-state development potential for gas lines, refineries, exploratory drilling, and marginal field development, with associated increases in jobs and revenues.

RECREATION/TOURISM FACILITIES

Investment Strategy

Alaska's 118 state parks, recreation areas, and historic sites had over 6 million visits last year, making state park units the most intensely visited recreation areas in Alaska. Some 20 percent of these state park visitors were tourists. There is an inconsistency in the State continuing to invest in tourism promotion to increase the number of tourists when, at the same time, it fails to invest in the maintenance and improvement of visitor attractions and services. The likelihood that the State will be able to reap the full economic value of its tourism

investments is severely limited by the steadily declining condition of the recreation assets themselves. The combination of increased use, additions to the system, decreasing operating budgets and dramatically reduced work months for seasonal staff has affected the adequacy of visitor services and facilities in state parks and resulted in deferred maintenance and increases in vandalism. Not only are we losing badly needed income and jobs at existing park facilities, but the Department's lack of trained staff has meant that it is no longer able to develop new, privately-financed facilities on public land. The projects proposed here are designed to turn this trend around with minimum new State investments.

Investment Initiatives and Returns

1. MAINTENANCE INVESTMENTS. Increasing services worked by seasonal workers will bring basic services such as clean restrooms, garbage and litter removal, vandalism repair, and patrols of heavily-used areas back to maintenance levels, though no more.

Investment: \$193,200

Estimated Returns: Protection of the State's considerable investment in recreational facilities and continuation of the state park system's ability to attract visitors and provide expected minimal services.

2. CREATING A CONCESSIONS DEVELOPMENT TEAM. A modest investment will permit the creation of a concession development team able to broker opportunities and process contracts for private lodge and recreation facility concessions on state lands. Such a program would permit the State to follow through on a \$175 million proposed resort in Chugach State Park, an expected Prince William Sound wilderness resort proposal, a South Denali resort complex, a private development in the Willow Creek State Recreation Area, and advance commercial use permitting within state parks. Currently, there is too wide a gap between the first spark of an idea for development and the actual construction of the project. The Department needs a team that can help projects move smoothly through the system.

Investment: \$137,200

Estimated Returns: Approximately 2000 jobs would be created if the ski resort in Chugach State Park is constructed, and over 500 other jobs could be generated during the next five years if other park land projects are developed.

TIMBER AND AGRICULTURAL DEVELOPMENT

Investment Strategy

Alaska has unique import substitution and export opportunities associated with both timber and agricultural resources. Both hinge upon clearly indentifying the competitive advantages presented by the State's resources and location, identifying potential markets and products to fill those markets, and investing in or brokering development to take advantage of these opportunities. The State's mistakes in this regard (the grain storage facility, the slaughterhouse, etc.) have come from a failure to analyze proposals, markets, products, and competitive advantage vigorously, not from absence of real opportunities. It is time to reverse the trend. We need to redirect our energies and our resources away from grandiose projects toward smaller scale, demand-driven enterprises designed to maximize our own competitive advantages, not mimic development elsewhere. For both timber and agriculture the challenge is the same: inventory and protect our assets, be knowledgeable about new market opportunities for projects particularly suited to our northern latitude, providing the opportunity to the private sector to develop those resources. As a beginning, three initiatives are proposed.

Investment Initiatives and Returns

1. NORTH LATITUDES PLANT MATERIALS RESEARCH CENTER. The Department's Plant Materials Research Center at Palmer has developed international expertise in research and development of plant varieties and production processes uniquely suited to northern latitudes. This research has particular importance to oil and gas, mining, timber, and other land disturbing industries which must comply with revegetation, reclamation and other environmental requirements, as well as for Alaska's \$15 million per year nursery, vegetable and greenhouse crop industry. The Department proposes to strengthen this effort to create an international Center of Excellence in northern latitude plant science with the express objectives of increasing the sale and export of plant materials, increasing the availability of revegetation materials and methods critical to energy and mineral resource development projects, and strengthening the State's existing horticulture industry. The increment proposed is a first step down this path.

Investment: \$174,200

Estimated Returns: Increased ability of the mining, oil and gas, and timber industries to reclaim disturbed land and comply with environmental protection requirements. Increased cash receipts by private sector farms and businesses from sales of new or specialty agricultural products.

2. "ALASKA GROWN" PRODUCT PROMOTION. Both for import substitution and potential export income, the Department proposes an expanded marketing and market development program for Alaskan agricultural products, both fresh and processed. This represents a shift in direction, away from promotion of grandiose subsidized projects to small scale, demand driven enterprises that produce unique and cost competitive products for which there is a known market. The first stages of the program would be funded through the interest paid by farmers to the Agricultural Revolving Loan Fund.

Investment: \$82,100 (ARLF funds)

Estimated Returns: Approximately \$25,000 in matching federal funds can be leveraged to support this program if State funds are made available. Improved marketing of Alaska farm products will result in increased gross sales for private sector farmers and fresher food for Alaska's residents.

3. COOPERATIVE TIMBER DEVELOPMENT AND MANAGEMENT PROGRAM. To increase efficiencies, the Department intends to offer two long-term contracts for cooperative timber management and development programs -- one with harvest potential of 300 MMBF in the Mat-Su Valley, another for 12 MMBF in the Kantishna area. Under the terms of the cooperative program, recreational resources will be developed and some 800,000 seedlings will be grown for reforestation programs on state and private lands. The cooperative program will be managed in full compliance with the Forest Practices Act.

Investment: \$680,400

Estimated Returns: The two timber sales are expected to create over 100 new jobs, generate over \$2 million annually in private sector wages, generate additional millions in related private sector sales and services, and return over \$100,000 in stumpage revenues to the State each year. Seedling sales resulting from this program will generate an additional \$100,000 in State revenues each year, and increased forest land oversight by the Department will ensure that all forest resources on state and private land are protected for the use and enjoyment of present and future generations.

Investment: \$55,000

Estimated Returns: More timely review of development projects by Department personnel will allow projects to proceed more rapidly, and updated locating and mapping of historic and archeologic sites will prevent development delays caused by unexpected antiquity discoveries.

3. RADON SURVEY. Spot surveys have revealed a clear and present danger to public health in several areas of the state: high concentrations of radon. The State has a responsibility to all Alaskans to conduct a more comprehensive survey of the radon threat. This increment, designed to leverage federal matching funds, would permit the State to address the potentially significant health hazard radon presents.

Investment: \$100,000

Estimated Returns: Lives may be saved because the magnitude of Alaska's radon problem will be determined and data will be available for agencies or individuals working on solutions to the radon problem.

PROTECTION AND MAINTENANCE OF STATE ASSETS

Investment Strategy

At the core of the Department's investment strategy is its fundamental responsibility to the people of Alaska -- in this and future generations -- to protect and maintain the State's principal productive assets: its natural resources. Though at only the most rudimentary level, most of these responsibilities are being addressed within the constraints of our maintenance budget. However, a few gaps need to be closed. Most of them are operational flaws, one addresses a clear and present health hazard.

Investment Initiatives and Returns

1. LAND RECORDS IMPROVEMENTS. Perhaps the most important function of the Department is also the most prosaic: creating and maintaining accurate land records and making them available to both public resource decision makers and private developers. Land is the source of our wealth and our future growth and managing it well must be our highest priority. Improving the land record management system requires three proposed increments. The first would shift funding for the Automated Drafting System project manager out of the CIP budget to the general fund, devoting CIP monies thus made available to the task of automating status plats for 2700 townships. The second increment would fund a Land Administration System audit team to ensure the absolute accuracy of the State's computerized land records. The last would provide for the purchase of new land record reader/printers that would make access to land records easier for our clients and more efficient -- and thus less costly -- for the State Recorder's Offices. Each is a small improvement; together they will substantially enhance our land records maintenance system.

Investment: \$220,500

Estimated Returns: Accurate, accessible land records that developers and other public and private sector land users can depend upon when making business and project related decisions. Savings of over \$600 per year in paper costs alone will result from use of new reader/printer equipment.

2. EXPEDITED HISTORICAL AND ARCHEOLOGICAL SITE REVIEW. Personnel shortages have made impossible the timely completion of mandated review of construction projects for compliance with state and federal antiquities laws and resulted in costly delays for both public and private developers. This increment provides for the additional position needed to keep up the current workload -- assuring both adequate protection of antiquities, and responsive action on development projects.

Salmon farm owner to switch harvests

The Associated Press

SEATTLE — The state's oldest and largest salmon farm has been purchased by a Norwegian aquaculture business which plans to switch the fish-farming operation from Pacific salmon to Atlantic salmon.

The Domsea salmon farm was sold by Campbell Soup Co. to Global Aqua USA Inc. which says it will harvest four million pounds of Atlantic salmon a year and hatch another four million young salmon annually, a spokesman said.

Global Aqua is owned by Global Aqua A-S of Norway and a Norwegian investor group. The sale price was not disclosed. The sale involved four farm sites, three off Bainbridge Island and one near Port Townsend.

John Pitts of the Washington Department of Agricul-



ture said Atlantic salmon are easier to domesticate than Pacific salmon and that the switch should be seen as a positive move for the state.

"It will combine Norwegian and American expertise that will contribute to the further development of fish farming here," said Havard Rabben, general manager of Global Aqua.

"By raising Atlantic salmon we will not be competing with the commercial fishery of Pacific salmon," Rabben said.

Under the Campbell Soup Co.'s ownership the Domsea farm raised chinook salmon and produced about 1 million pounds of fish per year.

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Ministry of Fisheries
June 1987

THE AQUACULTURE INDUSTRY IN NORWAY AND THE ROLE OF THE GOVERNMENT

INTRODUCTION

Fish farming is a new and important sector of the fisheries industry. Salmon and trout farming in the sea has been carried out in Norway since the beginning of the 1960s. Since early in the 1970s the developments in this field there have been considerable. Today there are approximately 690 food fish facilities in Norway and approximately 560 plants which supply spawn to these facilities.

From 1973 until the present day, the production of salmon and trout has increased at a very great rate. In 1986 the production increased to approximately 50,000 tons (46,000 tons of salmon and 4,600 tons of trout) with a first hand value of just over NOK 1,700 million. Some 90 per cent of the salmon and some 30 per cent of the trout from the farming facilities is exported. In 1986 the total export value of farmed fish was approximately NOK 1,800 million.

Permission from the authorities is required in order to carry out fish farming. For salmon and trout, permission has so far been granted for the building of plants with a total capacity to produce 90-100,000 tons of fish. This capacity is not fully utilized, however, due to lack of smolt, but the situation is expected to change in 1987-88. The occurrence of fish diseases will also have an effect on the actual utilization of the capacity.

THE LICENCING SYSTEM

In order to regulate and control the increasing fish farming activities, the Storting passed a provisional Act in 1973, followed by a permanent Act in 1981. This second Act was again repealed when a new Act relating to the Breeding of Fish, Shellfish etc. entered into force on 21 June 1985. The licencing system, which was liberalized by

the latest Act, is the main instrument used by the Fisheries Authorities to maintain the fish breeding industry as a profitable and viable regional industry. At present there are quantitative restrictions on the establishment of new farms for the breeding of salmon and trout for food. However, the Ministry aims at granting a certain number of licences periodically for salmon and trout. These are limited in size, to 8,000 m³. In 1985 it was decided to grant 150 new licences for production of salmon and trout. These licences were specifically distributed between the different coastal regions.

As regards the breeding for food of species other than salmon and trout, as well as all hatching of roe, production of fish fry and larvae etc., licences are normally given if the locations are approved by other authorities concerned with fish diseases, water pollution and traffic at sea.

RESEARCH AND DEVELOPMENT

Commercial farming of oysters and mussels is also taking place. Fish farmers and scientists are working together in an effort to improve the quality of farmed fish. Considerable resources are also used to minimize the spread of disease. At the same time attempts are being made to solve the problems connected with the farming of marine fish species. This applies primarily to cod, halibut and turbot but also to lobster and scallops. On the whole, the purely technical problems connected with the hatching of spawn have been solved for these species, but a good deal of work still remains to be done with regard to finding out how this experience can be used profitably in practice.

The Government and the Storting consider fish farming to be such an interesting sector for the future that it is one of the four growth sectors which will be the focus of research in the years to come. In the National Budget for 1987, it was estimated that public funds to a total of NOK 170 million will be spent on marine research.

EMPLOYMENT FIGURES

At the turn of the year 1986-87, approximately 3,000 persons were

directly employed in the fish farming industry and about the same number in related activities. It is estimated that by 1990 11-12,000 persons will be employed in Norwegian fish-farming, including related activities.

FIRST HAND SALE

Almost all the fish landed in Norway is sold in the first instance through the fishermen's cooperative sales organizations. The organizations vary in structure and methods, but have a common goal: to stabilize prices and to ensure for the fishermen the highest price that the market will permit. . .

At present there are 12 sales organizations with statutory exclusive rights of first-hand sales of fish and shellfish. These rights are either related to a definite geographic area, or to a particular species of fish, or to a combination of area and species, as established by the Raw Fish Act of 1951.

As for farmed fish, the first hand sale from the fish farmers must go through the Norwegian Fish Farmers Sales Organization, established in 1978.

QUALITY CONTROL

The responsibility for the control of disease in fish rests with the Veterinary Authorities under the Ministry of Agriculture, which administers the Act concerning Measures to Counteract Diseases in Freshwater Fish.

As regards quality control of farmed fish for the purpose of human consumption, the responsibility rests with the Directorate of Fisheries' Quality Control Service for Fish and Fishery Products. Its task is to exercise strict quality supervision of all types of fish. The Directorate usually issues inspection certificates for all farmed fish for export and for domestic consumption.

Salmon farm owner to switch harvests

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University of Alaska

Statewide System of Higher Education

OFFICE FOR FISHERIES

ALASKA SEA GRANT COLLEGE PROGRAM

April 17, 1987

Senator Fred Zharoff

~~Senator Richard Eliason~~

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

RE: Aquaculture

Dear Legislators:

Following the opportunity to sit in on the aquaculture hearing in Dillingham last week, and after hearing the discussion about the concerns for the interplay of traditional fisheries with culture fisheries, I obtained from the State of Maine copies of their statute on aquaculture and more importantly the regulations used by the Commissioner of Marine Resources for approving or disapproving culture leases. I enclose a copy for your information and reference.

Having been involved in research on both traditional and culture fisheries in Maine for the period 1975 - 1985, and having observed the changes and developments of both types of fisheries in Maine over that period, it is my impression that for the most part, both types of fisheries have been good neighbors. I believe that the sound regulatory basis found in these attachments has done much to accommodate the mutual growth of these fisheries. Over the same ten-year period that Maine fishermen have increased their share of the total commercial take in the Gulf of Maine, they have also become by far the most successful aquaculturists in the Northeast. The newest cultured product in the Northeast is salmon. It is under the regulatory process contained in these attachments that Maine has within this year approved 17 pen-rearing sites for salmon, and for which an additional 90 are being considered.

There are traditional conflicts between gear types in all fisheries, and those exist in Maine as well as in Alaska. However, compared to other uses of coastal Maine waters and shoreside facilities, e.g., industrial development, recreation and tourism, housing/commercial development at dockside, etc., aquaculture has been an ally of the fishery more often than an enemy or competitor. Both traditional and culture fisheries have a tremendous stake in shoreside access and environmental/water quality issues. As we look to the future of Alaska, I predict that these two segments of the fishery will become good neighbors by compari-

Senator Fred Zharoff
Senator Richard Eliason
Representative Adelheid Herrmann
April 17, 1987
Page two

son to others who will be joining the future development of this state. Just as we are all concerned with protecting the investment of our traditional fishermen now, I encourage us to find a harmonious way for aquaculture to develop so that when other pressures come to our coast later, we will have a sound legal and investment basis to protect the quality of our coast in the future.

I very much enjoyed the opportunity to meet all of you in Dillingham and look forward to working with you on a variety of fisheries issues. I hope the enclosed materials contain information which will be helpful to you in your deliberations.

Cordially,



R. K. Dearborn
Director

RKD:lbd
Enclosure

§ 6072. Research and aquaculture leases

1. **Authority.** The commissioner may lease areas in, on and under the coastal waters including the public lands beneath those waters and portions of the intertidal zone for scientific research or for aquaculture of marine organisms. The commissioner may grant a lease to any person. Except as provided in this Part, the commissioner's power to lease lands under this section shall be exclusive. For the purposes of this section, the deputy commissioner may serve in the place of the commissioner.

2. **Limitations of lease.** The commissioner shall determine the provisions of each lease, provided:

- A. A lease shall not exceed a term of 10 years;
- B. A lease may be granted for tracts not to exceed 5 acres in area. The commissioner may grant contiguous lease tracts to a single applicant; and
- C. No applicant shall be permitted to lease more than 200 acres; and
- D. A lease shall not be transferable to any other person.

3. **Municipal approval.** In any municipality with a shellfish conservation program under section 6671, the commissioner may not lease more than 2 acres of the intertidal zone within the municipality without the consent of the municipal officers.

4. **Applications.** The application shall:

- A. Be written on forms supplied by the commissioner;
- B. Describe the location of the proposed lease tract by coordinates or metes and bounds;
- C. Identify the species to be cultivated;
- D. Describe the impact of the project on existing or potential uses of the area;
- E. Describe the degree of exclusive use required by the project;
- F. Include written permission of every riparian owner whose land to the low water mark will be actually used; and
- G. Include a map of the lease area and its adjoining waters and shorelands, with the names and addresses of the known riparian owners.

5. **Application review.** The commissioner shall review the application and set a hearing date if he is satisfied that the written application is complete and the application indicates that the lease could be granted.

6. **Hearing procedure.** Prior to granting a lease, the commissioner shall hold a hearing. The hearing shall be an adjudicatory proceeding and shall be held in the manner provided under the Maine Administrative Procedure Act, Title 5, chapter 375, subchapter IV and the specific procedures of this section.

- A. Notwithstanding the provisions of Title 5, section 9052, subsection 1, paragraph A, personal notice of the hearing shall be required to be given only to the lessee and the known riparian owners.
- B. Under the provisions of Title 5, section 9052, the leasing procedure shall require notice to the general public.

7. **Decision.** The commissioner may grant the lease, if he is satisfied that the proposed project will not unreasonably interfere with the ingress and egress of riparian owners, navigation, fishing or other uses of the area and is not in conflict with applicable coastal zoning statutes or ordinances. The commissioner may establish conditions that govern the use of the leased area and the limitations on the aquaculture activities. These conditions shall encourage the greatest multiple, compatible uses of the leased area, but shall also preserve the exclusive rights of the lessee to the extent necessary to carry out the lease purpose.

8. **Preference.** If more than one person applies to lease an area, preference shall be given as follows:

- A. First, to the department;
- B. Second, to the riparian owner of the intertidal zone within the leased area;
- C. Third, to fishermen who have traditionally fished in or near the proposed lease area; and
- D. Fourth, to the riparian owner within 100 feet of leased coastal waters.

9. **Rents.** After consulting with the Director of the Bureau of Public Lands, the commissioner shall determine the rent which shall be paid under each lease. The rent shall represent a fair value based upon the use of the leased area.

10. **Lessee's actions.** After being granted a lease, each lessee shall:

- A. Record the lease in the registry of deeds of each county in which the leased area is located;
- B. Publish a notice in the newspaper in which the commissioner published notice or would have published notice of any public hearing. The notice shall describe the area leased and enumerate any restrictions in the leased area; and
- C. Mark the leased area in a manner prescribed by the commissioner.

11. **Revocation.** If substantially no research or aquaculture has been conducted within the preceding year, or if it has been conducted in a manner substantially injurious to marine organisms, or if any other condition of the lease has been violated, the commissioner may revoke the lease. A lease revocation shall be an adjudicatory proceeding under the Maine Administrative Procedure Act, Title 5, chapter 375, subchapter IV. A hearing with public notice shall be held prior to revoking any lease.

12. **Renewal.** The commissioner shall grant a lease renewal unless the prior lessee has not complied with the lease agreement during its term, substantially no research or aquaculture has been conducted, or the commissioner finds that it is not in the best interest of the State to renew the lease. Renewals may be granted if applied for no later than 30 days after the lapse of the prior lease. A lease renewal shall be an adjudicatory proceeding under the Maine Administrative Procedure Act, Title 5, chapter 375, subchapter IV. Public notice shall be given as required under subsection 6 of this section and a hearing shall be held if it is requested by an interested person.

12-A. **Transferability.** A lease may be transferred to another person for the remaining portion of its term subject to the following conditions.

- A. Lease transfers shall be subject to the same procedural requirements as initial applications, except that a public hearing is not mandatory unless requested by an interested person.
- B. The commissioner may grant lease transfers if he determines that:
 - (1) The change in lessee does not violate any of the standards in subsection 7;
 - (2) The transfer is not intended to circumvent the intent of subsection 8; and
 - (3) The transfer is not for speculative purposes.

13. **Regulations.** The commissioner may adopt or amend regulations:

- A. Establishing minimum standards for maintaining leases;
- B. For procedures to issue, transfer, review or revoke leases; and
- C. For notices and hearings to the extent that those procedures are not established by this section or the Maine Administrative Procedure Act, Title 5, chapter 375.

14. **Conflicts.** Whenever a project described in a pending aquaculture lease conflicts or could conflict with a project described in a pending submerged lands act lease, the commissioner and the Commissioner of Conservation shall determine which project is in the best interests of the State.

1982, c. 609, §§§§1, 2, 3, & 4; 1983, c. 301, §§§§1, 2, 3, & 4.

§ 6073. Exclusivity; prohibition or interference

1. **Exclusivity.** Each lease for aquaculture shall be exclusive for the species and to the extent provided by the commissioner in the lease.

2. **Prohibition on interference.** It shall be unlawful to interfere with the rights provided in a lease.

DEPARTMENT OF MARINE RESOURCES REGULATIONS

CHAPTER 2 Aquaculture Lease Regulations

Summary:

These regulations prescribe the procedures and substantive criteria governing consideration of aquaculture lease applications submitted to the Commissioner of Marine Resources pursuant to 12 M.R.S.A. § 6072 and Department administration of leases. The regulations set forth procedural requirements for all aspects of the adjudicatory aquaculture lease application and administration process, consistent with the requirements of 12 M.R.S.A. § 6072 and the Maine Administrative Procedures Act, 5 M.R.S.A. § 9051 et seq.

2.01 Purpose

This chapter establishes procedures and explains criteria governing consideration of aquaculture lease applications submitted to the Commissioner pursuant to 12 M.R.S.A. § 6072 and prescribes procedures and criteria for subsequent annual lease review, lease renewal, lease revocation and lease transfer.

2.05 Definitions

- A. The definitions set forth in section 6001 of Title 12, Maine Revised Statutes, shall apply to the terms used in this chapter.
- B. Aquaculture. "Aquaculture" means the culture or husbandry of marine organisms by any person. Storage or any other form of impounding or holding wild marine organisms, without more, shall not qualify as aquaculture. In order to qualify as aquaculture, a project must involve affirmative action by the lessee to improve the growth rate or quality of the marine organism.
- C. Commissioner. "Commissioner" means the Commissioner or Deputy Commissioner of Marine Resources.
- D. Culture or Husbandry. "Culture or husbandry" means the production, development or improvement of a marine organism.
- E. Riparian owner. "Riparian owner" means a shorefront property owner whose property boundaries are within 1000 feet of the proposed lease boundaries.

2.10 Application requirements

A. Form.

Aquaculture lease applications shall be submitted on forms prescribed by the Commissioner and shall contain all information required by the Commissioner in order to obtain information relevant to the aquaculture project. Applications should be submitted at least 80 days in advance of any desired hearing date.

B.

1. Within 15 working days of receipt of a written application, the Commissioner shall
 - a. determine whether the application is complete, containing sufficient information on which a decision regarding the granting of the application may be taken; and
 - b. notify the applicant of his determination.
2. If the application is complete, the Commissioner shall schedule a hearing on the application, if he determines that the application could be granted.
3. If the application is incomplete, it shall be returned to the applicant with a written explanation of the additional information required in order to be complete.

- C. Within 60 days after hearing on an application, the Commissioner shall render a final decision, unless the applicant agrees to a longer time.

2.12 Multiple ownership

- A. Corporate applicants. Corporate applicants for aquaculture leases shall include information in their application concerning:

1. Date and state in which incorporated;
2. Names, addresses and titles of all officers;
3. Names and addresses of all directors;

4. Names and addresses of stockholders, directors or officers owning an interest, either directly or beneficially, in any other Maine aquaculture leases, as well as the quantity of acreage attributed to each such person under paragraph C below.
5. Whether the corporation, any stockholder, director or officer has applied for an aquaculture lease for Maine lands in the past;
6. Whether any officer or director has ever been arrested, indicted or convicted of any violation of any marine resources law, whether State or federal.

B. Partnership applicant. Partnership applicants for aquaculture lease shall include information concerning:

1. The names, addresses and ownership shares of all partners;
2. Whether the partnership or any partner has applied for an aquaculture lease for Maine lands in the past;
3. Whether the partnership or any partner owns an interest, either directly or beneficially, in any Maine aquaculture leases as well as the quantity of acreage attributed to the partnership or partner under paragraph C below.
4. Whether any partner has been arrested, indicted or convicted of any violation of marine resources law, whether State or federal.

C. Aquaculture lease acreage.

Any person, whether an individual, partnership or corporation, will be credited as owning the number of aquaculture lease acres held either directly or beneficially by that person. Thus, the shareholders in a corporation or partners in a partnership will be credited with a number of acres equal to their proportional ownership share in the corporation or partnership. Therefore if a person owns a 50% stock interest in a corporation which holds an aquaculture lease of 100 acres, that person shall be credited as holding 50 aquaculture lease acres.

2.15. Notice of Lease Application and Hearing.

A. Personal notice.

At least 30 days prior to the dates of the hearing, the Department shall mail a copy of the notice of hearing, lease application and chart describing the lease area to the following persons:

1. riparian owners;
2. officers of the town(s) in which the lease area is located;
3. the applicant, except that the applicant shall receive only a notice of hearing; and
4. any public agency the Department determines should be notified, including but not limited to, State Planning Office, Department of Environmental Protection, Department of Conservation, Regional Planning Office, Municipal Officials, United States Coast Guard and United States Army Corps of Engineers.

B. Public notice.

The Department shall publish notice of the lease hearings at least twice in a newspaper of general circulation in the area affected unless otherwise prescribed by the Maine Administrative Procedure Act. Notice of the hearing shall be published once at least 20 days prior to the hearing and a second time at least 10 days prior to the hearing. Notice shall also be published in a trade, industry or interest group publication which the Department deems effective in reaching persons who would be entitled to intervene. Public notice shall include the following information:

1. A statement of the legal authority under which the proceedings are being conducted, including references to the adjudicatory proceedings procedures of the Administrative Procedures Act, 5 M.R.S.A. § 9051 et seq. and the aquaculture lease provisions of 12 M.R.S.A. § 6072;
2. a short, plain statement of the nature and purpose of the proceeding and the nature of the aquaculture lease application;
3. a statement of the time and place of the hearing; and
4. a statement of the manner and time within which applications for intervention may be filed.

2.20 Intervention

A. Forms.

The Commissioner shall supply application forms for intervenor status and require the submission of the following information:

1. identity of intervenor applicant;
2. specific description of the manner in which the intervenor applicant may be substantially and directly affected by the granting of an application. This description shall include information describing the intervenor applicant's existing use of the proposed lease area, (whether recreational or commercial.) In the event that the applicant is not a member of the class which may be substantially and directly affected by the proceeding, the applicant shall describe any other interest he may have in the lease proceeding which merits Department approval of his intervenor status; and
3. a specific description of intervenor applicant's objections, if any, to the proposed aquaculture lease.

B. Filing of applications.

Any application for intervenor status must be filed in writing and received by the Department at least 15 days prior to the hearing. The Commissioner may waive the 15 day deadline for good cause shown.

C. Participation limited or denied.

At least 5 days prior to the hearing, the Commissioner shall decide whether to allow or refuse intervenor applications. The Commissioner shall provide written or oral notice of his decision to the intervenor applicants. When participation of any intervenor is limited or denied the Commissioner shall include in the hearing record an entry noting his decision and the reasons therefore.

1. Full participation. The Commissioner shall approve intervenor status for any person who is substantially and directly affected by the granting of an aquacultural lease application, and for any other agency of federal, state, or local government.
2. Limited participation. The Commissioner may grant limited intervenor status to an intervenor applicant where the Commissioner determines that the applicant has an interest in the proceeding and that the applicant's testimony or interest are repetitive or cumulative when viewed in the context of the interest represented or evidence to be offered by other intervenors.

D. Correspondence of parties.

Once admitted as an intervenor, whether full or limited, the intervenor applicant shall be considered a party to the proceeding. Each party shall provide copies of all correspondence with the Department to all other parties and will be notified of all communications between the Department and other parties to the aquaculture lease proceedings.

2.25. Agency file

- A. Upon receipt of an aquaculture lease application, the Commissioner shall open an agency file, which file shall include all written correspondence from parties and non-parties concerning the application and memoranda of oral communications between the department and parties and non-parties concerning the lease application.

B. Public inspection.

The agency file shall be open for public inspection by prior appointment during normal business hours. The Department will supply copies of the file contents to any person for a charge according to the Department schedule.

2.29. Prehearing Conference.

The Commissioner may require parties to attend a prehearing conference if the complexity of the issues or volume of evidence indicate a prehearing conference would aid in the determination of issues raised by the application.

2.30. Aquaculture Lease Hearing Procedures.

A. Presiding Officer

1. The presiding officer at any aquaculture lease hearing shall be either the Commissioner or a Department employee or representative designated by the Commissioner to act as hearing officer.
2. The presiding officer shall have the authority to:
 - a. rule upon issues of evidence and procedure;
 - b. regulate the course of the hearing;
 - c. certify questions to the Commissioner for his determination;
 - d. administer oaths;
 - e. take such other action as may be necessary for the efficient and orderly conduct of the hearing, consistent with these regulations and applicable statutes.
3. The presiding officer may permit deviation from these procedural regulations for good cause shown, in so far as compliance is found to be impracticable or unnecessary.

B. General Conduct.

1. Opening statement. The presiding officer shall open the hearing by describing in general terms the purpose of the hearing and the general procedure governing its conduct.
2. Record of testimony. All testimony at aquaculture lease hearings shall be recorded and, if necessary for judicial review, transcribed.
3. Witnesses. All witnesses must be sworn and will be required to state their names, residence, and whom they represent, if anyone, for the purpose of the hearing.
4. Testimony in written form. At any time prior to or during the course of the hearing, the presiding officer may require that all or part of

the testimony to be offered at such a hearing be filed with the Department in a prescribed form. All persons offering testimony in written form must be present at the hearing and subject to examination. This subsection shall not be construed to prevent oral testimony at a scheduled hearing by any member of the public.

C. Continuance.

All hearings conducted pursuant to these regulations may be continued for reasonable cause and reconvened from time to time and place to place by the presiding officer. All orders for continuance shall specify the time and place at which such hearing shall be reconvened. The presiding officer shall provide reasonable notice to interested persons and the public of the time and place of such reconvened hearing.

D. Regulations of cameras and microphones.

The placement and use of television cameras, still cameras, motion picture cameras, microphones and other recording devices may be regulated by the presiding officer to ensure the orderly conduct of the hearings.

2.31 Evidence.

- A. Evidence which is relevant and material to the subject matter of the hearing, and is of the type commonly relied upon by reasonably prudent persons in the conduct of their affairs shall be admissible. Evidence which is irrelevant, immaterial or unduly repetitious shall be excluded. The Department's experience, technical competence and specialized knowledge may be utilized in the evaluation of all evidence submitted.
- B. The presiding officer may take official notice of any facts of which judicial notice could be taken, and in addition may take official notice of general, technical, or scientific matters within its specialized knowledge as well as statutes, regulations and non-confidential agency records. When facts are noticed officially, the presiding officer shall notify all parties and they shall be afforded an opportunity to contest the substance or materiality of the facts noticed. Facts officially noticed shall be included and indicated as such in the hearing record.

C. Documentary and real evidence.

1. All documents, materials and objects offered and accepted as evidence shall be numbered or otherwise identified and included in the record. Documentary evidence may be received in the form of copies or excerpts if the original is not readily available. The presiding officer may require any person offering documents or photographs as exhibits to submit a specified number of copies, unless the document or photograph is determined to be unsuitable for reproduction.
2. All written testimony and documents, materials and objects submitted into evidence shall be made available during the course of the hearing for public examination. All hearing evidence shall also be available for public examination upon prior appointment at the Department of Marine Resources in Hallowell during normal business hours.
3. The agency file containing the application and agency correspondence shall be submitted as documentary evidence in the hearing record.

D. Objections.

All objections to rulings of the presiding officer concerning evidence or procedure and the grounds therefore shall be timely stated during the course of the hearing. During the course of the hearing or after the close of the hearing, the Commissioner may determine that the ruling of the presiding officer was in error and order the hearing reopened or take any other action he deems appropriate to correct the error.

E. Offer of proof.

An offer of proof may be made in connection with an objection to a ruling of the presiding officer excluding or objecting any testimony or question on cross-examination. Such offer of proof shall consist of a statement of the substance of the proffered evidence.

F. Public participation.

Any person may participate in a hearing by making oral or written statements explaining his position on the issues, and may submit written or oral questions to the parties through the presiding officer, within such limits and upon such terms and conditions as may be fixed by the presiding officer.

G. Testimony at hearings.

1. Order of presentation. Unless varied by the presiding officer, hearing testimony shall be offered in the following order:
 - a. Direct evidence by applicant and applicant's witnesses in support of the application.
 - b. Testimony by department, staff and consultants.
 - c. Testimony by members of federal, state and local agencies.
 - d. Direct evidence by intervenors supporting the application.
 - e. Direct evidence by intervenors opposing the application.
 - f. Testimony by members of the public.
2. Questions. At the conclusion of their testimony each witness may be questioned in the order described below.. The presiding officer may require that questioning of witnesses be conducted only after the conclusion of testimony by an entire category of witnesses, for the purposes of efficiency or clarity of record.
 - a. The presiding officer, legal counsel and department staff may question witnesses at any time.
 - b. The applicant.
 - c. Intervenor parties.

- d. Federal, state and local agency representatives.
- e. All other members of the public may have the opportunity to question witnesses by oral or written questions through the presiding officer.

H. Conclusion of hearing.

Subsequent to the conclusion of the hearing, no other evidence or testimony will be allowed into the record, except by stipulation of the parties or as specified by the presiding officer.

I. Record.

A full and complete record shall be kept for each aquaculture lease application proceeding. The record shall include, but shall not be limited to, the application, supporting documents, all exhibits, proposed findings of facts and conclusions of the presiding officer, if any, staff documents, the Commissioner's findings of facts and conclusions, and a recording or transcript of the hearing.

2.35. Hearing Officer Report.

- A. In the event that an aquaculture lease hearing is conducted by a hearing officer other than the Commissioner, the hearing officer may prepare a report, including proposed findings of fact, conclusions of law and, at the Commissioner's request, a recommended decision. A copy of the hearing officer's report shall be provided to each party and each party shall have an opportunity to file responses or exceptions to the report within 10 days following receipt of the report.
 - 1. In submitting responses and exceptions, parties may submit a petition to the hearing officer to correct mis-statements of fact in the report. The hearing officer may correct any mis-statements of fact in his report prior to submission of the report to the Commissioner.
 - a. The report shall be submitted to the commissioner with the parties' responses and exceptions.

- B. Nothing in this section shall prevent the Commissioner from reaching his decision based solely on the record, after review of the hearing, tape or transcript and after review of the hearing record.
- C. Whenever a presiding officer other than the Commissioner conducts an aquaculture lease hearing, the Commissioner shall not confer with the presiding officer concerning the aquaculture lease application at issue outside the presence of the parties, whether or not a hearing officer report has been prepared.

2.37 Decision.

- A. After review of the agency record, the Commissioner shall issue a written decision, complete with findings of fact and conclusions of law.
 - 1. The Commissioner may grant an aquaculture lease, if he is satisfied that the proposed project will not unreasonably interfere with the ingress and egress of riparian owners, navigation, fishing or other uses of the area and is not in conflict with applicable coastal zoning statutes or ordinances. The commissioner may establish conditions that govern the use of the leased area and the limitations on the aquaculture activities. These conditions shall encourage the greatest multiple, compatible uses of the leased area, but shall also preserve the exclusive rights of the lessee to the extent necessary to carry out the lease purpose.
 - 2. If the Commissioner denies a lease application, his denial shall be considered "final agency action" for purposes of judicial review.
- B. The final decision of the Commissioner shall be mailed within 10 days to all parties.

2.40 Lease issuance.

- A. Prior to issuing a lease, the Department shall send a draft lease for review to the applicant.
- B. Applicant responsibilities. Within 30 days of the Commissioner's decision and prior to issuance of the lease the applicant must complete the following requirements:

1. establish an escrow account or secure a performance bond in the amount required by the Department in the draft lease; and
 2. pay the rental fee due for the first year of the lease term.
- C. Immediately following, but not before, signing of the lease by the Department and the applicant, the lessee must complete the following requirements:
1. file the lease or a memorandum of lease in the Registry of Deeds of the County in which the lease tracts are located, and
 2. publish notice of the lease issuance in the newspapers in which the aquaculture lease hearing notices originally appeared following Department approval of the notice.
- D. Compliance. Failure to maintain an escrow account or performance bond, to pay rental fees in a timely manner, to file the lease in the Registry of Deeds or to publish notice of the lease shall be grounds for lease revocation under 2.42.
- E. Lease term and validity. The term of the lease shall run from the date of the Commissioner's decision, but no aquaculture rights shall accrue in the lease area until the lease is signed.
- 2.41 Competing aquaculture lease applications.
- A. In the event the Department receives more than one application for a lease site, the Department shall give preference in granting a lease as follows:
1. first to the Department;
 2. second to the riparian owner of the intertidal zone within the leased area;
 3. third, to fishermen who have traditionally fished in or near the proposed lease area; and
 4. fourth, to the riparian owner within 100 feet of leased coastal waters.

- B. To qualify for preference under Section A. an application must be accepted by to the Department prior to the publication of the first public notice of hearing to consider a previously filed lease application for identical or overlapping lease areas.
- C. When the Department receives competing applications, it shall schedule one hearing to consider the applications concurrently.

2.42 Annual lease review and revocation.

The Commissioner may conduct an annual review of each aquaculture lease.

- A. If the Commissioner determines following an annual review or at any other time that the applicant has conducted substantially no research or aquaculture within the preceding year, that the aquaculture or research within the aquaculture lease area has been conducted in a manner substantially injurious to marine organisms, or that any other lease condition has been violated, he may revoke the lease.
- B. The Commissioner shall hold an adjudicatory hearing to consider revocation of a lease, subject to the notice and hearing procedures set forth in these regulations.

2.45 Lease renewal.

- A. A lessee must file with the Department an application to renew a lease no later than 30 days following the lapse of the prior lease.
- B. Renewal of a lease shall be an adjudicatory proceeding with notice as provided by these regulations, except that no hearing is required unless it is requested by an interested person.
- C. The Commissioner shall grant a lease renewal unless:
 - 1. the prior lessee has not complied with the lease agreement during its term;
 - 2. the prior lessee has conducted substantially no research or aquaculture in the lease areas during the lease term; or

3. The Commissioner finds that it is not in the best interest of the state to renew the lease. Considerations of the best interest of the state may include, but shall not be limited to, conflict with other new or existing uses of the area.

2.60 Lease transfer.

- A. Application. A lessee may apply for Department approval of the transfer of his aquaculture lease to another person for the remaining portion of the lease term on a form supplied by the Commissioner.
- B. Procedure. A lease transfer shall be an adjudicatory proceeding subject to the notice, hearing and decision requirements, as set forth for initial lease application in these regulations, except that no hearing is required unless requested by an interested person.
- C. Decision. The Commissioner may grant the lease transfer if he determines that:
 1. the change in lessee's identity does not violate any of the lease issuance criteria set forth in 12 M.R.S.A. § 6072(7);
 2. the lease transfer is not intended to circumvent the preference guidelines for treatment of competing applications as set forth in 12 M.R.S.A. § 6072(8); and
 3. the lease transfer is not for speculative purposes. "Speculative purposes" shall be found to exist whenever the owner of the lease to be transferred has not conducted any substantial aquaculture on the lease sites, including but not limited to seeding, cultivation or harvest of organisms.

2.75 Minimum lease maintenance standards.

- A. Each lessee shall mark the lease tracts in a manner prescribed by the Commissioner in the lease.
- B. Each lessee shall maintain his aquaculture lease tracts in such a manner as to avoid the creation of a public or private nuisance and to avoid substantial injury to marine organisms.



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1987 SALMON RETURNS ARE TALLIED

Preliminary figures from the ADF&G tag recovery program indicate that more than 12,000 coho from NSRAA lake and stream plants were caught in the Southeast commercial fisheries in 1987, along with 6000 chum from Deep Inlet and Medvejie releases. The majority of the chums were landed in the Salisbury Sound vicinity.

In addition, a total of 32 tagged Medvejie chinook had been recovered in the troll fishery as of the second week in November. Most were caught in District 113, with some caught in 114 (Icy Strait). Of the 32 tag recoveries 24 have occurred during the winter troll fishery which opened October 1. No expansions of these tag recoveries are yet available, so catch estimates cannot be provided at this time.

The coho catch occurred primarily along and adjacent to the outer coasts of Chichagof, Kruzof and Baranof islands. Nearly all (99%) of the catch, coho bound for southeastern Baranof Island lakes, was taken by trollers. In contrast, those fish destined for northern Kruzof Island were nearly equal in the troll and seine catches (54% and 46%, respectively). This difference was due to two seine openings that occurred in Salisbury Sound in late August and early September, and to the lack of

seine openings in southern Chatham Strait. All, trollers landed 80% of the catch produced coho caught commercially this season.

The great majority of the adult coho produced by NSRAA in 1987 had reared from fry to smolt in Deer Lake. About 10,000 Deer Lake coho were caught in the commercial fisheries and an approximately equal number returned to the Deer Lake outlet stream in Mist Cove. Nearly 9,000 adults (over 70,000 pounds) were seined from the Mist Cove special harvest area and sold for project cost recovery. The vast majority of the fish sold were of good quality and well-received by the processor. An additional 837 adults were collected to meet broodstock requirements. Also, a considerable, but as yet unknown number of coho were caught with sport fishing gear in and near Mist Cove by clients from the charter vessel "Creole".

An additional 2400 cohos caught in the commercial fisheries were produced from three barriered lakes near Deer Lake and from Surprise Lake and Sealion Cove Lake on northern Kruzof Island.

Marine survival was disappointingly low for smolts released from all six barriered lake systems in spring



General manager Pete Esquiro picks up chum salmon out of a beach seine along with Bob Hausler and Chris Mierzejek during the "mop up" cost recovery operation.

(Continued on page 8)

Spawning Channel Chums Return To Haines

Numbers of chum salmon utilizing the 24 mile spawning channel at Haines showed a significant jump in 1987 as the first 4-year-olds reared in the channel returned. While it is not known how many of the 5000 chums estimated to be in the channel were born there, the history of the channel indicates an impressive number. As shown in the table, the number of adult chum utilizing the channel in previous years has averaged about 1500. While the Chilkat chum run was good this year, it was by no means a record run, and it seems unlikely that there would be such a sudden jump in the number of strays. With about 100,000 chum fry counted out of the channel from the 1983 brood year, a return of 3500 would represent unexpectedly high marine survival. While it will take several years to evaluate fry survival realistically,

this year's channel utilization is very encouraging.

There was also a large increase in the number of chum eggs placed in incubation boxes at 31 Mile in 1987. About 638,000 were seeded in the boxes, compared to 254,000 the year before. Unfortunately, the egg take was terminated early due to flooding, so that the 850,000 egg goal was not met.

This summer's hot weather caused significant flooding of the glacial systems in the Haines area. Overflow channels between the Klehini and 31 Mile Creek were deepened, resulting in more frequent intrusion of glacial water into the normally clear 31 Mile Creek. This progressive flooding is a threat to enhancement efforts and wild stock utilization as well. The

possibility of a protective dike is being explored. If dike construction does not work out, alternative sites for the boxes may be needed, despite survivals of 95% at the current site.

24 Mile Spawning Channel

Year	Adult Carcasses Pitched	Estimated Fry
1983	463	97,500 ^{1/}
1984	1,505	355,000 ^{2/}
1985	1,735	308,500 ^{2/}
1986	1,283	293,000 ^{2/}
1987	5,000 (est.)	1,000,000 ^{2/}

^{1/} Emigrating fry were counted for 1983 only.

^{2/} Assuming 20% egg to fry survival.

General Manager's Notes

FRED Budget Crisis and Hidden Falls Hatchery.

It seems very ironic that with all the time currently being devoted to arguing the pros and cons of "finfish farming", such little time is devoted to examining, discussing and recognizing that Alaska has, perhaps, the most successful ocean ranching program in North America. It almost seems as if there is an orchestrated attempt to make us forget about that fact and to divert all of our attention to a new industry whose benefits to the State are as yet undefined. I would hope that through all of the smoke we would continue to recognize and place great value on those programs currently in place.

At a time when much of the talk around the State has to do with economic development and resource development, we are seeing reductions in the Alaska Department of Fish and Game budget which could irreparably harm Alaska's second largest income producing industry. It would seem to me that this should be the time that we do everything that we can to bolster the income producing industries which we currently have in place. It would be a real shame to reduce our efforts in a proven income producing industry only to divert those resources and efforts to as yet unproven industries. We should all be out reminding our decision makers that the fishing industry was here in Alaska long before oil, and will be the mainstay of the Alaskan economy long after the oil is gone.

One of the areas in which these budget reductions have already begun to affect NSRAA and fishermen in general is with the operation of Hidden Falls Hatchery. Hidden Falls Hatchery is one of 19 hatcheries operated by the FRED Division. As funds have dwindled over the past few years, it has been impossible for FRED to fully achieve the production potential at many of these hatcheries. FRED has now been instructed by the legislature to seek alternate ways of funding its programs. One identified way is to transfer the operation of Hidden Falls to NSRAA. The transfer of operations to NSRAA means that NSRAA will also pay for the annual costs associated with its operation, and a majority if not all of those funds will have to come from cost recovery. In the short term this may sound like a poor alternative; however, in the long term, the result will be a net increase in the number of fish available in the common property fishery conducted at Hidden Falls Hatchery. This will be accomplished by increasing the number of fed fry released from Hidden Falls through replacement of its small, inefficient saltwater net pen complex and by increasing releases at the Takatz Bay rearing complex to its capacity of 24,000,000 fry. This coming season will be the second year of releases at Takatz Bay, and the State has already begun the process of securing 11 new "Takatz Style" net pen frames. In order to facilitate this upgrading, NSRAA's Board of Directors at its last meeting in Petersburg authorized the purchase of the 11 nets for this complex.

The total fed fry releases from Hidden Falls this year will be in the neighborhood of 58,000,000 (including Takatz Bay). This is roughly three times the number of fed fry released in past years. By 1990 we will see major increases in adult returns from these expanded releases.

The other aspect of the operational transfer is that the State will be able to begin to develop the full potential of its Snettisham Hatchery. Funds are being diverted to: 1) Increase Snettisham's chum capacity from 40 million eggs to 115 million eggs and 2) operate the 20 million sockeye central incubation facility being built with U.S./Canada treaty mitigation funds at Snettisham. Those efforts should result in increased fish production for the gillnet fleet also.

While we have been authorized by our Board of Directors to proceed with the operational transfer of Hidden Falls Hatchery, there remains a great deal of work to be done in that regard. We will be proceeding toward operational contract negotiations as rapidly as possible. There are many details involved with such a transfer and great care must be taken to cover all bases.

If you have any questions or concerns, I hope that you'll feel free to call me at (907)747-6850.

Board Meeting Highlights

NSRAA's November meeting was held in Petersburg, November 12 - 14. Board actions were as follows:

Board Appointments. Norman Blank was appointed to fill the Haines Gillnet position which was vacant due to the resignation of Cecily Stern. Gregg Digsby was appointed to fill the At-large Gillnet position vacated by Norman Blank.

Hidden Falls. The Board supported the concept of transferring operations of Hidden Falls Hatchery from the FRED Division to NSRAA and directed staff to proceed in working with State personnel in developing a draft contract for consideration. The following gillnetter / seiner joint statement was adopted as policy:

"We recognize the proposal from Fish and Game to transfer the operations of Hidden Falls hatchery to NSRAA and applying the savings of Hidden Falls operating funds to Snettisham is to the benefit of both seine and gillnet gear groups. We certainly recognize that the seiners are giving up around 30% of their harvest for cost recovery and we anticipate that seiners through NSRAA will do everything possible within reason to bring Hidden Falls production up to its full potential. We certainly encourage that. The Association will likewise do all in its power within reason to make Snettisham hatchery the best possible producer for gillnetters. In the event that one of the hatcheries fails, and doesn't come up to expected production levels, the other will be committed to help out. It is recognized that Hidden Falls will be managed in the manner that it has for years."

Remote Rearing Joint Projects. The Board voted to fund the release of Snettisham chums at Limestone Inlet up to \$60,000 and the purchase and delivery of Hidden Falls nets up to \$30,000. It voted to fund the Earl West Cove joint project with SSRAA at \$14,000, with \$6,500 to come from NSRAA's share of the assessment income from Earl West Cove.

Haines. The Board directed staff to work with Haines representatives to develop a proposal for a position of enhancement biologist for the Haines area to be presented as part of the budget at the next Board meeting. David Nanney presented a petition from Haines gillnetters requesting development of a harvest policy for enhanced fish that treats all gear groups equally and stating that Haines gillnetters will lobby to withdraw from NSRAA if no policy has been developed by Dec. 31, 1987. The Board approved a motion stating that if the Haines group decides to lobby at legislative session to withdraw from NSRAA the Association will lobby there also for the same purpose.

Lake Rearing Of Cohos Continues

1987 Emigration: Blanchard Lake

Blanchard Lake, a 108 acre, fishless lake draining into Patterson Bay on southeastern Baranof Island, was planted in July 1986 with 70,000 coho fry. A similar number of coho fry had also been planted in 1985, with most of that group emigrating in spring 1986.

During this past spring, 35,383 Age I coho smolts were released into saltwater, along with 445 age II smolts. Both the size and condition of the 1987 Blanchard Lake smolts were excellent. The age I smolts averaged 5 inches and 17 g (27 smolts per pound) during the peak of the emigration. The age II smolts were about 140 mm and 23 to 25 g.

Fifty yearling smolts that were inadvertently killed during trap operations were examined for tapeworm plerocercoids. None could be found in one-third of the fish examined. In the rest of the sample, counts averaged only 3 tapeworms per fish.

Age II Smolt Emigration: Deer Lake

Deer Lake (977 acres) on southeastern Baranof Island was planted in 1985 with 780,800 coho salmon fry. About 330,000 yearling coho smolts (42% of the plant) were counted as they left Deer Lake in the spring following stocking (1986). Numerous coho remained in Deer Lake for a second growing season. A fin mark-and-recapture study estimated that about 60,000 coho remained in October 1986.

In 1987, two-year-old smolts were counted as they migrated from Deer Lake between April 9 and June 16. A total of 36,600 were tallied.

Condition of the 1987 emigrants was not as good as the previous year's smolts and mortality exceeded 11%, a considerably higher rate than occurred the previous year (4%). The increase in mortality appeared directly related to the higher loads of tapeworms carried by the emigrants that required two years to become smolts.

The reduced quality of the age II smolts emphasizes the importance of stocking fry at a low enough density and in a well distributed manner so that sufficient growth will occur during the first year of lake life to cause nearly all survivors to emigrate as yearling smolts.

The combined yield of 366,800 one- and two-year-old smolts that migrated from Deer Lake in 1986 and 1987 accounts for 47% of the coho fry that had been stocked.

1987 Stocking: Deer Lake

Deer Lake was restocked with coho salmon fry in mid-June and was the

only lake planted in 1987. A total of 842,900 fry were stocked using aircraft provided by the USDA Forest Service.

In an attempt to improve on growth and survival of coho in Deer Lake, several changes from the 1985 planting procedures were implemented -- (1) fry were stocked on June 12 and 13, two and one-half weeks earlier than in 1985; (2) the fry were released at 10 widely separated sites on the lake in 1987, whereas only 4 release sites were utilized for the first plant; and (3) the fry were more uniform in size and of a slightly larger mean size for the second stocking.

These adjustments resulted in the 1987 cohort maintaining a larger mean size, with less variability, throughout the growing season. More importantly, samples collected in October demonstrated that nearly the entire population (>98%) had surpassed the threshold size necessary for smolting as a yearling. Therefore, nearly all surviving coho will have migrated from Deer Lake by the middle of next June, leaving the lake with a very low fish density until it is restocked with coho fry. This "fallow year" will allow zooplankton populations to rebound before coho are next introduced in June 1989.

Even though growth performance improved, the 1987 plant of coho fry into Deer Lake has not been entirely successful. Heavy rain resulted in high discharge conditions when the fry were planted, and some were flushed out during their initial days of lake life. Additionally, the rearing coho reduced the macrozooplankton population to very low levels by late September -- about 1 month sooner than desired or expected. Greatly diminished food resources caused a large but undetermined number of presmolt coho to migrate to saltwater during high flow conditions in late September and early October. Fall emigrants usually do not contribute to adult returns. In this instance, most fish were killed descending the high barrier falls.

In spite of the early emigration of some of the lake's coho population, sizable catches of coho in funnel traps set around the lake perimeter in mid-October indicate that several hundred thousand coho remain in the lake at this time. In previous studies, pre-smolt coho emigration from a barrier lake with depleted food resources has stopped once lake surface temperatures cool to below about 40°F. Further losses from the Deer Lake population will depend on the frequency of heavy rain between mid-October and the development of cool lake surface temperatures in mid- to late November.

Chinook Incubation And Rearing Facilities Underway At Medveje Hatchery

Construction began in September for expansion of chinook incubation and rearing facilities at Medveje Hatchery near Sitka. Smolt production will climb from the present 225,000 to 825,000. The new facility should increase the adult return from 6,700 to 25,000 chinook per year. These chinook are expected to contribute primarily to the troll fishery with some contribution to sport and net fisheries. This year's tag recoveries from the early portion of the winter fishery are showing that Medveje Hatchery chinook are being caught off Sitka and in Icy Strait.

Longer term plans include expansion of chinook capacity at Hidden Falls and transport of some of these fish to Medveje. Should this occur, the total Medveje chinook return would climb to 51,000. The Hidden Falls expansion is listed as one of the projects that will be funded from US/Canada Treaty funds in the near future.

Funding for the expansion of Medveje was obtained from US/Canada enhancement funds through a contract with the State of Alaska. The State extensively reviewed chinook projects to find those that will best serve the interests of fishermen.

Overall project cost will be nearly \$2 million. The project includes construction of 6 raceways, an incubation building, adult holding ponds, a net treatment shed, surface water intakes, wells, substantial piping, net pens and equipment. The general contractor for the project is McGraw Custom Construction of Sitka.

NSRAA took enough eggs to completely fill the new facility's rearing capacity last fall so that the facility can be used this winter to rear chinook. By mid-January, the water supply pipeline, raceways and effluent lines should be in place so that chinook fry can be ponded in the new raceways by the end of January. The remainder of the construction will be completed by mid-summer.

The overall objective of the enhancement program funded by US/Canada is to provide additional fish to southeast Alaska fishermen impacted by the treaty. Expansion of SSRAA's Whitman Lake Hatchery and the Medveje Hatchery expansion are the two chinook projects funded to date. These projects will provide chinook that can contribute to add-ons to the treaty quota. The Alaska fishermen currently benefit from Alaskan hatchery chinook caught because these fish are generally not counted against the quota.

Meet the Candidates . . .

Ballots for the election to the NSRAA Board of Directors are being mailed to salmon permit holders in December 1987. The ballots must be returned by February 11, 1988. Following are statements submitted by the candidates.

Jim Becker
Juneau, AK

Juneau Gillnet

I am running for re-election because I believe in the Aquaculture Association. It gives fishermen the chance to play a part in our future. I am asking everybody to vote for me because I have been a good representative for the gillnet gear group, I understand the issues, and I am willing to continue as your representative. I am always open to letters or phone calls (536-1900) for information or ideas.

NSRAA is committed to gillnet projects, and several of them show promise. One is a joint project with SSRAA at Earl West Cove. The Snettisham state hatchery is being upgraded from 40 million to 115 million chum eggs, allocated for the gillnet fishery. NSRAA is funding feeding and 2 additional net pens to improve survival. Several of the Lynn Canal fishermen have suggested evaluating the Haines area to see what projects can be done and I agree. We lack opportunities for big hatchery projects in Upper Lynn Canal, but remote releases could be done in several places. The Turner Lake project is important to me. I have pushed hard to get the project started. I believe I was instrumental in getting the seed money from the Association to get the baseline studies started. It has the potential of producing, at the least, several times the annual harvest of sockeye in the Taku system. I would like to continue to work to bring these projects into production, and would appreciate your vote.

Mike LaRussa
Gig Harbor, WA

Gillnet-at-large

I am 33 years old and have been commercial fishing in Alaska since 1972, including 5 years of crewing on Southeast seiners, 4 years of crabbing in the Gulf and the Bering Sea, and 5 years of dragging for salt cod and joint ventures. I have gillnetted in Puget Sound since 1980 and in Southeast Alaska since 1984. I am a member of U.S.A.G., Lynn Canal Gillnet Association, and Puget Sound Gillnet Association. I wish to remain in Southeast fisheries for sometime in the future, and to become more involved in activities of salmon enhancement that affect the Southeast salmon fisheries.

Raymond Dick
Hoonah, AK

Hoonah Seine

I have fished all my life and currently seine on the Sea Ranger. I have been on the NSRAA board since its inception 10 years ago. I am interested in aquaculture as a means of providing fish for the future. I believe it is the only way salmon will survive. Without aquaculture, we would be in a crunch which could end in something like the Boldt decision. At the recent ANB convention, questions were raised concerning the 3% assessment. It is sometimes difficult, but because I am familiar with what is happening, I can explain how important aquaculture is to Native people, and to all.

Mark Guillaume
Juneau, AK

Juneau Gillnet

I am 33 years old, married, and an Alaska resident in Juneau for over 13 years. I have been gillnetting the Peregrine for the last 3 years.

I feel I have got the time and energy to be your NSRAA gillnet representative. It is quite obvious that we gillnetters in Northern Southeast have not gotten much if any "return on our investment" in NSRAA. I would like to work hard to change that.

A few projects are either being developed or started and need to be carried out to the end. 1) Turner lake sockeye development, 2) Sockeye enhancement of Mosquito and Chilkat lakes, 3) more spawning channels on the Chilkat.

By working closely with the gillnet association and the gillnetters in NSRAA, I feel we will get results and begin to see something for our fish tax.

Jeff Hendricks
Auke Bay, AK

Gillnet-at-large

I started commercial fishing in 1977 hand lining halibut out of a skiff. Since then my operation has grown to include salmon, herring, and black cod. In 1982 I started gillnetting salmon and have found it to be the backbone of my livelihood. My boat is the F/V Halia Gail. In the future I feel that salmon enhancement through aquaculture is going to play an even more important part in the success of the Southeast fishermen. If elected, I will work hard to ensure that science and common sense work hand in hand. Thank you.

Michael McNeil
Petersburg, AK

Crew Member

After graduating from Ferndale High School in 1975 I moved to Petersburg and started working at Petersburg Fisheries Cold Storage. I worked at the Cold Storage for four summers while going to college at Washington State University. I'm 30 years old.

In 1980 I moved to Petersburg fulltime to begin fishing. I started fishing on the F/V Defiant for Eric Rosvold. I still fish for Eric. We seine herring in Sitka, Prince William Sound, Cook Inlet and Togiak. We then gillnet salmon in Bristol Bay and then seine salmon in southeast Alaska. I have fished halibut and have 3 years experience seining salmon in False Pass.

Fishing is my chosen profession and I think it is important to get involved with the decision making process. Our hatcheries are very important to all fishermen and I think all sides must be heard. It's important that the crewmember has a strong voice in the process.

Candidates . . . Continued

Earle Johnson
Sitka, AK

Sitka Power Troll

I have been a power troller for 19 years. I fished the WRJ for years, my current boat is the Celedo. I have been on the NSRAA board of directors since 1981, and am currently running for my third term. I have served on the Regional Planning Team also since 1981. As an RPT member I have participated in planning salmon enhancement for the region and reviewing PNP hatchery applications. I have also been active on the Sitka Fish & Game advisory board and the Alaska Trollers Association. I am running for another term on the NSRAA board because I wish to continue to work for the betterment of the fisheries.

Garfield George
Angoon, AK

Rural Hand Troll

I have filled the unexpired term of the rural hand troll seat which resulted when Dennis Eames resigned from the Board. I have been a hand troller for several years and am well aware of the issues facing all fishermen in Southeast Alaska, particularly in rural areas. I am interested in continuing to serve on NSRAA's Board because I am interested in what enhancement can do for Alaska's fisheries and am willing to devote the time it takes to accomplish the job.

St. John Creek Stocked With Tagged Coho Fry

St. John Creek is located on Zarembo Island 20 miles west of Wrangell. A cooperative project with ADFG, USFS and SSRAA, the goal of the program is to establish coho upstream of a barrier where the Forest Service installed an Alaska steepness in 1986. On 16 July, 15,300 coded wire tagged 2 gram coho fry were distributed along several miles of St. John Creek above the barrier. These fry had been moved in a Forest Service boat from Crystal Lake Hatchery, 10 miles away, to St. John Harbor, then transferred to a container in a pick-up truck and driven 6 miles over logging roads to 6 release sites. A Youth Conservation Corp (YCC) crew of 5 helped with dispersing the fish. About 1500 to 2000 fry were released at each of 6 sites. The remaining 3500 coho were backpacked overland to the mainstem of the stream and released.

Approximately 100 fry were lost to spillage during the truck transport over the rough road and another 25 died from stress. The remainder of the coho fry looked robust and swam for cover once released into the stream.

Winter Update From Medvejie Shows Good Returns

Egg-take seasons, at M.C.I.F., are always exciting and this year was no exception. August of this year showed the first substantial return of adult chinook to our complex - 179 adults returned from a 1984 release of 26,500 smolts. Average weight on these five year old returns was 22 lbs. They were held between four and six weeks prior to spawning with minimal difficulty. We were able to secure 300,000 eggs with 97.5% survival rate from the green to eyed egg stage. The resulting sac fry are peacefully passing the winter in their incubators and awaiting completion of our new raceways for ponding in mid-to-late January.

In addition to the chinook eggs taken from Medvejie returns, 1,040,000 green eggs from ADFG's Crystal Lake Hatchery in Petersburg were purchased and transferred to M.C.I.F. These eggs incurred an 80% survival from green to eyed egg. The fry will be ponded in the new raceways in mid-January.

These combined egg-takes will bring M.C.I.F. up to its smolt release potential of 825,000 with completion of the expansion. About 25,000 adults per year should be generated by this size of release.

Not to let the late summer and early fall become too boring, 30,000 adult chum came in on the tails of our chinook. Our raceways were soon filled to capacity and spawning activities started in late August. Thanks

to our hard-working crew's desire to dispatch each and every adult in our complex, 26,650,000 green eggs were seeded into incubators in our chum building. Green to eye up loss was minimal at 2 1/2%. Twenty four million of these eggs will be released as fed fry from Deep Inlet in May of 1988. The adults produced by this release will be destined for the commercial fisheries and cost recovery harvest. The other 3,000,000 fed fry from this egg-take will be released at Bear Cove. The adults generated by this group will be targeted for the commercial fisheries and future brood stock.

Pink salmon are indigenous to the Medvejie system as are the chum. At this time the hatchery has no ongoing enhancement program for pink salmon. To ensure that this species does not become extinct from the Medvejie system, we take 100,000 eggs each season. The fry from these eggs are released unfed into our north fork, usually from mid-to-late March. In addition to the unfed fry release, 1,000 adults are allowed to spawn naturally in the north fork of Medvejie. This combination of hatchery and natural fry emergence fulfills our mitigation obligation for pinks and ensures a continued adult return for the future.

Coho are always the last eggs we take during the season due to their run timing. Egg takes this year took place in late October through early November. We received

eggs from adults returning to the Deer Lake outlet located on the southeast coast of Baranof Island. Four egg-takes, ranging from 200,000 to 350,000, netted a total of 975,000 green eggs for our central incubation facility.

The excellent quality of eggs is a direct tribute to our ever improving adult capture techniques, freshwater lens maturation complex and dedicated crew.

Due to the nature of our coho lake stocking program, it is preferable to hold the fry to an average size of one gram in early June for air flight transfer to remote lakes. Consequently the coho eggs will be chilled this year to extend the time they are held in incubators. This is accomplished by recirculating the incubation water and passing it through a chilling unit. Ten percent of the water the eggs receive will be new water which is needed to introduce oxygen for respiration and dilute waste materials produced by the developing eggs. Incubation temperatures obtained during this chilling process range from 2-3 C. This extended incubation will ensure that the fry can be held to the desired size and release time, when combined with a carefully planned feeding program once the fry are in the raceways.

In all, 1987 was a very productive year for Medvejie and should prove to contribute substantially to the fisheries of the future.

Takatz Bay Chum

Through a cooperative agreement between FRED, Division and NSRAA, the Takatz project was initiated to enhance chum salmon fry survival from Hidden Falls Hatchery by feeding otherwise unfed fry. It is hoped this will spread out the fishing pressure in the terminal harvest fishery at Hidden Falls.

The fry were transferred by boat from Hidden Falls to a floating net pen complex in Takatz Bay. Approximately 20 million fry were held in seven net pens while being fed. They were placed into saltwater beginning on March 23 and were released 56 days later on May 18, 1987. During the two month rearing period there were two NSRAA fish culturists living on site in a floating scow that was lent to the project by Sitka Sound Seafoods. The first two weeks the fry grew on the average of about 1.5 percent per day and by the end of the third week of feeding they were putting on weight at the rate of about 3% of their body weight per day. They were originally ponded at about 0.40 g per fish and were released at an average weight of 1.54 g per fish. During the last week the fish were fed on the average of 1,760 pounds per day. There were 19,250,000 fry released in all.

Pt. Camden Incubation Boxes Successful

In the spring of this year some 198,000 chum fry emigrated from the incubation boxes at the East and West Port Camden sites. The egg to fry survival averaged 99% at the four boxes. The success of this project can partially be attributed to the excellent source water and the stability of the stream.

The project expanded this year with the installation of a new box at each site. Sig Mathisen volunteered his boat to haul materials for this project from Petersburg to Pt. Camden. With the help of ADFG and USFS personnel, the 2 boxes and water intake lines were moved into place during the last week of May. A new water intake box and line was constructed and positioned near the spillway of the dam at the West Port Camden site to alleviate the problem of needles and other organic debris accumulating on the head box. The USFS built a second dam at this site in order to increase the water level an additional foot, which should give added insurance during periods of extreme winter low flows.

Spawning and seeding of the incubation boxes at East Port Camden took place in the second week of September. Two hundred thousand chum eggs were placed in each of the 3 boxes.

The West Port Camden egg take did not fare as well. Two weeks later, on 22 September, when the chum are normally in the stream and ready to spawn, insufficient numbers of ripe females were present. An estimated 300 to 400 fish were present, but were for the most part in postspawning condition. After extensive efforts, 150 fish were caught but only 2 females were ripe.

It has been suggested that, because of the nature of the stream, the chum ripen in the estuary and enter the stream only when they are fully ripe and ready to spawn. Because of this, there is only a short interval when capturing efforts are practical. Historically West Port Camden has lower escapements than East Port Camden. This could be due to differential harvest rates caused by differences in spawning times between the two Pt. Camden streams.

XTOO-TV from Juneau made 2 visits to Port Camden this year to film the entire operation, from the box installation to the spawning and seeding of eggs, for its Rain Country program which was aired in November. The USFS provided logistical support for the film crew in order to make this program possible.

1987 NSRAA Releases

227,500 CHINOOK SMOLTS

227,500 Silver Bay @ 18.9 gm

67,700 COHO SMOLTS

67,700 S.E. Baranof

920,900 COHO FRY

842,900 Deer Lake @ 1.1 gm

63,900 Slippery Creek @ 2.0 gm *

15,000 St. John Creek @ 2.0 gm *

104,500 PINK FRY

104,500 Bear Cove

47,506,000 CHUM FRY

24,600,000 Deep Inlet @ 1.8 gm

19,250,000 Takatz Bay @ 1.54 gm *

2,900,000 Bear Cove @ 2.7 gm

293,000 Haines Spawning Channel

273,800 Haines Incubation Box

190,000 Port Camden

2,709,000 Earl West Cove * (chum, chinook, coho)

51,535,600 TOTAL RELEASES

* Joint projects

Projected 1988 Releases

170,000 CHINOOK SMOLTS

170,000 Silver Bay

250,000 COHO SMOLTS

250,000 S.E. Baranof

1,320,000 COHO FRY

900,000 S.E. Baranof

400,000 Slippery Creek *

20,000 St. John Creek *

105,000 PINK FRY

105,000 Bear Cove

53,160,000 CHUM FRY

24,000,000 Deep Inlet

24,000,000 Takatz *

3,000,000 Bear Cove (broodstock)

620,000 Haines Incubation boxes

540,000 Port Camden

1,000,000 Chilkat Spawning Channel

4,550,000 Earl West Cove * (chum, chinook, coho)

59,555,000 TOTAL RELEASES

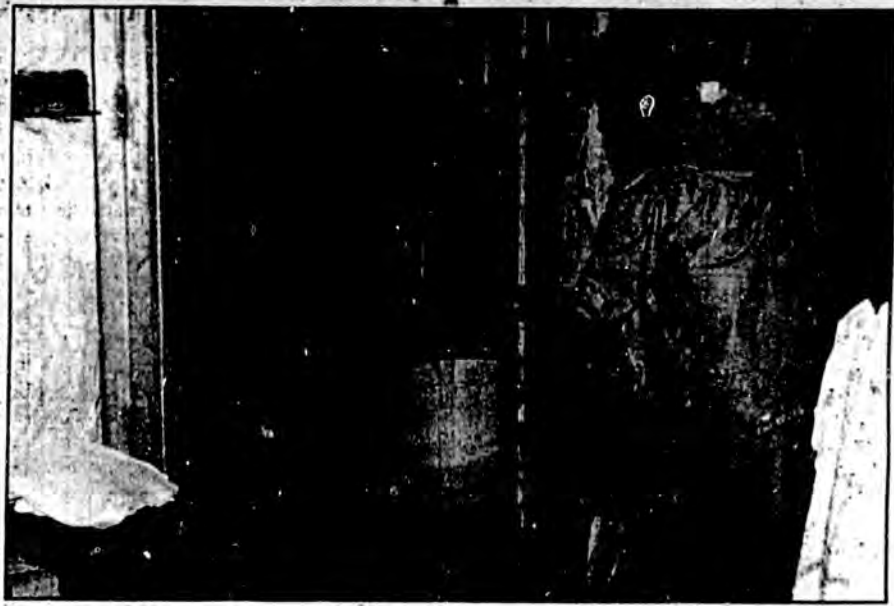
Meet The NSRAA Staff Members: Dan & Lila Goodness

Dan and Lila Goodness live and work in Bear Cove, at the Medvejie Central Incubation Facility. Dan is a permanent full-time employee with the association and Lila works during the spawning and tagging seasons. Dan is the weekend caretaker; he takes his days off on Wednesdays and Thursdays, and "minds the store" on the weekends.

Out of necessity, Dan has become a "jack-of all-trades", since he works not only as a fish culturist but also as hatchery maintenance technician. His weekend duties include test running the back-up diesel generator and performing necessary maintenance when required. He has become proficient at carpentry, plumbing, electrical repair, small engine repair, fiberglassing and other construction techniques. When the fish culturists need a piece of equipment to do a specific job, they go to Dan. He has built outmigration equipment, spawning and tagging furniture, incubation systems and an assortment of tools to make the culturist's job more efficient.

Dan enjoys his job immensely, and hopes to stay with the company, and in Bear Cove, for a long time. "I can't imagine any other place in Alaska where I'd rather live."

Dan was born in Longview, Washington in 1956, and his family lived in Virginia and Wisconsin before moving to Sitka in 1970. After attending Sitka High School, Dan spent seven years in Eugene, Oregon, and graduated



During egg take Dan hands a bucket of fertilized eggs up to Lila for rinsing.

ed from the University with a bachelor's degree in biology in 1981. He returned to Sitka immediately and worked as a chemist at Alaska Lumber and Pulp for one summer; due to budget cuts, he was laid off in September. A year later, Dan worked for the Forest Service for two weeks, and was told about Bear Cove, and how the Aquaculture Association needed temporary help. Dan became a full-time employee on October 1st, 1982. He met the love of his life 2 years later, and he and Lila were married of December 21, 1985.

Dan's hobbies include music, hunting, fishing, and making wood fires. He and Lila enjoy their backyard hot tub, and their bonfire pit. And they raise chickens and goats and peacocks - oh my! "Living here in Bear Cove, at the base of Cross Mountain, with all our pets, and our resident eagles, and all the beauty, this is the greatest thing that ever happened to us."

Visitors are welcome to see the hatchery on weekends, especially if they come out by boat.

CONGRATULATIONS

This August, Steve Reifentstahl and Andrea Thomas were married on Steve's property in Sitka. They have both worked for NSRAA for a number of years, primarily with the Coho Lake Rearing Project. In addition, Andrea has coordinated coded wire tagging of MCIF produced salmon, while Steve has taken on the responsibilities of Assistant Operations Manager. We would like to wish them the best for their future together.



Steve Reifentstahl and Andrea Thomas.

Coho Fry Stocked In Slippery Creek

In a joint ADF&G, USFS and NSRAA project, 63,000 2-gram coho fry were stocked in Slippery Creek upstream of the lake. Of the coho released, about 40,000 were coded wire tagged. The Slippery Creek stream and lake system empties into Port Camden, Kuiu Island.

On 29 July, 2 loads of 30,000+ fry were flown into Slippery Lake and placed in a net pen for holding overnight. The following day the fry were transferred from the net pen to a container, in lots of 10,000, and slung by a helicopter to 6 sites where small net pens had been deployed. From these sites, a crew of 5 loaded the coho into backpacks and distributed them along the stream, selecting the best rearing habitat. Mortality of the coho fry was quite low (200 fry) considering the number of times they were moved from one container to another in the 2 day period. Once the fry were placed in the stream they swam away vigorously and appeared to be doing well when observed later in the day.

Because the Slippery Creek system has a large cutthroat trout population, it was decided to grow the fry to 2 grams before stocking so they would have a better chance of surviving the voracious cutthroat. The potential loss to predation is unknown but thought to be significant. The U.S. Forest Science Lab (FSL) in Juneau has initiated a research project at Slippery Creek that will investigate cutthroat predation and competition with coho fry. Initial visits to Slippery Creek by the FSL were made this year and a full scale study should be in place in 1988 prior to the 400,000 coho fry stream stocking.

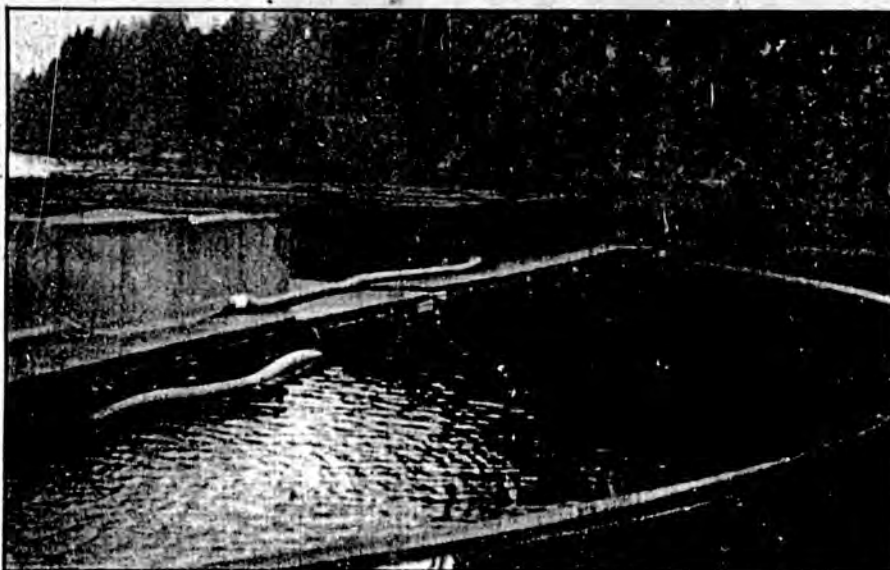
The difficulties of capturing sufficient wild broodstock has necessitated a plan to use Crystal Lake Hatchery stock to meet this year's goal of 400,000 eggs for the 1988 stocking. The U.S. Forest Service is beginning construction of a fish pass on Slippery Creek about 1 mile above tidewater. This ladder will give access to Slippery Lake and some 5 miles of spawning and rearing habitat upstream of the lake.

Medvejie Chinook Get New Lens On Life

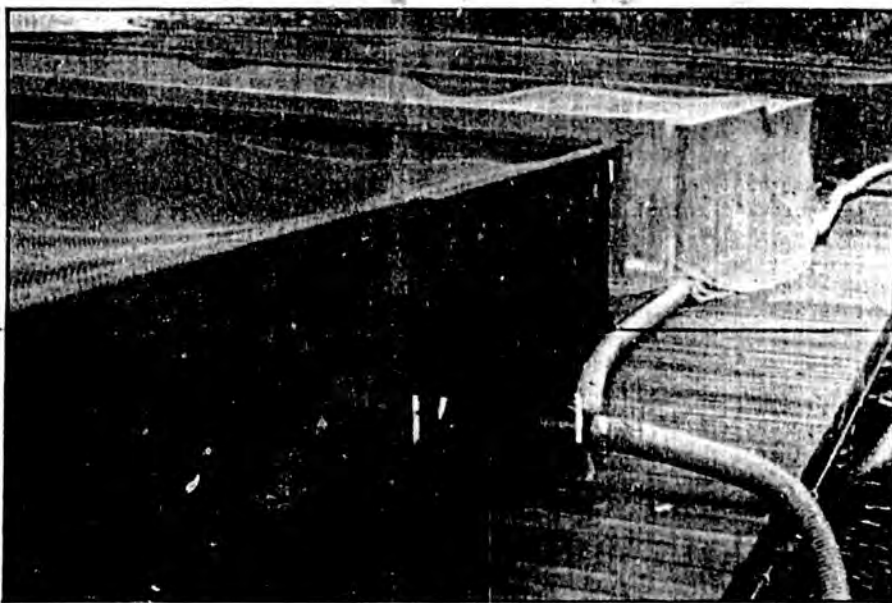
As unbelievable as it may sound with rivers and creeks everywhere, there are not many first class hatchery sites located on Baranof Island.

Some of the limitations are inconsistent water flows, poor water quality, and the remote character of potential sites. To meet the demand for more chinook and coho above and beyond the normal freshwater carrying capacity of the Medvejie Hatchery site, new technologies must be employed. The freshwater lens system was originally developed by two National Marine Fisheries Service research stations; it has been modified and adapted by NSRAA for production purposes. It has been shown that if a freshwater pre-smolt chinook is gradually subjected to an increasing and regulated amount of saltwater, under the right conditions, it can be biologically prompted to smolt earlier than usual. Thus, fish can be introduced to saltwater at a much smaller size, avoiding the increase in freshwater demand that occur as the fish grow and allowing more smolts to be reared for release. Using this method, the Medvejie hatchery could roughly triple the amount of smolts it is able to release.

Now what is a lens system? You are familiar with freshwater's property of floating on top of saltwater. We utilize this property of freshwater by encircling the saltwater net pens with a four foot deep, 360 foot long polyvinyl panel with a flotation device along the top. Freshwater is piped into this cylindrical skirt and contained there. As the trapped freshwater displaces saltwater out the bottom, a gradient of fresh and mixed saltwater is created. The fish can stay at the level of salinity where it is least stressful and can gradually acclimate itself to full strength saltwater. By adjusting the volume of freshwater and directing it to enter at different levels, various combinations of salinity can be obtained, providing culturists with more control over the young chinook's smolting process.



A polyvinyl skirt with styrofoam flotation surrounds the four chinook pens.



Freshwater is piped into the net pens. The greatest concentration remains on the surface. Mixing with saltwater occurs at the 5' to 7' level.

A similar but smaller lens system is used to ripen coho broodstock in net pens at South Baranof. Because convenient freshwater sites are not

available, this method is used to ensure good quality and fertile eggs that only a freshwater environment can provide.

'87 Returns, Continued

1986, indicating that there may have been an area wide problem for coho survival. On the average, marine survival (catch plus escapement) for coho equals about 10%. The 1987 returns for this project ranged from over 6% for the Deer Lake emigrants to about 3% for "Lower Rostislaf" and Blanchard Lake fish. An estimated 5% to 5 1/2% of the "Sea Lion Cove," Surprise, and "Fiddle" Lake coho smolts survived to become adults. Marine survival of coho released at the two SSRAA hatcheries appears to have been about the same (5 to 6%). Also, the 1987 escapement of coho spawners to index streams monitored by the Sitka area office of ADF&G

was the lowest observed since surveys began in 1983.

In contrast, marine survival for Medvejie chums was once again above expectations. Final tally for Deep Inlet and Bear Cove returns is at 132,000 chums. Calculations from preliminary tag analysis reveal an overall marine survival of approximately 4% for the 1983 brood year returning 4-year-olds. An estimated 27,000 5 year olds returned to Deep Inlet increasing the already excellent survival of the 1982 Brood. Bear Cove returning chum comfortably met egg take goals with marine survival estimated in the 4-5% range.

For a second year the "diving dogs" of Deep Inlet made cost recovery fishing a challenging contract. However, fishing went smoother than the 1986 harvest and a full purse, 17 fathom seine again proved effective. Fishing began in early August continuing until the end of September. A total of 33 landings accounted for sales of 746,000 lbs (83,000 chum).

Two days fishing harvested excess broodstock at Bear Cove amounting to 69,600 lbs. (8,600 chum). In addition, the hatchery was able to offset some operational expenses with the sale of spawned chum carcasses totaling 220,000 lbs.



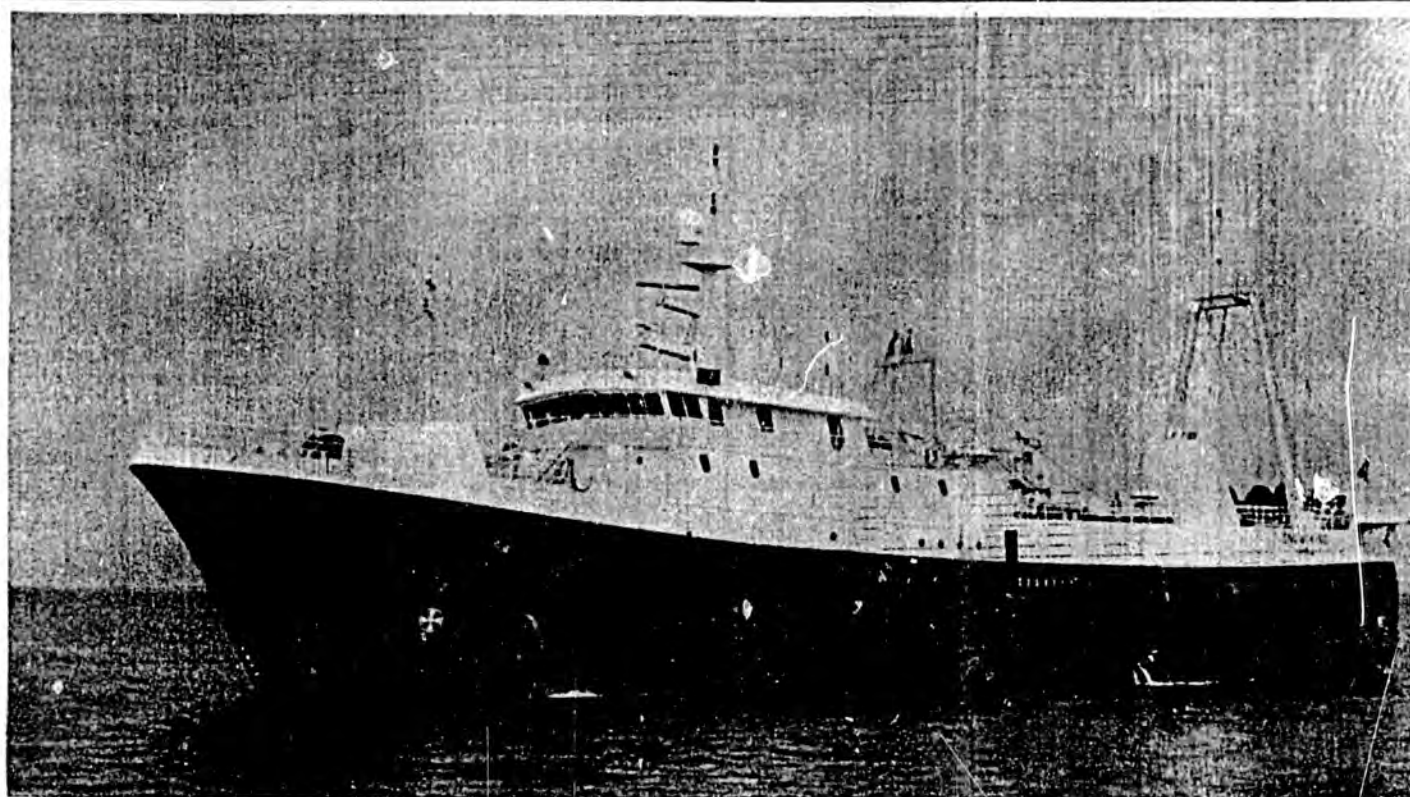
The Fishermen's News

The Voice of the Pacific Coast Fishing Industry Since 1945

January 1988

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F/V SNOW KING, catcher/processor, Shilshole Bay Seattle. (See story this issue)

—Photo by Paul D. Halvorsen, Seattle

Renegade Norwegian farm salmon polluting wild runs

"Renegade" salmon from Norway's fish farms are destroying important characteristics and genetic differences between farm and river salmon, says Professor Harald Skjervold, following the discovery this autumn that up to 57 percent of the salmon stocks in some Norwegian rivers are of the farm variety.

If the genetic pollution continues at its present rate, the hereditary variations among some of the river species will be halved within seven years. Nature takes tens of thousands of years to fit the salmon to its special environment, and in the light of this fact, the present developments are alarming, says Skjervold.

The head of the Directorate for Nature Management, Helge Vikan, also finds the latest findings disquieting and stresses the vital importance of preserving the most valuable of the salmon species in the genes bank now being built up in Trondheim, incidentally the first of its kind in the world.

Sperm from 47 species of Norwegian river salmon were stored in the bank last year, and this number will be doubled by the end of 1987. Vikan blames the extensive genetic pollution in rivers on the import of smolt. This

import is not only responsible for spreading disease, it is also a major hazard for river salmon, says Vikan. He intends proposing to the Ministry of Environment that the Directorate be involved in the assessment of smolt import licenses.

Bridge, Locks radio foul-ups surveyed

Many believe that vessel safety is being compromised by heavy use of VHF Channel 13, the Bridge and Locks frequency. And a lot of people are working on the problem, local skippers, bridge tenders and lock-keepers, as well as regulatory, advisory and policing agency folks.

One skipper, Wayne R. Cesaro, a 5,000-ton master and frequent user of the Hiram M. Chittenden Locks, is conducting a survey on the use/mis-use of the commercial vessel frequency 13, results of which are to be forwarded to policy-makers. (ED: A survey blank is reproduced elsewhere in this issue, for those who are interested.)

Continued on page 13

WDF to answer management questions by the numbers

by Jim Lehde

Finally, somebody asked the question: What do you think — good or bad — of the way the Washington State Department of Fisheries is managing things?

And that raised a lot more questions — 144 of them to be exact — from commercial and sport fishermen attending early December meetings held in Western Washington by the Senate Environment and Natural Resources Committee, Sen. Jack Metcalf (R-Langley) was chairman.

He explained his committee's involvement in the public information gathering business as follows: "We talked it over with Department (WDF) people; 'how

about our taking all the questions, rather than putting you on the spot at the hearings, and then our collecting and distributing them?' And they agreed."

In announcing the series of five hearings, in Mt. Vernon, Port Angeles, Hoquiam, Olympia, and Longview, Metcalf stated that "over the past several months, a growing number of commercial and sports salmon fishermen have been voicing their concerns about the way the State Fisheries Department is managing the resource. We on the committee want to hear directly from those affected by the agency's decisions and actions."

Continued on page 3

Locks closure dates, early '88

The following schedule indicates dates and durations of Seattle Lock's closures for maintenance and repair work on the large lock.

Note: Closures noted in December 9 Local Notice to Mariners are incorrect. Further information may be obtained from the project engineer at 206/783-7001 or 764-3440.

January 30 through February 15,

1988 — 17 days closure for preparation work for re-installing seawater barrier.

March 11, through May 27, — 17 days closure for preparation work for re-installation of seawater barrier.

April 8, through April 14, — 7 days closure for completion of re-installation.

February Classified Deadline — Wednesday, January 20

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Approximate '87 Fraser River totals Panel to begin work in February on '88 season runs

Preliminary data on 1987 Fraser River sockeye and pink salmon catches — based on recorded sales — were released at the meetings of the Pacific Salmon Commission in Portland, Oregon, Nov. 17-20.

The Fraser River panel now estimates that the total 1987 run of Fraser River sockeye was 7.6 million fish, the second largest on this cycle since 1899.

The run was 46 percent above the parent year (1983) return and was only about 100,000 fish short of the record 1971 cycle year run. Catches totaled 5.7 million sockeye with a commercial harvest of 5.15 million fish divided between fishermen of Canada (3,204,000) and the United

States (1,942,000). Early estimates of commercial values place returns to fishermen at approximately \$82,000,000 (Canadian), averaging almost \$16 (Canadian) per sockeye.

6.9 million pinks

The return of pink salmon was much less than forecast, the total running approximately 6.9 million fish, rather than the 11 million run expected. This was the lowest return since 1975 and only about 41 percent of the average return in the 1979-1985 period.

The commercial catch of Fraser River pinks is now estimated at

Continued on page 1

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Fraser River Sockeye Catches From the Fraser River Panel of the Pacific Salmon Commission — Estimated

CANADA:	1975	1979	1983	1987
Season Total	869,000	2,947,000	3,441,000	3,204,000

UNITED STATES:	1975	1979	1983	1987
Season Total	1,556,000	1,756,000	455,000	1,942,000

Fraser River Pink Salmon Catches

CANADA:	1981	1983	1985	1987
Season Total	10,290,000	8,828,000	8,476,000	2,386,000

UNITED STATES:	1981	1983	1985	1987
Season Total	3,851,000	1,802,000	3,825,000	1,256,000

The statistics for 1987 are the best estimates now available and may be changed without notice as discrepancies are found and corrections made. The catch is for all fisheries, Fraser River Panel Area and outside Fraser River Panel Area Waters.

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WDF to answer

Continued from page 1

Metcalfe, who knows bottomfishing, and gillnetted one season when he wasn't teaching (beach fishing for white perch between Camano and Whidbey Islands), is the son of John Metcalfe, a fisherman for many years and founder of Fish Unlimited during the 1940s. The senior Metcalfe also worked with Ken McLeod toward passage, in 1934, of Initiative 77, which led to the banning of fish traps on Puget Sound.

Combined attendance at the Committee meetings was approximately 650, Metcalfe stated in his letter of December 15 to

Fisheries Director Joe Blum.

"In order to eliminate confusion, I am requesting that the agency response correspond to the same numbering system used by the Committee (in answering the 144 questions)," Metcalfe's letter reads. "In addition, I am requesting that the Department respond to each question in a specific manner, that is, not with unorganized raw data, and that the Department respond to all questions in writing.

"The Committee would appreciate receiving the Department response by Jan. 6, 1988 so that it may be given full consideration," it concludes, copy closures being indicated to All Division in Fisheries.

Questions to be answered by the numbers by WDF as follows:

1. What percentage of compliance does the sport salmon fleet have for the barbless hooks rule?
2. A large number of the public that testified at the hearings stated that they believe that the hatchery system is not efficiently run. What do you plan to do to reestablish the public's faith in the salmon hatchery system?
3. Why are only 25 percent of the Skagit Hatchery coho salmon planted in the Skagit River?
4. What is the status of the designed but as yet unconstructed hatchery on the south fork of the Skykomish River at Sunset Falls?
5. Why was the proposed (legislatively mandated) spawning channel on the Skagit River never constructed?
6. Why was summer chinook production at the Skykomish hatchery reduced?
7. Can the Department aid the Swinomish tribe with fish culture consultation to prevent 100 percent mortality of coho smolts at their rearing facility?
8. Why can't the Department culture pink salmon the same way the

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OOPS!

On page 27 of the December 1987 issue, organizations other than Mill-Log Seattle, Inc. were identified under a photograph as being associated with distribution of Twin Disc products.

Mill-Log Seattle, Inc. is the only authorized distributor for Twin Disc in the Greater Puget Sound area and in Alaska, according to Dave Schwarz, Mill-Log Seattle, Inc. manager.

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Ike Svensson promoted



The Bird-Johnson Company of Walpole, Massachusetts, recently announced the promotion of Ike L. Svensson to the position of General Manager for their Seattle RDH and Coolidge Propeller facilities. Mr. Svensson replaces Robert DenHerdner who retired in late 1987. Svensson spent twenty years in the U.S. Navy where he served with commendation in several ship's propulsion equipment maintenance and engineering capacities. In 1981, following his retirement from the Navy, he joined Bird-Johnson as their Pacific Northwest service representative. He was appointed Plant Manager of the RDH small propeller repair and distribution facility in early 1987. In his new position, Mr. Svensson will oversee the daily management of all Bird-Johnson's sales, manufacturing, distribution and repair operations in Seattle.

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IN THE MAILBAG



To the Editor:

Prior to 1976, the world salmon supply was harvested by the West Coast salmon fisherman.

In 1972, the National Marine Fisheries Service (NMFS) in joint venture with Dom Sea Farms (Union Carbide, Campbell Soup) introduced Atlantic Salmon into Puget Sound. The brood stock of Atlantic salmon was obtained from Oregon Department of Fish and Wildlife, Wizard Falls Hatchery — via Quebec, Canada.

In 1974 the first eggs from Washington (Washington Department of Fisheries) were sold to Ore Aqua (Weyerhaeuser) in Newport, Oregon, to supplement their ocean ranching.

During 1976, the U.S. Department of Commerce presented the Federal Aquaculture Policy to Congress. Sen. Warren G. Magnuson also presented the 200-mile bill to the Congress in 1976.

Coincidentally, the late Federal Judge George H. Boldt ruled in favor of Treaty Tribes, allowing them to harvest up to 50 percent of the salmon in Washington State, within the same time frame.

Washington Department of Fisheries began decreasing the numbers of hatchery releases of salmon at the very same time as the Boldt decision, the Aquaculture Policy, and the Magnuson Act.

Emphasis was also increased by the scientific community (NMFS, the Universities of Washington and Oregon, and the Washington Department of Fisheries) in joint-venture with Weyerhaeuser, Union Carbide, British Petroleum, Dom Sea, Campbell Soup and other corporations to create fish farms and ocean ranching in Washington and Oregon.

The sale of viable salmon eggs from WDF and ADF&W hatcheries to corporate giants increased dramatically during the 1976-77-78 period.

During 1977, the first heavy restrictions in the form of quotas were forced upon the salmon fishing community by the U.S. Department of Commerce (Pacific Fisheries Management Council).

Thus, the harvesting of Pacific salmon from the West Coast of the United States — and ultimately the supply to the world — decreased.

At the same time the Atlantic salmon sales to the United States increased.

Countries that had been large importers of Pacific salmon started receiving Atlantic salmon from Norway as a substitute.

The world-wide distribution of Pacific salmon was at the same time being taken over by foreign countries; the same foreign countries that now have their own Pacific salmon, furnished them by WDF and ODF&W.

These foreign countries were paying WDF and ODF&W a pittance for salmon eggs, while West Coast salmon fishermen were fighting among themselves for what

"depressed" stocks were left.

New Zealand and Chile were gearing up to move into the world market, in particular Europe, Asia and even the Pacific Northwest; Washington State, too.

While all the conflict and lawsuits between user groups over what was left of West Coast salmon stocks happened, fish farmers were slowly bringing Atlantic salmon into Washington, Oregon and British Columbia.

Within Puget Sound, some farmers won pen-rearing sites and in some areas they were defeated. Strangely, most pen-rearing sites are located near federal military installations; again, part of the federal aquaculture policy.

All of the applications for permits that were turned down were for areas of Puget Sound owned by private citizens who fought diligently to protect their rights.

Through funding provided by the Department of Commerce (Sea Grant) to the U of W and OSU, with consulting services provided by private corporations, farming in Puget Sound and ocean ranching in Oregon is creating a void in the Pacific salmon supply to the world.

The federal government, state universities, and corporate giants almost succeeded in a total breakdown of the economic viability of the West Coast salmon resource. Their efforts in New Zealand, Chile, Puget Sound, and Oregon have opened the eyes of the professional fishing community.

Record catches in Alaska, Oregon and California during 1986-87, and record low catches in Washington led one to believe that misconduct is rampant within the federal government, state universities and fisheries departments — malfeasance?

In conclusion: The United States government has tried to take away the economically viable industry that supported tens of thousands of fishermen and related businessmen from the Arctic Circle to the Mexican border, and handed it over to the corporate giants to manipulate the protein of the world and supply a few hundred minimum-wage jobs.

Regards,
Don Stevens
Troller F/V Starlite
Port Angeles, WA

OOPS!

Senate Bill No. 5036 was mis-numbered on page one last issue.

The bill, aimed at preventing export of Washington State salmon eggs from "stock that are needed for salmon population rehabilitation and enhancement" within the state, had sailed through the senate during the 1987 session (37-0, with 12 absentees), and was returned to the body of origin when time to act thereon ran out.

Parties interested in the bill, which promises to see action during the 1988 session, may direct their desires to the Senate Environment and Natural Resources Committee, Olympia, WA 98504, or contact Sen. Jack Metcalf at 206/321-5483 or David Cutbirth at 786-7009.

'8C-10C not enough!

To the Editor:

Fellow tendermen, how long has it been since you've gotten a long overdue raise on your poundage or daily pay?

The fisherman keep getting their well due and just price raises; but where is ours?

The price of salmon has doubled in the past two years. The price of halibut has doubled, the price of black cod has doubled, the price of herring has doubled.

Has your tender fee doubled? No!
Has your tender fee gone up 50%? No!

Has your tender fee gone up 25%? No!

Has your tender fee gone up at all? No!

Why not? Good question! There are less tenders than ever, due to the high price of fish and continued increase of expense, including insurance.

When the price of salmon is jumped from \$1.35 to \$1.40 it's nothing! Everybody just matches it.

The Japanese just pay another 5 cents or in some cases 15, 20, or even 50 cents.

Look at Bristol Bay two years ago. The price went from 75 cents, on reds, to \$1.55 in one summer; or even take Puget Sound, this year, the price last year of dogs was 50 cents. This year it went to \$1.40. No big deal! But the processors were kicking all the way at having to pay their tenders; the same old ten cents a pound.

Maybe we should unite and strike. Where would these processors be without us? We do a hard and important job.

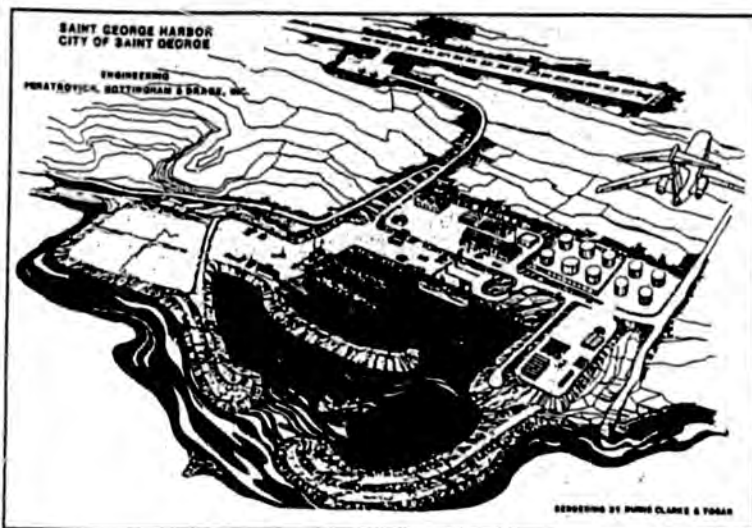
We just need more money to operate these days just like everyone else! How about just a cent a pound raise. What's a nickel guys, when you raise the price of fish 50 cents a pound and don't bring an eye?

We, the tendermen, have been getting 8 to 10 cents a pound for years and years, or if you're on daily it all reverts back to the same thing; the Japanese Yen versus the U.S. dollar situation is stronger than the Japanese this year than ever and the price of fish is going to be stronger than ever, again this year.

So remember, tendermen, either unite and strike or get that long overdue raise this year! If you've been getting \$200 to \$225 a ton of herring, you should get \$275 to \$300 a ton this year. If you've been getting \$2,000 a day on salmon, you should get \$2,500, at least! The only 2 1/2 to 3 cents a pound increase. If you have been getting that old 10 cents a pound packing salmon get 15 cents, don't go until you do!

Signed a tenderman
fisherman of 20 years
(Name withheld by request)

Pribilof trawler, processor facilities set for summer



by Steve Molnes

A diversified portfolio is the key to individual financial security, and the city of St. George, Alaska, is banking that a diversified economy is a key to community financial security by building a breakwater and industrial dock to serve trawlers and processing companies. The project is scheduled for completion next summer.

The project is as natural for St. George to undertake as gathering and separating saffron is for peasants in southern Spain. In other words, it's the only game in town: To survive, you have to play to your strengths.

For 200 years the major strength of the Pribilof Island economy has been the fur seal trade. It was begun by Russian explorers as a source of fur for the Tsar. But today, as Greenpeace continues to campaign against the harvest and as public support for the harvest deteriorates, the future of the fur trade is as rosy as selling exotic fruit from the already clear-cut rain forest of Borneo.

So it's natural, as the North Pacific's fisheries continue to grow, that St. George expand its port facilities. Either that, or, like Gary Hart re-entering the Democratic presidential primary, they can't figure out what else to do. And fish goes much better with rice.

The St. George project is being partially funded by federal grants. The city also is pursuing funding for a small boat harbor, a fuel tank farm, a commercial-sized airstrip for transportation of fish products, and support facilities for a seafood processing and cold storage plant that is also planned for the dock area.

"The harbor project is moving along real well," said Brent Drage, partner in Peratrovich, Nottingham & Drage, engineers. "The breakwater will be finished by mid-December, and the dock foundation will be installed."

The next step in the project will be to dredge the harbor to minus 20 feet, Drage said. "Once the harbor is finished, then the city will be able to attract private companies interested

in building the support facilities," he said.

And soon, St. George Harbor will be suitable for many things. Maybe even a Gary Hart campaign stop.

Sportsfisherman named to Alaska Board of Fisheries

Alaska Gov. Steve Cowper recently announced the appointment of Frederick "Bud" Hodson of Anchorage and Dillingham to a vacant seat on the Alaska Board of Fisheries.

Hodson, owner and operator of the Tikchik Narrows Lodge near Dillingham, fills the seat vacated by the resignation of Bix Bonney of Anchorage.

"Bud has been involved in Alaska fisheries issues for more than a decade and comes highly recommended for this position," Cowper said, adding that he is confident that he will do an excellent job of representing not only sportsfishing interests, but all Alaskans with a stake in our fisheries.

Hodson, 33, is a founding member of the Alaska Professional Sportfishing Association where he currently serves on the board. He has been involved in the Bristol Bay management and Rainbow Trout Management plans.

Summertime, Hodson operates his Tikchik Lodge, and lives in Anchorage in the winter. He is a member of the board of the Wildlife Federation of Alaska and a member of the Alaska Outdoor Council, as well as Trout Unlimited and the Federation of Flyfishermen.

He took up duties upon appointment for a term which continues through the coming year.

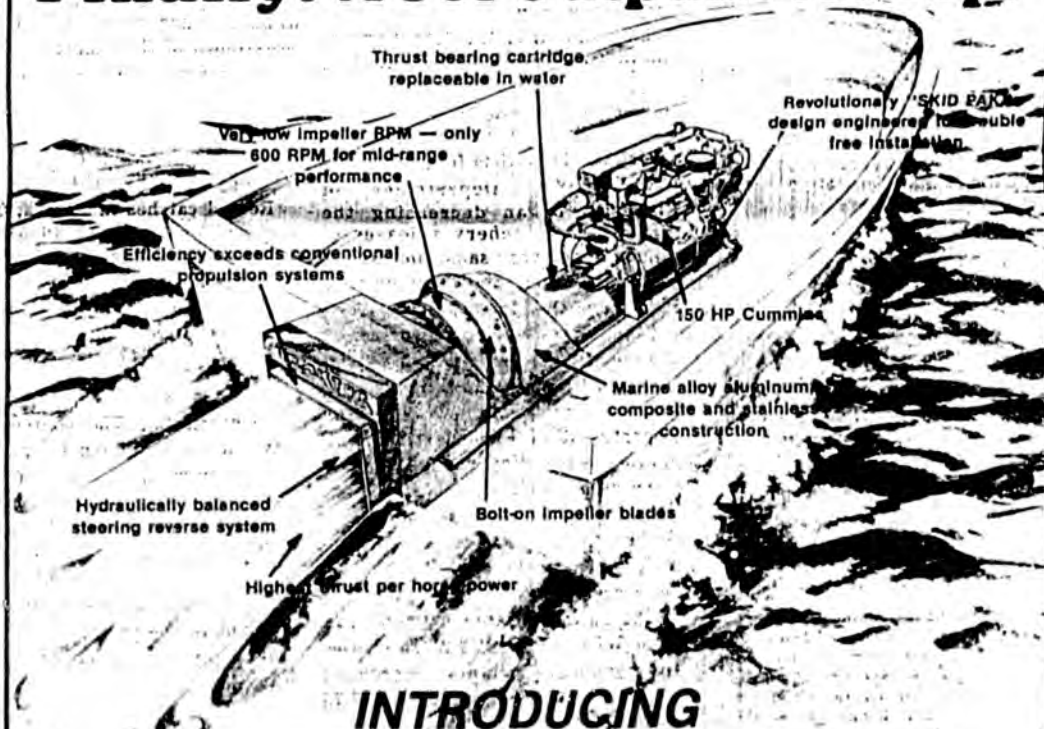


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North Pacific Council sets '88 Bering Sea and Gulf quotas

by Don Crouch

Anchorage—The North Pacific Fishery Management Council at its December meeting set the 1988 catch quotas for the Bering Sea, Aleutians and Gulf. A number of items and considerations were set-over to the January 20, 1988, meeting, including a rock sole proposal to allow by-catch only if roe bearing; delaying the black cod opening from April 1 to sometime in May, and to reduce the incidental by-catch of halibut.

The Council continued a recommendation to the Halibut Commission to regulate Areas 4C and 4E as per 1987, day on/day off and trip limits.

The scientific and statistical committees will meet on Jan 18, 1988, prior to the Council meeting set at Anchorage for January 20.

The North Pacific Council continues to permit foreign fishing in the Bering Sea and Aleutians.

The 1988 quotas in round numbers were met as follows: Bering Sea/Aleutians, two million metric tons. Reserve 15 percent (300,000 m.t.). DAP 614,000 m.t. JVP: 491,000 m.t.

Foreign Catch: 600,000 metric ton (77% Japan, 22% S.Korea, 1% China).

Gulf of Alaska: 270,000 m.t. DAP: 253,000 m.t. JVP: 17,000 m.t.

No foreign catch allocation (Second year in a row). A JVP pot fishery for flatfish was approved.

The breakdown by species was set

as follows:

Bering Sea: (1.3 million metric tons all species) / Aleutians (45,000 metric tons).

Pollock 657,000 m.t. cod 200,000 m.t. DAP 87,000 m.t. JVP 83,000 m.t.

Yellow Sole 254,000 m.t. DAP 26,000 m.t. JVP 190,000 m.t.

Y Turbot 11,200 m.t. DAP 9500 m.t. JVP 31 m.t.

Arrowtooth Sole 5500 m.t. DAP 3800 m.t. FVP 900 m.t.

Other flatfish 131,000 m.t. DAP 26,000 m.t. JVP 35,000 m.t.

Black cod 8,400 m.t. (Bering 3400 m.t./Aleut 5000 m.t.) DAP 100 percent.

Pacific Perch 11,000 m.t. (Bering 5000 m.t./Aleut 6000 m.t.) DAP 100 percent.

Atka mackerel 21,000 m.t. DAP none. JVP 100 percent.

Other rockfish 1400 m.t. (Bering 400 m.t./Aleut 1000 m.t.) DAP 100%.

Gulf of Alaska 270,000 m.t. (No foreign allocation). Pollock 93,000 m.t. (3000 Eastern/90,000 Central and Western).

Black cod 28,000 m.t. Easter 11,000 m.t. Central 12,500 m.t. Western 4,000 m.t.

PFMC sets whiting quota and ton policy

Although the bulk of testimony and business in the Groundfish meeting of the Pacific Fishery Management

Soviet deep sea fleet may work out of B.C. during '88

Expected to be stepping up West Coast activities during the coming season, the Soviet Deep Sea fleet -- five or six vessels -- may be based in Vancouver, B.C.

Carl Jacobson, vice president of Maritime Agencies, a division of Maritime Group (Canada), Inc., said such a fleet would be worth \$5 million Canadian to the B.C. economy.

Maritime Agencies was recently appointed agent in Western Canada for CanSov Marine Products of Dartmouth, Nova Scotia, which represents the Soviet fishing fleet in the Atlantic and Pacific regions.

A Polish factory fishing fleet of 38 vessels, represented by Maritime for

the past 12 years, contributed \$27 million to the Vancouver area economy, in shore repair, provisions, drydocking and other contracts, Jacobson said.

His organization has also been appointed agent for Hansung Enterprises, Ltd., of Seoul, Korea, which operated one vessel off the West Coast last season in a joint venture with the Canadian Department of Fisheries and Oceans and the B.C. Hake Consortium.

The ROK operators are anxious to step up activity, Jacobson said, and may, depending upon government hake allocations.

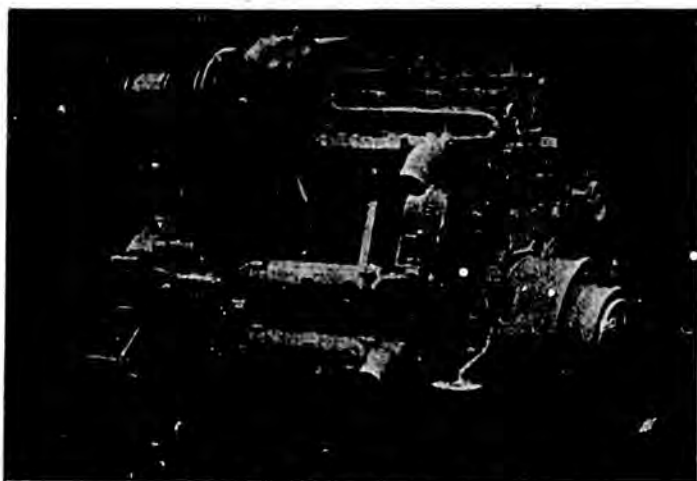
Council's late November meeting in Portland, OR., dealt with black cod (sable fish), sufficient testimony from commercial fishing groups was introduced regarding hake to convince the Council for need of a quota and policy change regarding that "underused" specie (Pacific whiting.)

Most whiting is sold to foreign processing ships in joint-venture arrangements involving U.S. boats selling to factory ships from the Soviet Union and Poland, at sea. Chinese and South Korean factory trawlers operated off the West Coast this year, and may be joined by

Japanese ships in 1988.

Increased interest in whiting has prompted the NMFS to take the first step in limiting foreign processors and ensuring more of the available whiting is caught by American boats, for sale to the foreign "factory trawlers," according to a wire service report in the Seattle daily paper.

Quota for the 1988 whiting harvest was set by PFMC at 232,000 metric tons. And a change in its policy requires that for every ton of whiting caught by the foreign boats, they have to buy a ton from American vessels.



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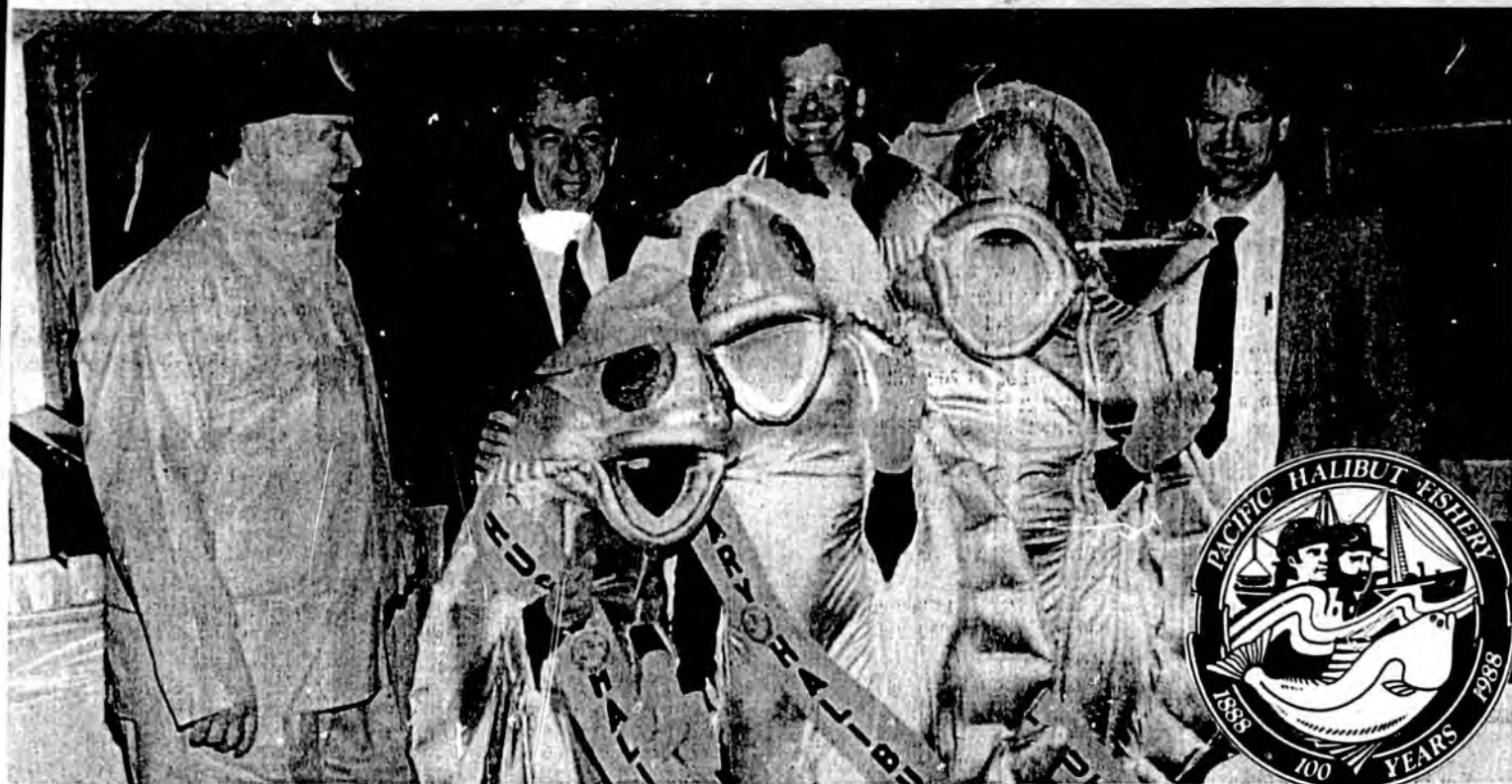
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Prince Rupert 'Halibut' attends Fish Expo as Centennial 'Spokefish'

At the invitation of the Pacific Halibut Fishery Centennial Committee the Prince Rupert, British Columbia Visitor Bureau sent their famous Halibut Family to this year's Fish Expo in Seattle.

The delegation of Herbie, Hilary, his wife, and their son Hugo was accompanied by spokesman, Fisherman Foster (Husoy), past Chairman of The International Pacific Halibut Commission Conference Board. The 'fish' were made slightly nervous at

first arrival, when the Fishing Vessel Owners' Association hosted a Welcome Home Halibut Fleet Cruise along the Seattle waterfront...but although being in a boat is usually a threat to the Halibuts, they soon found they were among friends and, in fact, the hit of the party.

Port of Seattle Commission President Henry Aronson, opened the activities with his welcoming comments and reflections on his visits as

a youth to Fishermen's Terminal, home then and today to a large number of the Pacific Halibut Fleet. Bob Alverson, F.V.O.A. manager, followed with the reading of Charles Royer's Mayoral Proclamation of the official start of the Pacific Halibut Centennial Celebration Year (enclosed photo: L to R-Foster Husoy, Henry Aronson, Hugo, Hilary, Rick Malsed-Centennial committee chairman, and Bob Alverson).

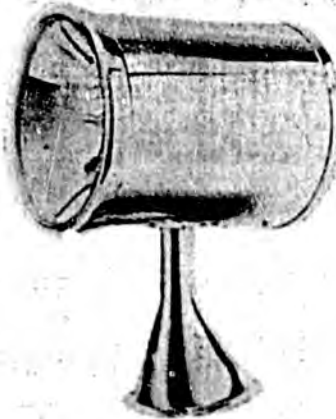
The next day (Oct. 28th), the

Halibut Family and Fisherman Foster appeared at Fish Expo in the F.V.O.A. centennial Celebration booth and they were even occasionally found playing near the waters of the International Fountain. This was their first visit to Seattle, but judging from the response of the many camera and video recorder fans following the Prides of Prince Rupert, they will most likely be making a command performance at Fish Expo '89, too!

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Alaska aquaculture conferees fear...another fish trap era, foreign and big business take-overs



by Marilyn E. George

No subject is being debated as much as the pros and cons of mariculture in Alaska. The University of Alaska's Sea Grant Program

held a three day aquaculture conference in Sitka from Nov. 19-21. Its climax was an eight member panel on the subject. They each gave 10-15 minute presentations, a rebuttal, and then opened for questions and statements from the audience. Over 210 registered for the conference.

having one pen as a part-time business. His group has four acres of traps in the very busy Port Angeles commercial harbor. Alaska has a big advantage over foreign countries because it has free access to U.S. markets, he stated.

Don Nicholson, an oyster farmer located south of Wrangell, reported he was finally making a profit after starting in 1980. He said, "For \$20,000, I can make a profit raising salmon in three years."

The worry that the oyster farmers will use the permits as a means to be on the ground floor if salmon farming is allowed, was expressed by Marilyn George. She applauded Jacobs for she, too, sees pen-rearing becoming the 21st Century fish trap with only a few having permits. She worried that SE Alaska would be carved into special harvest areas.

Robert Ellis, Sitka, pointed out that an important segment was not represented on the panel—the sport-fishermen, hunters and others who use these bays. They may be losing their public access to these public lands. He wanted them to address this issue in any of their deliberations.

Forster saw no reason to shut off bays for exclusive use. He felt the salmon farming could co-exist with other fisheries.

Ann Lowe, Sitka, pointed out that no one has solved the local hire problem.

And Sen. Eliason echoed her feelings with examples on what happened at the Red Dog Mine, the state paying for a road to provide local villagers a means to get to work there. It turns out that few of the villagers are working there, only Canadians.

Painter said that the current bill, which the Attorney General says is constitutional, limits permits to Alaskan residents. He felt pen-rearing would be a way to add to the success of ocean ranching: "The market is there and Alaska should pursue it."

In an exchange, it was pointed out that the reason the Alaskan trollers are getting high prices is that the Norwegians killed so many of their pen-reared, diseased fish that they couldn't fulfill their markets. Graham said the Norwegians are going into ocean ranching because they've found it is cheaper than feeding them in pens.

It is evident that mariculture debates will continue because feelings are running high on both sides. One came away feeling that those favoring it were trying to wear down the opposition.



Taking part in the Saturday night panel were: State Senators Dick Eliason, Sitka; Fred Zharoff, Kodiak; Brian Allee, head Fisheries Rehabilitation and Enhancement Development division of Alaska Department of Fish & Game, Juneau; Bill Heard from National Marine Fishery Service, (NMFS), Auke Bay; John Forster, SeaFarms of Norway, Port Angeles, WA; Kate Graham, United Fishermen of Alaska (UFA), Juneau, and Eric King, Alaska Trollers Assn. (ATA), Juneau.

Sen. Eliason stated that Alaska was doing a disservice to the other mariculture operators by holding up a decision. "Would the Mariculture Association support a bill from which pen-rearing of salmon was removed?" he asked Painter?

"Yes," Painter replied, and then he said he "wasn't sure until he consulted his Board of Directors." Eliason predicted the legislation would face little opposition if rearing of salmon were removed.

The first speaker in the question period was Mark Jacobs, Jr., Sitka. He reported that the Alaska Native Brotherhood (ANB) at their Haines convention opposed mariculture because they were fearful of creating another fish trap era. They also feared foreign investment.

"I think they are using the small operator to get their foot in the door," Jacobs warned. "Do you think big business is going to tolerate the little fellow? I've seen Jippo loggers go down the drain as well as family crab canneries. It's been the history of government to side with big business."

Sen. Zharoff as well as Dolly Garza, chairman of Shaan-Seet Village Corp. and also on the Sea Grant staff, hoped "that pen-rearing would provide jobs in rural Alaskan communities."

Graham and Eliason felt it would take \$300,000-\$2.5 million to have a successful pen-rearing operation. Graham pointed out that "if a person had this kind of money, he would be ahead to buy a permit and boat and go into salmon fishing."

Zharoff favored local control and non-transferable permits.

Forster, from SeaFarms of Norway, said that Alaska has the best area of any state for salmon farms. Alaska with its availability of waste fish for food and smolt supply from existing hatcheries makes it possible to run a small scale operation without megabucks. He saw a person



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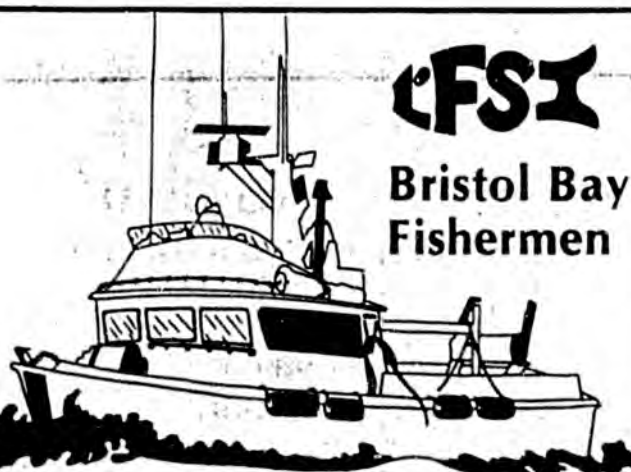


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WDF to answer

Continued from page 3

- cooperative project in Prince William Sound in Alaska operates?
9. Why can the Indians fish during the daylight hours with gillnets while the non-Indians cannot?
 10. Why has the Department refused to consider using private industry under contract to produce salmon for planting in public waters?
 11. How does the Fisheries Department plan to implement the moderate living standard that is stated in the Supreme Court decision in *U.S. v. Washington*? How will the Indian catch be reduced below the 50 percent maximum level to accommodate the moderate living standard?
 12. Has the Department developed a working plan to allow for payback (equitable adjustment) to non-Indian fishermen for species that are overharvested by the tribal fishery?
 13. Please provide the committee with a complete summary of all litigation filed against the Department in the last 12-month period including a list of the litigants.
 14. Please provide a list of the American representatives on the Pacific Salmon Commission (U.S./Canada treaty) and a background resume of each member. In addition provide a schedule of meetings over the period of time since the Commission was founded and an attendance roster for each meeting.
 15. Does the Department authorize Indian commercial gillnet fisheries on the salmon spawning grounds while the salmon are actively spawning? Do any tribes authorize such a fishery?
 16. What does the Department intend to do to improve the hotline program?
 17. Are the salmon caught by the Makah Tribe net and troll fishery counted on the Indian share?
 18. Why is region 6A closed to commercial gill netting?
 19. Why cannot the Department adjust seasons so that commercial fishermen are not forced to fish in severe weather conditions, and are given extra compensatory time to fish during good weather periods?
 20. Are Indian commercial fishing boats required to be marked in a legible manner? Does the Department have a current list of individuals and boats licensed by the tribes to fish commercially? If not, why not?
 21. Is the Department secretly negotiating with the Indian tribes or any other groups in such a way that it could effect the rights and privileges of other groups that are not a party to the negotiations?
 22. Do the Indians have rights to harvest shellfish? Has the federal courts affirmed the rights of Indians to harvest shellfish on private property? Is it the Department's policy to allow Indians to take shellfish on public lands for commercial use?
 23. What are the Department's plans to allow the small boat fishermen a chance to fish in inshore waters on the coastal fisheries?
 24. Why are the Department's personnel negative about considering the removal of the Elwha River dams?
 25. What does the Department intend to do to solve the problem of sea mammal predation of salmon?
 26. Can the Department substantiate the annual 350,000 escapement goal for the Cedar River Sockeye?
 27. How many Canadian trollers have been cited for fishing in Washington waters?
 28. Is it true that the Indian harvest exceeds their quota by almost 1 million salmon in the 1987 fishery in Puget Sound?
 29. If the Buoy 10 fishery is counted in the outside quota, how much will this reduce coastal sport fisheries?
 30. Can the purse seine and gill net fleets be separated by giving each their "own" days to fish, thus avoiding some conflicts?
 31. To what degree have the numbers of salmon sportfishermen been reduced in recent years? Why has this reduction occurred?
 32. Can some commercial fishing areas be rezoned to help avoid conflicts with other water users (Edmonds/Kingston ferry lane, etc.)?
 33. Has the Department considered individual season quotas of salmon for sport fishermen?
 34. Does the Department use professional commercial fishermen as consultants?
 35. Does the Department consider tidal cycles when setting salmon commercial openings?
 36. Why does the Department sell salmon eggs when streams are below full capacity?
 37. Did Atlantic salmon or coho salmon escape from Department permitted private aquaculture projects on Cypress Island?
 38. Is the Department allowing salmon pen culture site operators to

Continued on page 12

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JOHN SABELLA, shown here as the 1986 recipient of the Ballard Business Man of the Year in the Marine Division Category award.

Sabella praises pollock in State of Fisheries talk

by Walt Venema

With praise for the pollock, compliments to the cod and confidence in the crab, John Sabella shared a realistic look at the state of the North Pacific fishing industry.

Sabella, who heads Seattle's John Sabella and Associates, Communications Specialists, spoke to those attending a special breakfast session at the recent Seattle FISH EXPO.

apparent."

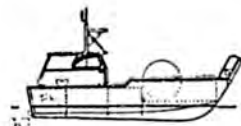
Substantial growth in domestic demand for seafood didn't hurt, as Americans became increasingly a-

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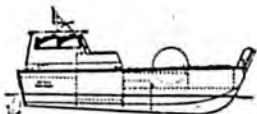
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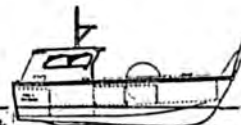
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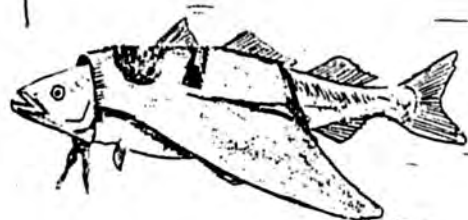
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In doing so, as an accompaniment to an impressive color slide presentation, Sabella also acknowledged the significance of salmon, halibut and other species of whitefish.

But it was the pollock that, as Sabella put it, "came to the rescue" when declining cod stocks jeopardized a hard-won market niche.

"The Alaska pollock was a good fish with a bad name by virtue of its association in the marketplace with the Atlantic pollock, a dark-fleshed species that does not command the premium stature accorded cod," he said. "As worldwide cod stocks declined and the market faced a serious whitefish shortage, the vast pollock resource provided a stable harvest."

"For another, steady marketing efforts gradually won a spot for Alaska pollock in the domestic diet, as its similarity to cod became

ware of the nutritional and culinary advantages of fish, Sabella pointed out.

Thus, with the current acceleration of the Americanization of the whitefish industry, it's understandable that a corresponding growth in the fleet of domestic factory trawlers is taking place.

"By the end of 1987, the factory trawler fleet will number 20 vessels ranging from 130' to 350'," Sabella predicted.

Additional observations by Sabella included these:

Alaska king crab stocks are rebuilding slowly.

Landings of opilio crab, known as snow crab in the marketplace, have been at record levels recently.

After stocks reached record lows in the early 1970s, salmon abundance has been rebuilt.

Like salmon, Alaska halibut stocks have gone from record lows to record highs in little more than a decade as conservative management has paid dramatic benefits.

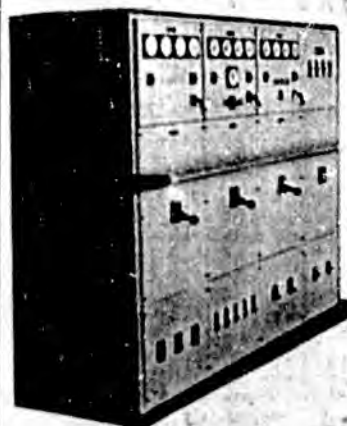
As the halibut resource has grown, so has the value of the blackcod harvest as American control of the fishing grounds has translated into new market opportunities.

"Whatever cycles nature provides, the events of recent years leave no doubt that Alaska seafood production has reached much higher plateaus of volume and value than ever before," said Sabella.

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Coast Guard detains seven foreign conversions

by Don Crouch

Alaska—The U.S. Coast Guard has detained seven oil supply "mud boat" vessels that were converted to trawler/processors in foreign yards. The *AmAlaska No. 1* & No. 2, *Norpac No. 1*, No. 2 and No. 3, *Bering No. 1* and *Uyak No. 1* were boarded and cited for noted violations of U.S. law. The Coast Guard will seek civil penalties for the violations. Hearings on the civil penalties will be held at Alameda, California, at the Coast Guard's Terminal Island facility.

All seven vessels were fishing and operating with invalid documents. The vessels will remain tied up until valid documents are issued. The violations stem from the failure of the owner/operators to surrender the vessel documents and have new documents issued after conversion and prior to putting the vessels back in service.

The *Code of Federal Regulations [CFR], Title 46, Shipping, Section 67*, requires a vessel's document to be surrendered when "... any considerable part of its hull or superstructure is built upon or is substantially altered ... [and] The vessel is altered outside the United States ...". When such occurs, as it did in the case of the seven catcher/processor conversions cited, a "... rebuild determination ..." is required.

Under the code, 46 CFR SubSec. 67.27-3, among other things, a certificate and accurate blueprints of the work performed must be submitted. Since May 1987, the ABS (American Bureau of Shipping) has taken over admeasurement functions. Accordingly, the blueprints and other information must be reviewed by ABS prior to the issuance of a new document. Generally, ABS rebuild admeasurement will result in a change in the tonnage of the vessel. In the case of "mud boats," which by statute are entitled to a number of favorable tonnage exemptions, conversion results in increased vessel tonnage.

Catcher vessels exceeding 200 tons can be a costly experience. In the case of packer or processors, staying under 500 tons is prudent. With 100 cubic feet equal to 1 ton, it is not difficult to see how the 200 and 500 ton exceptions can be exceeded by vessel conversion. What is not clear, is how the tonnage exceptions apply to dual function, catcher/processor vessels. Are they talking about 500 gross tons, or 200 gross tons? The statutes and code are not clear on how tonnage exceptions apply to this new breed of vessel. The outcome of the Coast Guard civil penalty hearings may shed some light on this dilemma.



IMMERSION SUIT Winner Karl Kaldestad, left, receives prize from Gunnar Guddal, inventor of the survival suit. And Bill Christensen, Interstate Production Credit Association loan officer, shows the winning ticket, one of approximately 2,000 filled out at the PCA booth during Fish Expo '87. Appropriately enough, the Norwegian-printed instructions side is up, both Guddal and Kaldestad having grown up in the community of Sundhordaland, Norway. Kaldestad owns the F/V ALEUTIAN MARINER and F/V PACIFIC MARINER.

—TFN photo

Mildred Nicholas to receive special tribute

The "Founding Parent" of the Pacific Coast Fishermen's Wives Coalition, Mildred Nicholas, who has been active in the commercial fishing industry for more than 20 years, is to be honored during the banquet portion of that organization's annual meeting, January 16-17, at the Thunderbird Red Lion Inn in Astoria, OR.

No stranger to the Oregon State Legislature, Nicholas also was active

in formation of the West Coast Fisheries Development Foundation.

Marcel Makela, publicist, notes that it is necessary to contact Harriet Engbloom (503-458-6351) for reservations, as soon as possible. Membership in PCFWC is not required to attend the banquet, and those desiring to reserve accommodations may do so directly with the Thunderbird, 1-800-547-8010.



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Times Square site of NFI Convention

The National Fisheries Institute's 43rd annual convention is set from April 27-30, 1988, in New York City at the Marriott Marquis at Times Square.

The NFI is the largest trade association representing the seafood industry. It represents more than 1,000 domestic and international companies engaged in all aspects of the seafood business and allied industries.

For more information contact: Clare Vanderbeek, Director of Promotions and Public Relations, National Fisheries Institute, 2000 M St., N.W., Suite 580, Washington, D.C. 20036 or call (202)296-3428.

NFI Surimi committee to meet

The National Fisheries Institute has scheduled a Surimi Committee

Meeting during Seafare '88 in Long Beach, CA. The meeting is planned for Feb. 18, at 10 a.m. in the Catalina Room at the Long Beach Convention Center.

NFI members as well as non-members are encouraged to attend the meeting. The issues that will be discussed will cover: 1) standardized testing methods for product specifications; 2) mixed specie labeling guidelines; and, 3) initiation of a publicity education campaign for food editors.

Anyone involved in the production of surimi or surimi based products, distribution or allied industries, such as flavor or ingredient suppliers is invited and encouraged to attend the meeting.

For more information contact Roy Martin, vice president of Science & Technology at NFI (202)296-5170 or Bill Mitchell at SeaFest Products (612)340-3854.

WDF to answer

Continued from page 9

- mitigate their projects by giving the Department money for geoduck mitigation?
39. Will there be a payback (equitable adjustment) for the Indian overfishing of salmon on the Quillayute River this year to the sports fishermen next year?
 40. What has the Department done to make certain that the non-Indian and Indian commercial harvest data are accurate for purposes of catch sharing?
 41. Did any Indian tribes receive salmon eggs from the state and then subsequently sell them for private aquaculture purposes?
 42. What is the Department doing to reduce the tensions between user groups and prevent gear wars?
 43. What has been done to involve the regional user groups in formulating fisheries management decisions?
 44. There are reports that some sport crab and shrimp fishermen are selling their catch, what is being done to apprehend and punish these violations.
 45. What is the amount and source of federal funds received by the Department? What are these monies used for, are any fish actually produced with this money?
 46. Some have asserted that the watershed management plan for the Queets River will result in \$678.00 cost/fish produced - is this true?
 47. What economic assessments or cost-benefit analyses have been made on watershed management plan projects?
 48. Why are the Department salmon hatcheries not at full roaring capacity?
 49. Identify the number of Department employees in the following categories: total, field, planning, administration. Why can't the Department cut its administrators and have more employees in the field actually working with the fish resource?
 50. Why has the Department ignored the enhancement of Morse Creek?
 51. Why can't the Department plant more native stock salmon fry in streams to help out Mother Nature?
 52. What has the Department done to recognize the needs of the sports halibut fishery? Will the halibut resource be enhanced? Managed? Does the Department have the authority to manage the fishery?
 53. What is the Department's position on the commercial harvest of bull kelp in the straits, as proposed by DNR?
 54. Can the trollers expect more than a 10 day season next year?

Continued on page 20

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Bridge, Locks radio foul-ups surveyed

Continued from page 1

Pleasurecraft are to stand clear of Channel-13, except in emergencies. They don't, contributing to unnecessary (and illegal) clutter. One-watt only of power output is to be used when transmitting on Channel-13. Pleasurecraft and some fishing boats are using 25W; more problems, such as disruption in communications for commercial vessels navigating the locks area or Duwamish Waterway by a high-power transmission from the vicinity of the Evergreen Floating Bridge.

With the number of larger craft heading north from Seattle, and the locks closed occasionally for maintenance, use of a landline is recommended. Arrangements may be made directly with the locks tower, (206) 793-7000.

Fishing boats use the frequency a lot. Most, being professionals, monitor rather than call. The usual tug traffic presents little problem.

Traffic is particularly heavy during the summer. But an FCC monitor -- "we listen to everything" -- reports having logged 13 calls over 156.650 (VHF Channel-13) during a recent rainy Monday morning one-half hour period.

Primary use of Channel-13, according to FCC regulations, is to be inter-ship. Secondary availability is for coast-to-ship.

Fishboat frequencies are VHF Channels 1, 7, 8, 9, 10, 11, 18, 19, 63, 67, 79 and 80 (Channels 8, 67 and 88 are for ship-to-ship only, with exceptions), Channel-88, formerly for commercial inter-ship, is now reserved for use by ships' stations in communications with public coast stations only, within 75 miles of the U.S.-Canada border, in the area of Puget Sound and Strait of Juan de Fuca and its approaches. Designated as VHF Channel-88, 157.425 Mhz (one-half of duplex pair), is available for inter-ship and commercial communications in the territory more than 75 miles from the U.S.-Canada border, in those areas of Puget Sound and the Strait of Juan de Fuca and its approaches. Outside the Sound and Great Lakes, Channel-88 is also available for communications between commercial fish vessels and associated aircraft while engaged in commercial fishing activities, i.e. fish-spotting.

As far as pleasurecraft channels and the bridges/locks, Ken Walker of the FCC district office advises that

channels designated for particular uses are listed in a pair of publications available from his office, **VHF Marine Information for Recreational Boaters**, and **How to Use Your VHF Marine Radio**.

For larger vessels, processors and cannery supply boats, another publication should prove a big help, particularly on inspection-related matters. Walker stated FO Bulletin No. 11, **Inspection Checklist for Radio Installations aboard Passenger-carrying and Other Required Vessels**.

Publications may be ordered over the phone, (206) 764-3324. Requests for non-urgent information may be directed to: Federal Communications Commission, Seattle District Office, 1 Newport Bldg., Rm. 414/3605 132nd Ave. SE, Bellevue, WA 98006.

SE Alaska sets troll record

by Marilyn E. George

Southeast Alaska winter troll catch stood at 39,395 king salmon by Dec. 3, an all-time record according to Alaska Department of Fish & Game records. The estimated contribution from Alaska hatcheries was 6,573 or 15.5 percent of the total catch, approximately one-half of the fish landed having been checked for coded wire tags.

Projections indicate that the Sitka area had the largest catch, of 11,383; followed by Frederick Sound, with more than 9,511; and Chatham, 6,381-plus.

If the Northern Inside areas, consisting of Frederick Sound, Chatham Straits, and Stephens Passage, are added together they show that 18,131 kings were landed, as compared to 16,182 in the Northwest Outside areas, which include Sitka, Cross Sound and Icy Straits.

Southeast inside areas, including north Clarence Straits, Sumner Straits, Ketchikan and the Stikine areas, caught just over 4,800. Only 255 kings were landed in the Southwest

area, which consists of Noyes Island and southern parts of Prince of Wales.

In the Northern Inside areas, 29 percent are Alaska hatchery fish. The Northern Inside areas have caught 23 percent hatchery kings, but only 6 percent are of Alaska hatchery origin, with Canada and lower 48 hatcheries each contributing 8 percent.

Of the 4,800 in the Northeast Quadrant, 3,160 or 42 percent are Crystal Lake hatchery fish and 13 percent are from Little Port Walter. While in the Northwest Quadrant, 244 or 7 percent are Crystal and 6 percent are from Little Port. In the Southeast Quadrant, 202, or 14 percent are from Southern Southeast Regional Aquaculture Association hatcheries at Neets Bay and Whitman Lake.

For all areas of SE Alaska, more than one-half, or 6,573, are from Alaska; 30 percent from Canadian and 18 percent from lower 48 hatcheries.

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Seafood buying convention set at Long Beach, California

Now in its fifth year, Sea Fare brings seafood suppliers and buyers together from all over the world. Sea Fare '88, to be held Feb. 17-19 at the Long Beach Convention Center, will feature more than 450 companies displaying seafood to

some 10,000 buyers from all levels of the food distribution chain.

If you're a seafood buyer no one has to tell you your job is more complicated than it used to be. Just try and get a line on some frozen salmon, for example. Two years ago nice silvers were plentiful at \$2 a

pound. This year they're twice that — if you can find any.

But on the other hand, there's more shrimp around than ever before because of spiraling production from farms in China and Ecuador; prices for many sizes are near all-time lows. Orange roughy, too, is a better buy than it was a year ago.

Record world demand and a constantly changing supply picture has made what was already a

complex business more dynamic than ever. Buyers have found they have to stay on top of the latest trends in seafood to stay competitive. Sea Fare, the annual Southern California-based international seafood exposition was established to do just that.

Seafood buyers wanting more information about Sea Fare '88 should contact Sea Fare Exposition at 3510 1st Ave. NW, Seattle, WA 98107. 206/547-6030. Telex: 298558 SFE UR.

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Bender reorganization confirmed

Navy and fishing help company out of Chapter 11

Bender Shipbuilding & Repair Company's reorganization plan was confirmed late in November by the U.S. Bankruptcy Court for the Southern District of Alabama. It took Bender a mere nine months to get out of Chapter 11, according to Bruce J. Croushore, spokesman for Bender.

Since January of 1987, Bender has delivered five vessels converted to fishery service in the Pacific Northwest. Among these were a 180' tender-trawler, a 190' trawler, and two 210' factory trawlers. Bender also completed major overhauls for the U.S. Navy and the Military Sealift Command as well as several repair jobs on commercial vessels.

"In terms of operating revenues, the company has had one of the best years it has had in the '80s," said Tom Bender, the company's president and chief executive officer. He expressed gratitude to the company's customers, employees and vendors for their support.

Bender was recently awarded a \$6.4 million contract for work on the U.S.N.S. Sirius and has four conversions in its yards, including two crabber-processors for Alaska. In addition, Bender is encouraged by the back-log in its order book for commercial repair work.

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Of the several species of scallops on the market, probably the most familiar are bay, calico, and sea scallops. Bay and 'ico varieties are similar in size (about 1/2-3/4 inches in diameter); sea scallops are much larger. Active swimmers, scallops propel themselves through the water by snapping their shells together, resulting in an overdeveloped adductor muscle. Although the entire scallop is edible (and the roe highly prized by some), usually we just eat the adductor muscle.

Fresh or thawed scallops should be ivory, light tan, or pinkish in color. Plan to use them within one or two days of purchase. Frozen scallops may be stored at 0 deg. for 3-4 months; thaw them in the refrigerator or in a sealed plastic bag under cold running water. Cook scallops just until they turn opaque throughout—overcooking causes toughness and shrinkage. The following recipe is great for holiday entertaining!

Bacon-Wrapped Scallops

1 lb. scallops
1 can (5 oz.) water chestnuts, drained
Marinade

15 slices bacon, cut in half
Thaw scallops if frozen; rinse with cold water; pat dry. Cut large scallops in half. Cut water chestnuts in thirds. Place scallops and water chestnuts in bowl; stir in marinade; cover; refrigerate 2 hours. Stir occasionally. Drain. Place scallop and piece of water chestnut on each piece of bacon. Wrap bacon around both and secure with toothpick. Place on a broiler pan, broil 4 inches from heat 6-8 minutes or until bacon is crisp. Turn, broil 2-4 minutes longer until bacon is crisp. Makes about 30 appetizers. Note: do not use thick sliced bacon.

Marinade

1/4 c. vegetable oil
1/4 c. soy sauce
2 Tbsp. catsup
1 Tbsp. vinegar
1/8 tsp. white pepper
2 cloves garlic, crushed

Combine all ingredients; mix well. Makes about 3/4 c. marinade.

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MARINER
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Coastal whales staging fine resurgence

by Dan Wickham

It's whaling season! This is when the Sonoma Coast comes alive with our annual influx of neo-whalers. Maybe we can begin to appreciate the fact that today's whalers are no longer in it for the proverbial pound of flesh, or should I say ton of flesh.

People who now ply the seas in pursuit of the great behemoths have discovered that whales are more valuable alive than dead.

Since the last grey whales were hauled ashore into the Richmond whaling station just 20 years ago, these great creatures have staged a remarkable resurgence. And it is no longer just the grey whales that pass our coast. The last few years have also seen the return of humpbacks and just last year, I finally saw my first blue whale.

I'll admit that I am no whale expert. I'm far more inclined to get excited about the little invertebrates the whales are eating. But even hard-bitten microscope freaks catch their breath in awe when one of our giant mammal friends breaches off-shore or surfaces under our noses as we tow plankton nets through the water, in competition for their food.

Those of us who collect plankton for study cannot help but be impressed by the talent displayed by whales as they crop for coastal plankton resource.

The grey whales focus on the *amphipods* and *mysids*, both little crustaceans that teem on our ocean bottom.

To do so, the whales literally take giant gulps of bottom mud. They then shoot this slurry out through their baleen plates, which are giant feather-like filters, and keep the crustaceans in their mouths. Aerial photos allow researchers to track the progress of greys as they leave little puffs of mud behind them.

Blue whales feed near the surface on *euphausiids*, better known as krill. These are shrimp-like crustaceans that, in the Arctic and Antarctic, swarm by the trillions. Actually, that estimate is probably far too low.

Krill swim in schools and blue whales take advantage of this. They circle the school, herding the krill into the center. They then dive down and come back up through the thickest part of the swarm with their mouths open.

Like the greys, blue whales spit all the water out through their baleen plates and swallow the krill that get filtered out. I read once that a blue whale can swallow up to two tons of krill in a single gulp.

When you are as big as these guys, you have to eat a lot.

Whales on our coast migrate north and south, taking advantage of the seasonal shifts in food abundance. The waters off Alaska hold some of the richest food supplies on earth during the short summer season. And whales can get good and fat during their summer Arctic sojourns.

Then, as winter comes, they head south to Baja. I've been in both of those places, and I think the whales are on the right track.

The only pause I have about our newfound sensitivity for our giant relatives is that our curiosity doesn't drive us to become such pests that the whales begin to avoid our coast. But from what I've seen to date, the people involved in this annual "hunt" have been remarkably responsible.

My only complaint is, when is the average citizen going to get equally interested in all the millions of other species on earth that aren't as spectacular as whales or as cute and furry as the otter?

Oh well, I guess we have to start somewhere.



DUPONT'S Textile Fibers Department consultant Larry T. Cleary and W. P. Stephenson explain the qualities of KEVLAR, super-light, super-tough fiber product introduced at Fish Expo '87. —TFN photo

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Sitka longliners restricted from rockfishing Sound

by Eric Jordan

Sitka longliners were unhappy with restrictions to close part of Sitka Sound to directed rockfishing by longliners, while planned restrictions for sport and subsistence fishermen were delayed by red tape.

The Sitka Fish & Game Advisory Committee had recommended the Alaska Department of Fish & Game take emergency action to close longlining for rockfish in Sitka Sound from Shoals Point to Biorka Island. Because approximately one-half the directed rockfish harvest comes from sport and subsistence users, the Advisory Committee also proposed a limit of 8 rockfish per day for sport

and subsistence users.

The area was closed at noon, December 1, by emergency order to the commercial directed fishery for Demersal Shelf Rockfish.

According to Art Schmidt, Sitka area sport fishing biologist, "The reason the sport fishery was not closed was due to a difference between an emergency order and an emergency regulation procedure. Because of the procedural differences and in view of the small sportfish harvest of rockfish in the winter, we elected to go with a procedure that will have the sportfish bag limit in place by the end of February."

Virgil Henke, chairman of the Sitka Fish & Game Advisory Com-

mittee, expressed disappointment over the delay. "I feel everyone should do their part. The present regulations leave a loophole for directed longlining for subsistence," said Henke. Tory O'Connell, Sitka area groundfish biologist, feels the emergency action is just a first step. "By itself," said O'Connell, "this will have a minimal effect. We're really going to have to look at a more comprehensive approach to conserve rockfish, including a look at by-catch in non-directed fisheries and non-traditional management approaches."

Trollers Support Winter Chinook Fishery

Sitka trollers expressed strong support for the winter fishery at an Alaska Trollers Association meeting in November. ATA representatives George Eliason and Charles Wilber had called the meeting to discuss Sitka positions for an ATA Board meeting early in December in Juneau.

Concern had been voiced about the unusually high catch rate of winter kings which, according to Allen Davis, Alaska Troll Biologist, had reached 45,000 by December 1. Usual winter catch from October 1 to April 15, is 20,000 to 30,000. Because the price for winter kings is higher, the percentage of Alaska hatchery contribution is higher. Most local residents participate in the popular winter fishery.

Alaskans Angered by Washington, Oregon... 'Year of Chinook'

At the same meeting, continued strong support for an increase in the Chinook quota was expressed. Reports of the "Year of the Chinook" in news magazines like *The Fishermen's News*, discussing catches by Oregon trollers, sport anglers and gillnetters, have enraged Alaska trollers. Releasing Chinook for others to benefit from Alaska's conservation has not been an easy task.

Bill Berger, member of the ATA board, feels Alaska needs to have a treaty team organized and coordinated out of the Governor's Office. He said, "Alaska has to realize the treaty negotiations are not genuine efforts by all the players to rebuild the stocks. Some of the players are maximizing their harvest at the expense of others. Alaska trollers are contributing more than their share to

the rebuilding effort while completely foregoing any harvest of the surplus from already rebuilt stocks... this has to change!"

Fishermen Proud of Tommy Thompson Alaskans Angered

Sitka was proud to see Tommy Thompson of Sitka Sound Seafoods awarded the Northwest Fisheries Association Man of the Year Award. Rick Lauber, lobbyist for Pacific Seafood Processors Association, summed it up best a couple of years ago, when he stated that Tommy was one of the few people who had made the whole industry better by his personal graciousness. Tommy and his family have been a great addition to Sitka. With Sitka Sound Seafoods running an expanded and improved operation, The Fresh Fish Co., and Claudia's Fisheries working at Fisherman's Quay, and both Seafood Producers Coop. and Ranier Seafoods working out of the North Pacific Cold Storage Plant, Sitka fishermen have a good choice of buyers.

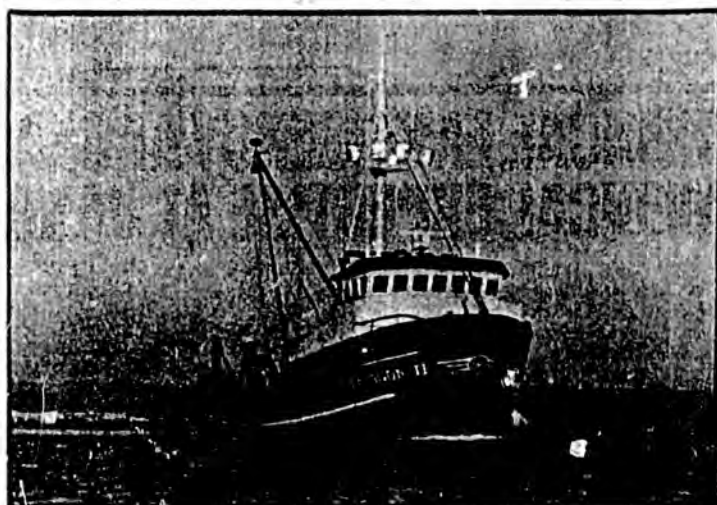
New Harbor Considered

Support for a new harbor was expressed by City Officials and fishermen at a meeting in November with the Army Corps of Engineers. The Corps is considering plans for a 225-slip harbor either in Jamestown Bay or as an extension to Thompson Harbor. There are presently 217 boats on the waiting list with the Sitka Harbor Master. There is also a problem with space for transient moorage from the middle of March through the summer season.

Tips for Grilling Fish Steaks

Brush steaks with sauce, marinade or oil and place in an oiled fish basket or directly on a well oiled grill 4 to 6 inches from heat.
Cook, uncovered, 1 to 2 minutes to sear fish, then close barbecue lid or cover fish with foil tent if desired.
Allow 10 minutes cooking time per inch of thickness. Fish is done when it just flakes when tested with a fork but is still moist & juicy.
Turn steaks and add grill half way through cooking time.

Sea Grant classes offered through Washington Sea Grant's Marine Advisory Office at Fishermen's Terminal. Contact Sarah Fisksen (206) 543-1225.



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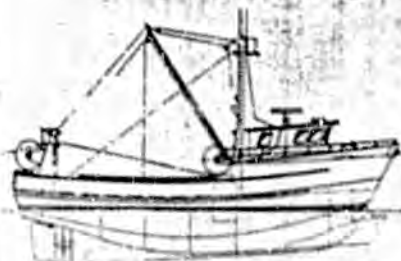
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Panel to meet

Continued from page 2

3,642,000 fish: 2,386,000 in Canada and 1,256,000 in the United States. Commercial value was approximately \$11,000,000 (Canadian) to fishermen. Accompanying tables present the current estimates of catch.

Figures on the allocation of catch between fishermen of Canada and the United States show that the United States was approximately 45,000 sockeye and 109,000 pinks short of catch goals.

The sockeye shortfall occurred despite 19 days of nearly continuous fishing in the United States from August 16 to September 3, when high diversion of sockeye, via Johnstone Strait, caused the availability of fish to decline in U.S. waters, thus requiring more fishing time by the United States. During this time period, Canadian fishermen were permitted only four days of fishing in Area 20 (Strait of Juan de Fuca) to allow most of the sockeye migrating via the southern route to enter United States waters.

The U.S. catches of sockeye were nearly equal for Treaty Indians (969,000) and non-Indian fishermen (967,000). The Treaty Indian catch was, however, about 40,000 fish short of their goal which provided for the payback of a deficit stemming from the 1986 catch shortfall for Treaty Indian fishermen.

Canadian gear types

Canadian catch allocation between gear types showed that troll fishermen (both outside and inside and along the north coast) harvested 633,000 sockeye (19.8%), purse seines caught 1,550,000 (48.8%) and gillnets landed 1,021,000 (31.8%).

The troll-sector catch percentage was higher than the goal of the Minister's Advisory Council agreement for 1987, but purse seine and gill net fishermen divided the catch taken by the net gear, as per the agreement (i.e. approximately 60 percent purse seine and 40 percent gillnet).

Sockeye returns by stock were

dominated by the Adams (2.5 million), Chilko River and Lake (1.8 million), Birkenhead (1 million) and Stellako (700,000) runs. While these returns were not the largest for many individual stocks on the cycle, production levels were high in most stocks.

The Birkenhead run was the largest recorded on the cycle, due to the large return of 5-year-old salmon from the abundant and very successful spawning of this stock in 1982. Current estimates place the return of summer-run stocks at 3.6 million sockeye; late-running stocks totaling 4.0 million fish.

While all escapement calculations have not been completed, Canada Department of Fisheries and Oceans estimates that approximately 1,850,000 adult sockeye and 3,100,000 pink salmon reached the spawning grounds in the Fraser River watershed.

The sockeye escapement slightly exceeded the goal of 1,760,000 adult spawners established by Canada.

Escapements to individual sockeye spawning areas were near the targeted goals, with the Adams River, Chilko River and Lake, Stellako River, Birkenhead River and the Early Stuart streams collectively accounting for approximately 1,550,000 spawners. However, the small pink salmon return and the unavoidable incidental harvest of pinks during the late-season sockeye fisheries reduced the pink salmon escapement well below the 6,000,000 preseason goal. Final summaries for sockeye and pink salmon escapements are to be issued by Canada in February.

Despite the yet-unexplained poor return of pinks, the management of the complex fisheries and allocation targets was successful — most catch targets were achieved within a few percentage points.

The panel will meet in February 1988, to begin work on the fishery regime for the 1988 season once forecasts of abundance, escapement goals and catch allocation objectives are established. The 1988 cycle-year has traditionally been the year of lowest abundance for sockeye in the

Fraser River; additionally there are no Fraser River pink salmon on even years. Hence, the numbers of fish expected in 1988 would naturally be lower than the runs in the 1985 to 1987 period.

The chairmanship of the panel now alternates to the Canadian section of the Fraser River panel for 1988. The United States section chairman will serve as panel vice chair.

Collinsworth reappointed

On December 3, Alaska Gov. Steve Cowper announced reappointment of Don Collinsworth as commissioner of the State Department of Fish and Game. Collinsworth, 46, has been commissioner since February of 1983.

Among other accomplishments, he was the architect of the U.S.-Canada Pacific Salmon Treaty. Mid-November, Collinsworth was unanimously recommended as commissioner by the joint board of Fisheries and Game.

Annual salary is \$77,304. Between 1978-'83 he served as deputy commissioner.



'THANKS! FOLKS,' writes Jim Reed, of Eugene, OR, winner of the Stormy Seas inflatable sweater-jacket in THE FISHERMEN'S NEWS Fish Expo-'87 drawing. Shown with a 'small king taken off Noyes Island, from the F/V JACKIE BELL. Reed crews on SE Alaska seineboats summers, and is trying to establish a herring spawn on kelp fishery in Oregon winters.

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Converted tuna Seiner fishes pollock Snow King

by Don Crouch

The *Snow King* represents another addition to the growing fleet of U.S. factory trawlers gearing up to fish the Gulf of Alaska and Bering Sea. The 221-

foot vessel is being operated by Marine Management, Inc., Seattle, Washington and will produce individually quick frozen (IQF) fillets and frozen blocks of pollock for the U.S. domestic as well as other markets.

The vessel was built as a tuna seiner by Campbell Industries of San Diego, California and originally christened *Gemini* and later the *Island Princess* which she remained until tied up in Pango Pango, American Samoa in 1983. Acquired by the present owners in 1985, the conversion for her present service was started in 1986.

The conversion was accomplished by A/S Baathyg, at Maaloy, Norway, the same yard that earlier converted another large factory trawler, the *Royal Sea*.

The factory trawler/processor is equipped with three of Baader's new



Congressmen Don Bonker and John Miller of Washington at Fishermen's Terminal. Congressmen Bonker and Miller toured the *SNOW KING* — the most recent addition to the growing fleet of U.S. factory trawlers. The congressmen toured the vessel on November 6 when it was in Seattle enroute to Alaskan fishing grounds.

182 machines and has a capacity of 35 tons of IQF fillets and 15 tons of block per day. The vessel has a crew of 58.

The factory trawler represents an investment of \$10 million dollars and was on fishing grounds out of Dutch Harbor by late November.

On her first trip to the Bering Sea she caught and processed 800,000 pounds of first quality IQF fillets. The owners expressed satisfaction with the vessel's performance and processing of quality product. The *Snow King* is underway on her second fishing trip.

Three more converted supply vessels — the *Royal King*, *Royal Prince* and *Royal Princess*, are expected to be completed and fishing Alaskan grounds by April 1988, according to Marine Management.

The factory trawler *Snow King* will be marketing its products under Royal Seafoods label. For information about the IQF fillets contact Toby Cohen, Royal Seafoods, Seattle, 206/284-6101.



Left to right: Congressman John Miller, Republican; John Sjog, president of Marine Management, and Congressman Don Bonker, Democrat, on board the F/V *SNOW KING*.

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Vessel Safety Program

Training Program

Update Jan. 1988

The NPFVOA Safety Program offers a series of classes for the skippers and crews of fishing vessels. Openings exist in all classes. A minimum of 15 participants is required for each class. The Safety Program Office will attempt to accommodate companies or groups interested in scheduling special sessions. To register, call 206/283-0861.

Fire Fighting and Control. 1 day. \$150. Classes: Jan. 11, 25; Feb. 8, 22; March 7, 28.

Medical Emergencies At Sea. 1 day. \$65. Classes: Jan. 7; Feb. 9, 24; March 9; April 1.

Safety Equipment and Survival Procedures. 1 day. \$65. Classes: Jan. 8, 26; Feb. 9, 23; March 8, 29.

Navigation and Stability. 2 days. \$80. Classes: Jan. 9 and 10, Feb. 6 and 7; March 5 and 6.

Vessel Safety Orientation. 1 day. \$750.

Safety inspection and crew safety drills aboard participating vessel. Safety program personnel make confidential recommendations to the owner/operator. Call this office to schedule.

Intro. to Self-Contained Breathing Apparatus, SCBA. 1/2 day. \$40.

Learn to deal with hazardous atmospheric conditions caused by fire or chemical casualties. Hands-on training includes a variety of challenging field exercises.

One-half day classes (8:00-12:00; 12:30-4:30): Call the safety office 206/283-0861 to schedule session.

Read Tuition Policy carefully.

Payment should be made prior to the scheduled classes. Checks should be made payable to the Vessel Safety Program.

If you are unable to attend a class for which you have enrolled notify this office ASAP. Unless sufficient notice is given, the Vessel Safety Program cannot give refunds. We suggest that you arrange for a substitute if necessary.

To enroll, contact: Vessel Safety Program Room 207, C-3 Building, Fishermen's Terminal, Seattle, WA 98119. 206/283-0861.

ADFG's Malloy trying to maintain balance between over- and underharvesting

by Mike Rostad

Larry Malloy, area finfish management biologist for the Alaska Department of Fish and Game in Kodiak, sees the interaction between the state people and fishermen as a healthy sign that the two groups are "working together as a team," he says.

That interaction is one of many ways in which the state determines what strategies to take in managing the unpredictable fisheries.

"There's a lot of instability that's inherent in fishing," says Malloy. Most of that uncertainty comes from unexpected fluctuations and the surprises brought on by Mother Nature. It's up to Fish and Game to outguess Mother Nature and "create the potential for maximum production of a harvest" in an orderly fashion, Malloy explains.

Through the information it gets from fishermen and processors, escapement reports from weirs and ADFG aerial surveys and spotter pilots; and through historical data, Fish and Game implements an in-season management strategy. One of the main goals of this strategy is achieving an adequate escapement — the supply of fish that will spawn in the creeks.

"Without adequate escapement, the economic future would be bleak," says Malloy. The offspring of the 1987 returning pink salmon will provide the harvests and escapement for 1989. The reds spawned this year are expected to return between 1991 and 1993. This year the stage was set for the chum return in 1991 or 1992 and the silver return in 1990 and 1991.

"Escapement is always on our minds," says Malloy, "but also very important is preserving, as much as possible, the traditional fishing opportunities" that existed at the time when gear levels were established and limited entry was implemented.

At times, ADFG is just as concerned with excess escapements as it is with overharvesting. This summer when an unexpected build-up of excess pink salmon occurred in inner Uganik Bay on the west side of Kodiak Island, ADFG decided to "surgically remove" what appeared to be excess pinks bound for the major Uganik system, says Malloy.

An emergency "mop up" opening was then announced. However, it appeared that an excessive harvest occurred when much of the buildup backed out into legal waters. Some Uganik setnetters feared that in providing for this mop-up fishery, Fish and Game may have caused an overharvest of pinks for a major production system. When they came into town, some of the fishermen stopped at ADFG's office and questioned Larry and his crew for their decisions. However, "the air was cleared," says Larry, "after management strategies and eventual escapement levels were discussed. A mutual understanding of each other's problems and concerns was reached."

Larry admits that "misunderstandings (between ADFG and the user groups) do occur. I'm not saying we're always one big happy family. But we try very hard to avoid festering conflicts. Whenever we can establish communication, problems seem to get resolved and common sense prevails."

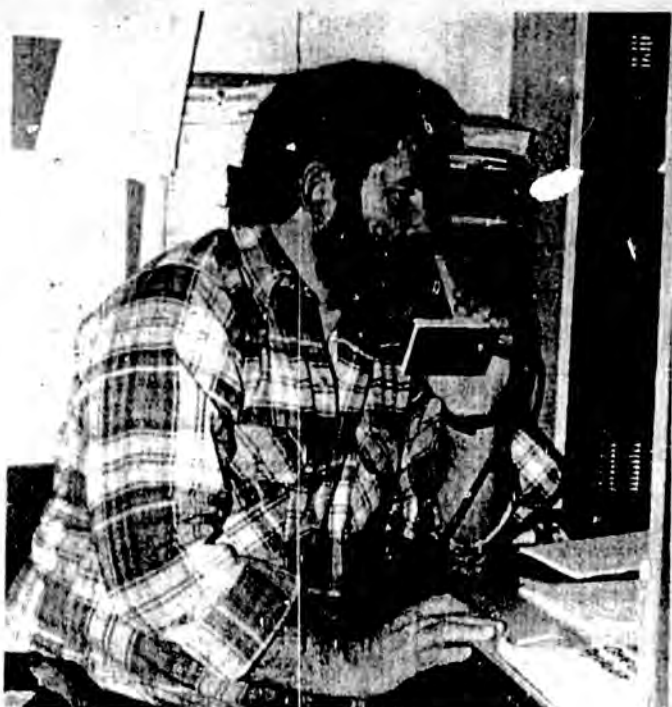
Larry also considers the working relationship he has with his crew as "teamwork." A "critical component" on that team, notes Larry, is assistant area biologist David Prokopowich.

"His in-season analysis and perspective is essential to providing for a smooth operation."

Larry has been with ADFG for 17 years. Before going into the army he was a seasonal employee working on a pink salmon forecasting crew

and at the Chignik weir. When he became a permanent employee, Larry worked in the salmon and herring fisheries; managed the Kitoi Bay hatchery when it was changing from red to pink salmon production

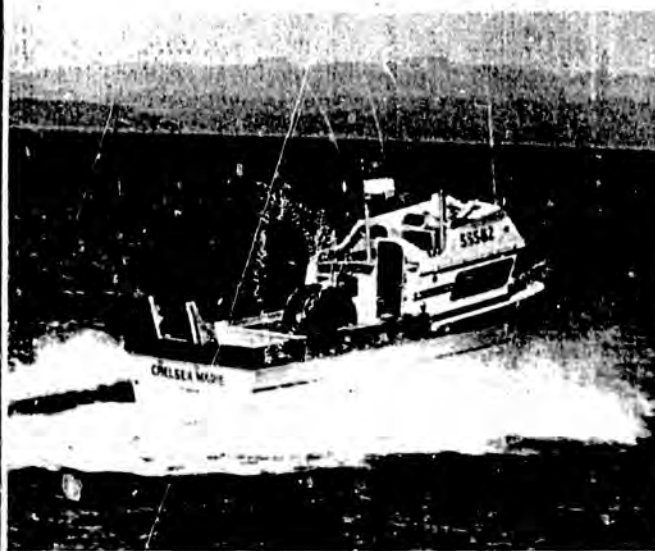
and also worked for a short period in king crab research. In 1973 he became the assistant area finfish management biologist and in 1981, the Westward region herring biologist.



LARRY MALLOY

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WDF to answer

Continued from page 13

55. What is the Department doing to emphasize enhancement in streams that originate in Olympic National Park and which have excellent undisturbed headwater habitat?
56. Has the Department allowed non-Indian trollers to target on Canadian chinook stocks near the border area? Why not?
57. Why do the new marine fish license fees go into the general fund? Why don't they go into recreational fisheries programs?
58. Is the Department planning to institute a 7/8" mesh shrimp pot regulation in the Port Angeles area? Why?
59. In recent years has the state experienced "scouring" type floods that have seriously harmed naturally spawning fish in streams? How many times has this occurred? Which rivers?
60. Where does the policy of co-management come from? What authority does the Department have to give up management authority to the Indian tribes?
61. What happened to the buyback program?
62. What is the status of Indian fishing rights for bottomfish (halibut), herring, shellfish, squid and other nonsalmonid food fish?
63. Why is there no longer an area 7 fall chinook commercial fishery?
64. Are efforts being made to limit fishermen to one commercial fishery rather than allowing some tribal fishermen to fish both Indian and non-Indian fisheries?
65. What is the Department's definition of salmon enhancement?
66. How many Department employees have ever commercially fished for foodfish?
67. Are crab populations controlled by fishing or by parasite infestation?
68. Specifically, what is the Department position on the "all-citizen" lawsuit, and does this position vary from the position of the Attorney General's office?
69. Are there agreements with Indian tribes that prevent non-Indians from fishing even if there are harvestable surpluses available for the non-Indians to harvest?
70. Do non-Indians catch 50 percent of all species of salmon that originate in the Quinault River? Queets River, Quillayute River?
71. What is the Department's position on the salmon species aggregation principle? Has the Department requested a court ruling on this principle?
72. Why did the Department deny applications for chinook egg box cooperative projects when the Naselle hatchery has taken over 13 million chinook eggs?
73. Why are coho reared at the Skokumchuck hatchery planted outside of their parent watershed (Chehalis River) into Puget Sound?
74. Why did the Department close the Humpulips River sport fishery before the harvestable quota of 600 chinook was met?
75. The Department has consistently resisted efforts to establish a salmon hatchery on the Wynoochee River; Why?
76. What is the catch ratio of chinook to sturgeon in the Grays Harbor "sturgeon gillnet" fishery?
77. Has the Department ever considered the planting of salmon carcasses into streams that are also fry planted for purposes of boosting stream productivity?
78. What is being done to reduce the catch of adult and immature salmon by foreign vessels fishing within the 200 mile limit?
79. Would the Department please provide the Committee with a copy of the Hoh vs. Baldrige agreement that was signed with the tribes?
80. Does the Department support the spraying of ghost shrimp with sevin pesticide in Grays Harbor and Willapa Harbor? How many acres were sprayed annually over the past several years?
81. What percentage budget cut has the Governor directed the Fisheries Department be prepared to make?
82. What programs were cut in these proposed budget cuts?
83. If the Canadian troll fishery overharvested 200,000 coho off the West Coast of Vancouver Island, does the Department have plans to seek payback for these salmon? Why didn't the Department seek a conservation closure on the Canadian troll fishery?
84. Have the salmon hatcheries ever left adult racks in the river after the egg take quota has been filled? Why would this be done?
85. Many people perceive that the Department has a public relations problem. What do you plan to do to improve relations with the public in general and the user groups in particular?
86. Are there any enhancement facilities in the state which have been closed? Why?
87. The Tsimi Tribe has a operational shellfish enhancement facility; what is the Department doing to enhance oyster and clam populations?

88. What is the status of the Jamestown net pen project? Where will they get their eggs?
89. What is the Department's position on marina development in Elliot Bay which would effect fishing rights of the Muckleshoot and Suquamish tribes?
90. What are the existing enhancement programs on the Nisqually River and what is planned in the future?
91. Can the Department provide the Committee with the standards for "moderate living" which have been defined for social and health purposes in federal register?
92. Has the Department acquired the documentation of tribal income (income tax records) in order to apply the moderate living standard?
93. Explain the Buoy 10 ruling and its significance on coastal recreational fisheries.

(ED: And the questions go on, to No. 144. We will publish the more pertinent answers as they become available.)



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Sea Mar's Kodiak store

The largest supply of commercial fishing gear in Kodiak — and run entirely by women.

by Anita Venema

Where is this marine supply company, staffed entirely by women who know the area, the people, the business? In the convenient location directly across from the boat harbor in Kodiak. That's where.

Managed by Geneva Hartman Macinko, born and raised in Kodiak where several generations of her family have pursued careers in the fishing industry, this thriving business stocks the most complete supply of commercial fishing gear in the area. In the three years it has been operating, Kodiak Marine has twice increased in size.

Macinko and her assistant, Debra Davis, listen to the needs of their customers and stock the items desired. Davis and the other employees of Kodiak Marine have commercial fishing experience, which allows them to relate to the needs of their customers.

This northern most branch of Seattle Marine & Fishing Supply maintains stock for longlining, crabbing, trawling, gillnet and seine fishing, and has supplies for the processors including knives, boots, gloves and raingear.

Bob Crump, marine buyer at Sea-Mar, says, "We are continually adding

new items to Kodiak Marine's inventory to meet the demands of the industry. But, on the other hand, the women will go out of their way to get for their customer items that are not normal stock."

In accommodating their customers, Macinko and Davis "wear their Kodiak Marine hats" off hours. Bill Lee, Sea-Mar secretary/treasurer, says, "They maintain traditional office hours but never hesitate to stay open late or open up on Sundays or holidays for a fishing opening. In addition, we feel it is very important to have this operation managed by local residents."

There is no sign of a cracker barrel or pot bellied stove in the store, but the atmosphere is "down home." The women are respected by their customers. Customers help to uncoil rope and carry heavy objects, and will even help longshore when freight arrives from Seattle. There is a "No Puffin" sign posted in the store, and the women have no problem enforcing it.

Crump noted, "We have received letters from Sea-Mar customers who complimented us on the Kodiak operation and hoped we did not mind that they were now going to do business with Kodiak Marine. That's the kind of loss we like to take."



Geneva Hartman Macinko (left) and Debra Davis.

"The future of this largest Alaska port seems bright," commented Lee. "Though it has hit a few low spots in the past, it's a port that had to come back. It has, and it will continue to do so. And we feel that the growth of Kodiak Marine Supply will coincide with the comeback of Kodiak itself."

It would seem apparent that this new operation, though many miles to the north, is following the lead of the parent company, Sea-Mar, whose operating guidelines have always been to offer service and quality products and to listen to the needs of the customer.

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South Point coalition formed, claiming, Hood Canal salmon farm would obstruct fishery

by Gina McMath

The South Point Coalition, an alliance of commercial fishermen and Jefferson County property owners, celebrated its first anniversary in October, 1987.

I'm not sure "celebrated" is the right word, however, to describe a year of intense frustration. A grass roots organization of "little guys," we're still battling the corporate aquaculture interests who want to

place a huge salmon pen complex at South Point in the Hood Canal.

The major beef of the gillnetters and purse seiners in the organization is simple — the pens would create a dangerous obstacle that would displace fishing operations in a heavily fished area. At the peak of the fall season, Area 12, just south of the Hood Canal Bridge, has frequently been described by local residents as "a city of boats." The guys on the water are constantly jockeying for room to lay their gear and trying to avoid running over each other's nets. This is where they want to put a fish farm!

The first permit request Olympic Sea Farm, Inc. brought to Jefferson County showed 22 pens, each 49'x49',

to be attached to the old South Point ferry dock, about two miles below the Hood Canal Bridge on the west side. The complex would have extended 700 feet out into the canal.

Frank Fletcher, president of the local PSGA chapter, estimated as many as 30 percent of the customary drift gillnet sets between Hood Canal Bridge and the U.S. Navy installation at Bangor would be obstructed. For seiners it would mean the loss of the customary South Point set.

It never occurred to county officials the proposal might impact fishing operations. The project had already passed through the preliminary hoops in the county permitting process before fishermen even learned about it. (We became aware of the

proposal because something possessed me to read the legal notices in the local paper the week it was to go before the shorelines advisory committee.)

When we did raise our voices, we found we had little effect. County shorelines advisors and the county commissioners had little understanding of fishing operations. Why one spot might be better fishing than another or why we couldn't just "go around it" was a mystery to them. Besides, the local shorelines management plan didn't address the possibility of a conflict with fishing operations — so such a conflict "must be a problem some other agency should deal with."

It was true, the local management plan was no help. It had been adopted when aquaculture was generally meant to mean oyster-growing. The fact that the commissioners' meetings were held on days that conflicted with fishing openings in Area 12 also made it difficult to convey the depth of our concern.

John Pitts, an outspoken proponent of aquaculture, resigned from the county commission only several months previously to accept the post of Director of Aquaculture by appointment from Governor Booth Gardner. His influence on the board was still evident.

The two remaining commissioners approved the Olympic Sea Farm, Inc. permit.

Enter the South Point Coalition!

When the commissioners approved the request, the frustrated opponents of the project milled in the high-ceilinged, Victorian hallways of the Jefferson County courthouse. One indefatigable, middle-aged woman who owned property near South Point, approached one of the fishermen. What could we do now? She wanted to know.

What happened next was the founding of the South Point Coalition and the forging of an alliance between property owners and fishermen. We hired a lawyer, and recruited members. We raised money, and we appealed the county's decision to the state Shorelines Hearings Board.

It was a real grass roots effort. We have no millionaires — at least that we know of — among our members, who can step forward to pick up the tab for legal fees. Often it has been a week-to-week struggle to keep up with the legal bills, telephone and postage. Except for our attorney, all labor is volunteer.

Peter Egli, an ecology issue lawyer, built our case and detailed our objections. At a pre-hearing conference in December, 1986, both sides laid their cards on the table. The Washington Department of Fisheries and the Department of Ecology joined as appellant-intervenor on the side of the Coalition, although their objections to the proposal did not exactly coincide with ours.

The Department of Natural Resources, who would be leasing state tidelands to Olympic Sea Farm, Inc., took the fish farmers side — as did

Continued on following page

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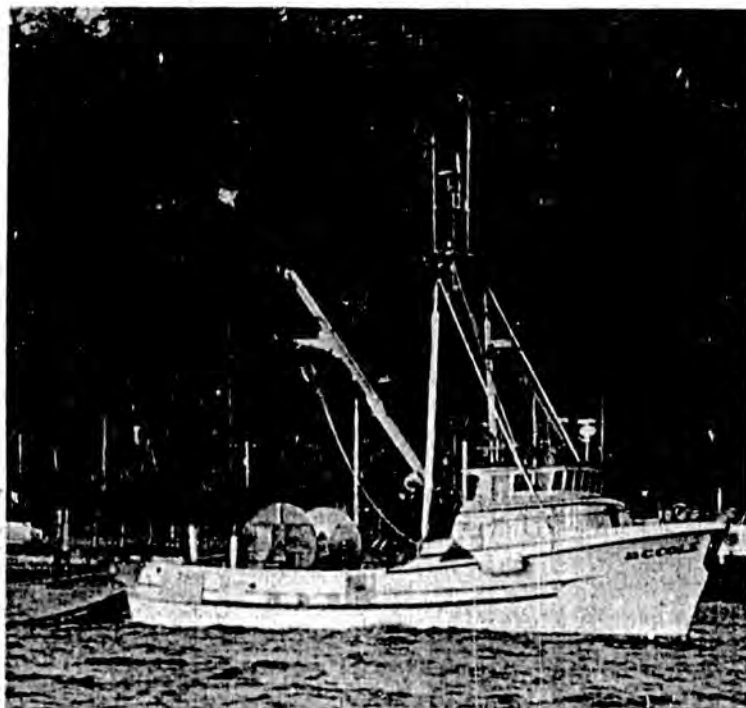
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SETTING OFF SOUTH POINT Ferry Dock, during fall Area 12 opening, Ralph Cole's F/V D.C. COLE, out of Anacortes, Wa. A 20-pen net complex for rearing of Atlantic salmon is proposed by Olympic Sea Farms, Inc., just off the ferry dock. Property owners of the area are joining with commercial fishermen in the South Point Coalition in objecting to the operation.

—Gina McMath photos



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SHORE ATTACHMENT is indicated by arrow, of the 700-foot dock to outermost pen of 20-net pen complex proposed by Olympic Sea Farm, Inc. The proposed salmon farm would stretch out into 80-to 100-foot water from former South Point ferry terminal.

Jefferson County, which had approved the permit.

Each side drew up its list of witnesses who would be called upon to testify and noted the exhibits they planned to present. The Shorelines Hearings Board scheduled a final hearing for June 1988, and estimated it would take at least twelve days for all parties to have their say. The projected expense of such a long hearing was staggering.

Only a matter of weeks before the hearing, the Shorelines Hearings Board considered a pre-hearing motion our attorney had filed. Based on his brief, the board decided that the county had committed a procedural error. The county had failed to notify the affected Indian tribes of this proposed project, as the county is specifically required by law to do. The shorelines hearings board therefore negated the county's permit and cancelled the hearing.

While the appeal was in the works, the Jefferson County Commissioners

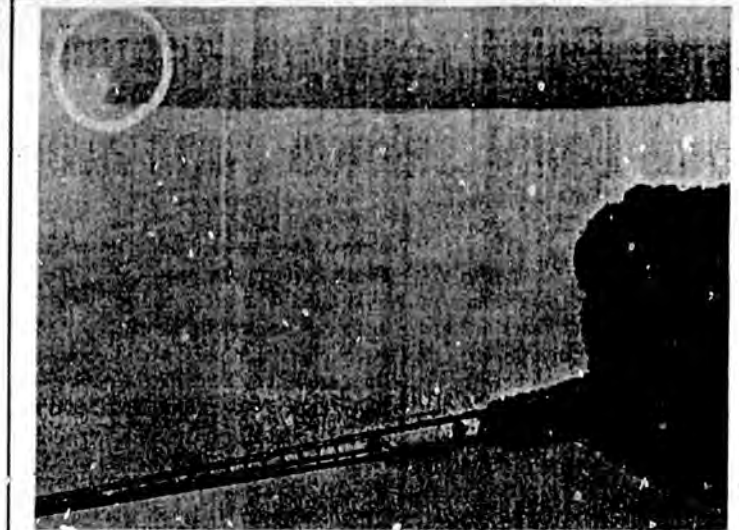
were persuaded to enact a moratorium on fish pens until such time as the county management plan is brought up to date. All new permit applications were put on hold.

Olympic Sea Farm returned with their new proposal (Fall 1987), with an application looking much like their old one. The only significant difference is that the two shoremost pens were eliminated in an attempt to counter the DOE's previous objection that the shoremost pens were sited in water too shallow.

This time, we were ready for them. Their "environmental checklist" submitted with their proposal did not deal adequately with all the probable impacts -- especially the conflict with the pre-existing commercial fishery, we argued.

This time, someone was listening. A new commissioner had taken John Pitts' vacant seat and he has expressed skepticism about unrestricted fish pen development.

The other two commissioners now



CIRCLE THIS. — South Point is the closer, in circled area, about two miles south of the Hood Canal Bridge, which forms the northernmost boundary of Area 12. Olympic Sea Farm, Inc. permit to set up salmon-farming operation just off the former South Point ferry dock was approved by Jefferson County, then held-up, due to combined efforts of commercial fishermen and county property owners.

seem to be convinced that evaluating the conflict with the commercial fishery is part of the county's responsibility. The commissioners wanted Olympic Sea Farm to return with more information about possible impacts the project might have.

At the time of this writing, that is where the project stands. We expect Olympic Sea Farm, Inc., to return before the county commissioners after the first of the year, armed with a fuller defense of the project.

We need to convince the commissioners that our concerns are not only valid but of such magnitude, that the county should require the proponents to prepare an environmental impact study before proceeding further.

That is the step the law requires if the commissioners feel the project would have significant adverse impacts to the environment -- which includes any commercial fishing operations which occur at the site.

Then finally, if we succeed to that point, we need to convince the commissioners that *salmon pens should not be allowed to displace the traditional fishery.*

In the light of the governor's whole-hearted support of any and all aquaculture, it may require courage on the commissioners' parts to arrive at a conclusion that departs from the governor's political agenda.

It appears we may have been the

Continued on page 24

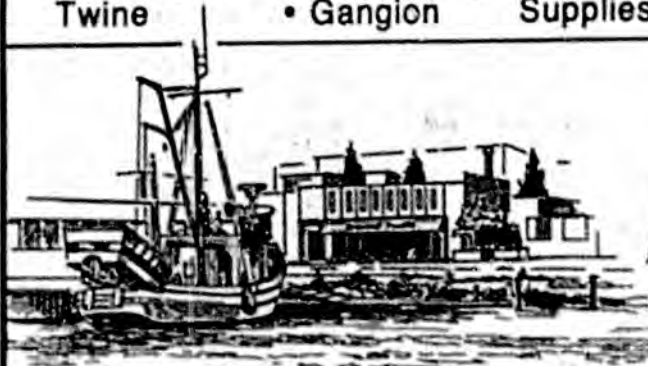
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News from Kodiak

by Mike Rostad



Within a two-week period, residents of Kodiak got unexpected and unwelcome interruptions to their daily routines when the chilling tsunami warning siren wailed through the city. The first warning resounded close to midnight, Nov. 16. It was triggered by a National Warning System announcement that a 6.9 earthquake

had jarred the ocean floor south of Cape Yagataga.

Those in low lying areas were swiftly evacuated to points of safety. Many of the fishermen wiped sleep from their eyes as they went down to the boat harbor to take their boats to high grounds. A little over an hour past the initial warning, the tsunami was "called off."

On Nov. 30, a 7.4 earthquake struck in the same vicinity and once again, the city and borough emergency team mobilized the people. The quake occurred close to noon.

City manager, Sam Gesko told me that at 1:07 the National Warning System had issued an "All

Clear' signal. However, deciding it's better to "err on the side of caution," Gesko did not call off the warning for Kodiak until 1:16 p.m.

Later a fisherman told Gesko that as he was returning to the harbor he noticed a "boiling effect" at the breakwater. Three to five minutes later, the activity occurred again. Apparently this movement was caused by the wave.

Gesko commended the emergency team and the people of Kodiak for their cooperation.

Gibson Cove

In less "earth shaking" news, Gesko reports that the city is preparing a property description of Gibson Cove properties to be advertised for lease. One section includes the ferry, *Kalakala*, the processing plant and the ice house and dock. The other area to be leased is the bunkhouse and surrounding property.

An immediate, temporary option for the four-acre plot that formerly was a crab pot storage area, is for a camp site for summer workers. If this plan is approved, the area would be equipped with showers and restrooms.

The city has been working on an agreement with Kodiak Reduction for operation of the fish reduction

plant at Gibson Cove. Kodiak Reduction, a private firm, has been operating the facility for the past 18 months. Gesko says the city, and the federal and state Commerce Departments which put money into the project, hope to recover those costs.

According to the agreement, which will be signed for a 10-year period, Kodiak Reduction will operate and manage the plant for the city.

North Pacific Council meets

Al Burch of the Alaska Dragger's says that the North Pacific Fisheries Management Council's early December meetings in Anchorage were some of "the toughest set of (NPFMC) meetings" he's ever been to. Al, who is on the Advisory Panel to the Council, represented the minority committee which recommended that 2.5 million metric tons of groundfish be allocated in the Bering Sea/Aleutians, with a large majority going to joint ventures.

The Council voted to cap the total allowable catch at 2 million metric tons, with an initial 792,520 metric tons going to domestic annual processed catch and 908,347 metric tons going to JVs. The TAC for the Gulf of Alaska was set at 260,936 metric tons, with 239,936 going to

Continued on page 26

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South Point coalition

Continued from page 23

first group to raise the issue of site conflicts between aquaculture projects and commercial fisheries. We certainly won't be the last!

In fact, Sea Farms of Norway has just changed their name to Sea Farm Washington and has applied for offshore sites along the Strait of Juan de Fuca.

Another project is proposed for the big it between Hood and Tekiu Points in the Hood Canal in salmon management Area 12B.

Sometimes it seems like we are fighting a series of flash fires and can't stop passing the water buckets to deal with the long term problem.

But there is hope. The SPC has

been providing input into a new, revised county shorelines management plan, which we hope will address the problem of conflict with commercial fisheries, and presents the potential for fish escapement and transmission of disease to wild stocks, along with concerns raised by property owners.

The SPC has joined a collection of other citizen groups around Puget Sound who are trying to get the state legislature to regulate the aquaculture industry more stringently in regard to fish pen culture.

So far, the SPC is the only group among the dozen or so comprising the Marine Environment Consortium

which represents a sizeable number of fishermen.

The MEC this year is supporting a lobbyist in Olympia to counteract the efforts of the heavily financed salmon growers lobby.

With our second year of effort underway, it begins to appear that "we've only just begun..."

(Ed.: Gina McMath is crew on the gillnet boat *F/V Howjan*, and serves as president of the South Point Coalition. She urges fishermen interested in joining or contributing to the SPC, to contact her at (206)385-2602, or write The South Point Coalition, P.O. Box 506, Port Townsend, WA 98368. The SPC is endorsed by the Puget Sound Gillnetters' Association and the Purse Seine Vessel Owners' Association and has members from all over Puget Sound and as far away as Alaska and California.)

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Kvichak 12-hour meeting airs Board of Fisheries proposals

Establishing a super-exclusive Togiak herring fishery and separate seine and gillnet Togiak fishing districts was considered last month by the Kvichak Advisory Council. Its topics were among many proposals made to the Alaska Board of Fish.

A super-exclusive Togiak fishery could reduce total fishing effort there by prohibiting fishermen from fishing a district other than Togiak, if they fished Togiak.

"We're supportive of (separate seine and gillnet) fishing districts," Stosh Anderson, council chairman, said. "But we didn't decide where each gear type should fish."

"We're also supporting a super-exclusive fishery," he said. Similar consensus had been obtained earlier by Dillingham seiners and gillnetters.

The council also sought to revise drift-and-set-net fishing schedules so that openings are based on tide levels, not times.

"We didn't favor high-to-high and low-to-low," Anderson said, with different gear type openings at different times. The council wants openings to start as early as possible on the flood tide.

Other State Board of Fish proposals supported by the council include:

-- Maintaining the 48-hour transfer rule;

-- Changing the south boundary in Egegik to Loran line 130, rather than LC 125 as it was last year, and from LC 130 in to the beach;

-- Having four-day seasons for Egegik and Ugashik before and after the emergency order period;

-- Terminal rather than intercept fisheries and reducing the scope of intercept fisheries on the Alaska Peninsula;

-- On the north peninsula, the council spoke in favor of fishing terminal streams rather than allow fishing along the coast and three miles out between False Pass and Ugashik;

-- Ending the food and bait fishery out of Dutch Harbor, because it was established before herring stock separations were known;

-- Allowing a subsistence halibut fishery in Bristol Bay. No harvest area was defined, the catch would be 10 fish or 1,000 pounds;

-- Closing areas to yellowfin sole draggers when they are picking up early kings and herring;

-- Maintaining the status quo on setnet zones;

-- Reducing sportfishing limits on king salmon throughout the Bay;

-- Legalizing six-filament salmon web beginning in 1989.

Sea Grant schedules two workshops for boaters

Washington Sea Grant Marine Advisory Services has scheduled two workshops for commercial fishermen and recreational boaters in February. A Marine Refrigeration class will be offered on Monday, Tuesday and Wednesday nights, February 8, 9, and 10 from 6:30 p.m. to 9:30 p.m. at the Maritime Training Center of Seattle Central Community College, 4455 Shilshole Ave. N.W. in Ballard. Fee for the workshop is \$10.

A workshop on Loran C will be held on Thursday, February 18, also at the Maritime Training Center. Fee for the workshop is \$5. Preregistration for both workshops is advised because of limited space. Checks for the registration fee(s) should be made payable to the University of Washington and mailed to Sarah Fiskien, Bldg. C-3, Rm. 124, Fishermen's Terminal, Seattle, WA 98119.

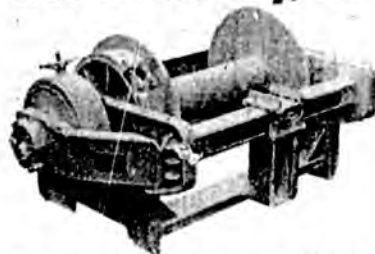
The Marine Refrigeration Workshop will cover components, installation, and troubleshooting of plate systems, blast freezers and chillers. Quality Control on board vessels will also be discussed.

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Ed Luttrell heads Petro Marine's Seattle office

by Walt Venema

"Not only am I learning more about fishing, an endeavor I was active in for ten years; I'm having fun learning about the petroleum products industry," said Ed Luttrell, Petro Marine's general manager for the Northwest.

Luttrell, 35, took occupancy of Canal Place Office Park's Suite 308 in the 180 Nickerson Street, Seattle, building in August.

There, he is in a position to be accessible, by phone or in person, to Seattle area clientele in need of Petro's services.

"And these services now call for more than a phone call to Alaska or a chance visit from one of our people up north," said Luttrell. "When we had only one office, that in Seward, there was no need for another down here."

Now, however, Petro Marine functions additionally from Kodiak, Anchorage, Nikiski and Dutch Harbor.

"In Dutch Harbor alone we have three sites," noted Luttrell. "We feel fortunate that one of these is a

distribution point at Offshore Systems in Captain's Bay.

"Offshore Systems, incidentally, provides full logistical support to the fishing industry at this particular facility."

Petro's concept for opening the Seattle office came from the firm's own expansion and growth, plus the fact that so much of the Alaska fleet is based in Washington State.

"Here in Seattle, we can keep a finger on the pulse of the industry and react to our customer's needs. And, of course, a lot of our customers are from this area," Luttrell pointed out. "You might say that customer service and contact are our reasons for having a Seattle office."

Service to and contact with other fuel firms also have places among Petro's priorities.

"We enjoy working with Mason Williams of Chevron's Covich-Williams and with Warren Aakervik of Mobil's Ballard Oil," Luttrell acknowledged. "We can help them; they can help us."

Petro's is also a service that goes beyond the dissemination of

information. It includes planning and coordinating seminars, a need for which came about through questions posed by customers and Petro's resolve to respond to issues of importance to the industry.

"I came to Petro because it stood for quality people and quality organization," said Luttrell. "Also, I had a desire to branch out into something new while still making use of my fisheries background."

Armed with a degree in political science and a graduate degree in business administration, Luttrell entered the fishing industry "right out of school in '77" as a foreman trainee with Pan Alaska.

From there he went to the plant managership aboard the *ROYAL SEA*, then a crab and salmon processor. In all, he spent eight plus years with Pan Alaska, seven of them on factory ships. Before joining Petro, he worked a year and a half with Golden Alaska Seafoods and a "short stint" with Trident Seafoods.

That he's having fun in his new assignment should work to his advantage. That he's able to combine his fisheries background with his business training is another factor in his favor.

And his obvious grasp of Petro Marine's positive approach to competition should hurt him not at all.

Gourock gets nets contract

Gourock has signed a contract to deliver fishing nets to the *F/T Northern Eagle*, owned by Ocean Trawl, Inc. The vessel is 341 feet long, with over 6000 hp from two Bergen Diesel BRM 8 engines. Propulsion system specifications include Ulstien Controllable pitch propellers in Kort nozzles. The *Northern Eagle* is the largest factory trawler in the U.S.

Bottom nets will be 850 M 3-Bridle High lift trawls, for Alaska pollock. The trawls have a footrope length of 207' 8", and achieve mouth openings of 44' high by 82' headline spread at 3.5 knots. This type of trawl is also used by T/T's *Northern Glacier* and *Arctic Trawler*.

A "Short Bridle" semi-pelagic trawl is currently being designed for the *Northern Eagle* by Gourock and is scheduled for tank testing at the new facility in St. John's, Newfoundland in January, 1988.

Captain John Auders travelled to Denmark's North Sea Centre to study the Gourock trawls in the flume tank in November.

The trawling gear is scheduled for delivery in March, 1988.

NEWS FROM KODIAK

Continued from page 24

DAP and 21,000 to JVs.

The Council also elected to eliminate the Dec. 31, 1987, cut-off date. However, what might have appeared to be a victory for limited entry opponents, could conceivably spell their defeat. It is possible that in the future the NPFMC could arbitrarily select a cut-off date that precedes December 1987, and make that date retroactive, just as the state did with limited entry in the salmon fisheries.

The possibility of some other type of limited access in groundfish, halibut and crab, continues to be a going concern among Kodiak fishermen.

Burch president of Foundation

Al Burch, member of numerous fisheries boards and committees and manager of Alaska Druggers based in Kodiak, was elected to the presidency of the Alaska Fisheries Development Foundation, which determines how Saltsonstall-Kennedy funds are expended. The agency focuses on underutilized species, such as flounders. Burch has been a member of the Foundation's board of directors. The next AFDF meeting is to be held in Anchorage during March.

Board of Fish to meet in March

The Alaska State Board of Fisheries, which was scheduled to take up Kodiak, Chignik and other salmon proposals in town early next year, has re-scheduled its meeting to early March in Anchorage. The Board has not acted on Kodiak proposals to changes in fisheries regulations since 1984.

Mike Haggren, Kodiak board member, was found guilty this fall by a jury trial for allegedly fishing within 600 feet of a set net salmon site in Cook Inlet. He was charged to pay a \$4,000 fine. Governor Steve Cowper has called for Haggren's resignation.

Mining Permit granted

The Kodiak Island Borough granted Gary Peterson of Homer a preliminary permit to mine on Tugidak Island, which is part of the Kodiak archipelago. Tugidak has been lauded as a pristine wildlife habitat, which supports a large number of birds and is a nursery and mating grounds for seals.

Peterson's request had been opposed by the Kodiak Audubon Society, fishermen who were concerned that the operation might be harmful to dungeness crab in the area, and other individuals.

According to Kodiak Island Borough mayor, Jerome Selby, Peterson must go through 14 permits before he "turns over his first shovel of dirt on Tugidak."

Johanna Meyburg dies

Johanna Meyburg, owner and manager of Johanna's Travel Service in Kodiak, died suddenly while in Mexico. Johanna was known for her friendly smile, vivacious personality and interest in fishing affairs. She will be sorely missed on the Emerald Isle.

Sea-Land Kodiak christened

The *M/V Sea-Land Kodiak* was christened shortly after its arrival to its namesake's port. The 710-foot container ship was greeted by a display of fireworks set off from Near Island.

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Stormy seas ahead for F/V Arctic Storm

UNITED STATES BANKRUPTCY COURT
WESTERN DISTRICT OF WASHINGTON AT SEATTLE

In re
ARCTIC STORM, Inc.,
Debtor.

In Proceedings for
Reorganization Under
Chapter 11
Case No. 87 09177

VOLUNTARY PETITION

by Don Crouch

Seattle—In the early dawn hours of November 10, under cloudy skies and the watchful eyes of Stan Hovick, president of Arctic Storm, Inc., the F/V Arctic Storm slithered into the misty waters of the Duwamish River at Pier 115.

Sea trials began Dec. 17 and formal delivery of the F/V Arctic Storm is scheduled on or before Dec. 23, 1987, subject to court action.

Perhaps the name "Arctic Storm" and cloudy skies under which she was launched cast forebodings of future events to unfold in the saga of this vessel.

On Dec. 3, 1987, Arctic Storm, Inc., filed for Bankruptcy Chapter

as president of Nordic Fury, Inc., and Pacific Fury, Inc., Richard Prout, as president of Spindrift Fisheries, Inc., and Walter T. Perrera, president of Profish International, Inc.

Wright Schuchart's attorneys, Irvin Sandman of the Graham & Dunn law firm, Seattle, will be handling the appeal of the Dec. 11 Bankruptcy Court Order to the U.S. District Court. Wright Schuchart's answer to the adversary proceeding complaint does not appear in the court file. Wright Schuchart has 20 days to file an appearance and answer in that matter.

Wright Schuchart has moved for Relief from Stay (when a Chapter 11 Petition is filed all matters relating to the Debtor are automatically

committed — to foreign companies one might ask. And how many of the 103 crew members will be U.S. citizens — again more questions. Could it be, that except for some payoffs to a few U.S. citizens, all substantial benefits contemplated by the Magnuson Act (including direct U.S. employment) will be lost to foreign interests?

The Arctic Storm case raises many questions and Chapter 11 may be the bamboozle to cement foreign control of U.S. fisheries resources.

It is odd and unfortunate that the Bankruptcy Court and a Bankruptcy Judge could write the epitaph to the Magnuson Act and to the future of U.S. fisheries.

Stay tuned for the next episode.

Those interested in more details may obtain a copy of the 5-page court print-out of proceedings by sending \$2.50 and a self-addressed, stamped return envelope to: The Fishermen's News, C-3 Bldg., Rm. 110, Fishermen's Terminal, Seattle, WA 98119. Attn. Don Crouch.

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11, in the U.S. Bankruptcy Court, Western District of Washington, at Seattle, Case No. 87-09177, and in an unusual move also filed an adversary proceeding, Case No. 87-09179.

A flurry of proceedings (over 41 docket entries) immediately followed, with papers flooding in from the law firms hired to engage in battle. When the smoke cleared, it appeared that the Mikkelsen law firm and Eugene Craig, attorney, co-counsel, for the debtor, Arctic Storm, Inc., had gained a decisive field advantage, in convincing Bankruptcy Judge Sidney Volinn to sign an order (dated December 11, 1987) circumventing established admiralty law and without notice to all creditors, requiring that the vessel be surrendered by Wright Schuchart Harbor upon the execution of a guarantee by Oyang Fisheries Co., Ltd., a South Korean corporation beyond the jurisdiction of U.S. courts, and Stanley Hovick,

stayed, i.e., frozen) and that matter is scheduled to be heard by Judge Volinn, Dec. 30 at 2 p.m., according to Court records.

Whatever the final outcome of this battle between legal titans, one thing is for certain. The lawyers will have a very prosperous holiday season and a financially fantastic new year.

The Court filings herald other forebodings of a more sinister nature. Aside from the legal issues raised by the attorneys, questions can be raised as to whether the intended operation of the F/V Arctic Storm is a circumvention of the Magnuson Act, 16 U.S.C. 1801 et seq., and other U.S. laws including the new immigration act, 8 U.S.C. 1101 et seq., and existing shipping and maritime laws, 46 U.S.C.

Oyang Fisheries of South Korea is listed as a 50 percent owner of Arctic Storm. Questions could be raised as to Oyang's real ownership and control? Production contracts have apparently already been

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Cooper is a graduate of Butler University in Indianapolis, with a Bachelor of Science degree.

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Indianapolis, IN.—Regency Electronics, Inc., has announced the promotion of Ron Cooper to Vice President of Sales and Marketing.

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Fatality focuses need for better Morro entrance

by Christine Neilson

Improving the entrance of Morro Bay Harbor is receiving attention from commercial fishermen of the area in the wake of the recent accident which claimed the life of longtime local skipper Al French and his *F/V Langosta II*.

Fred Sears, president of the Morro Bay Commercial Fisherman's Organization, says that it is up to the small community, rich in talent, to unite and take over the reins in a drive to improve safety at the treacherous entrance.

"Commercial fishermen don't expect the community of Morro Bay to bear the total expense of this project. It's not right to ask 10,000 people for money toward efforts that will affect thousands of people," Sears stated. His organization campaign includes a memorial fund for the late skipper.

Margaret French, wife of the late Al French, has asked that the memorial fund be used to promote the campaign for safety, according to Sears, who said the Fisherman's Organization received \$1,600 in donations at a recent barbeque held in memory of French. The Morro Bay Yacht Club has given to the Memorial Fund \$1,000, and commercial fisherman Andy Zanco has contributed another \$1,000.

The organization is also collecting signatures of support on petitions and requesting letters of support from local organizations and businesses.

Sears said the harbor entrance problems start at the jetty. The primary problem we face is shallow water from the end of the jetty out.

A short term cure would be a dredge ship.

"I'm in favor of a dredge ship, but I don't know all the mechanics involved. A dredge ship avoids all objectionable environmental concerns. There are no pipelines, and the ship can take tailings two to three miles out and gently layer them," said Sears.

"With dredging you don't have to dump the sand on the north or west side of Morro Rock; it wouldn't disturb the peregrine falcons."

A task force, appointed by the Harbor Advisory Board, drafted a resolution of support which was recently passed by the Morro Bay City Council, according to Sears, who serves on the task force with Morro Bay sports fisherman Mike Fitzsimmons of Virg's Landing, recreational boater Howard Smith and commercial fisherman Bill Blue.

"Now that the city has approved the resolution," said Sears, "we can contact other municipalities, plus get support of people not in the commercial fishing business to put political pressure on the U.S. Army Corps of Engineers, the governmental body in charge of dredging the harbor, but not the entrance.

"You have to have an Act of Congress to change the jurisdiction at the harbor entrance," said Sears.

The Corps of Engineers will be holding a public hearing in Morro Bay this month to discuss the results of a reconnaissance study they have prepared on the harbor entrance.

According to Jared Miller of the Corps, the study includes "positive alternatives for improving the entrance."

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Jones Maritime issues pulled from free-trade pact

Months of haranguing negotiators of the U.S.-Canadian Free Trade Agreement has paid off with the removal of maritime transportation issues from the text of the final agreement.

Deletion of the transportation annex means the U.S. maritime industry can experience at least a little holiday cheer. This trade pact is not the place to overturn decades of maritime law and certainly not the place to determine the fate of the U.S. Merchant Marine," stated Walter B. Jones (D-NC), chairman of the House Merchant Marine and Fisheries Committee.

"I applaud the good sense -- albeit long overdue -- shown by negotiators

on both sides. Perhaps constant Congressional pressure had something to do with the outcome," stated Chairman Jones.

Chairman Jones has led Congressional opposition to including maritime provisions in the FTA, and in July introduced a resolution calling for the removal of maritime issues. House Congressional Resolution No. 151, attracted 245 co-sponsors in the House. He has also held private meetings with U.S. and Canadian officials.

"Over the past months we have had to mount what can only be called an educational campaign to explain the maritime industry to those who see only ships. While commercial

trade is certainly a primary function of the industry, another little known but incredibly important mission is to serve as an integral part of our national defense. Our arguments that this point made maritime issues unique and therefore inappropriate in the FTA have apparently been

persuasive, or at least we have outlasted our opponents," concluded Chairman Jones.

The final text of the FTA is expected to be delivered to Capitol Hill on Wednesday. The agreement was to have been signed on January 2, 1988.

PGA's Fish Pac '88 set for Jan. 29 in Vancouver, B.C.

More than \$20 million is invested annually in gear and maintenance of the 3,000-boat gillnet fleet of British Columbia. Gus Jacobson, president of Pacific Gillnetters Association, stated in announcing the second annual trade fair sponsored by his organization of 250-plus fishermen.

The one-day expo of what's new in nets, gear and equipment is set to coincide with P.G.A.'s annual meeting the following day.

Fish Pac is set for from 9 a.m. to 7 p.m., Friday, January 29, in the Croatian Cultural Center at 16th Ave. and Commercial Dr., Vancouver, B.C.

More than 50 suppliers have reserved booth space at the exhibit, ready to show and sell what's new in the industry.

In addition to displays of merchandise and explanations of services available, Fish Pac is to feature speakers on a variety of subjects of particular interest to commercial fishermen; topics: Can Commercial

Fishermen co-exist with salmon farmers? Commercial Fishermen and The Law; Native Land Claims and Their Possible Effects on the Commercial Fisheries; Diesel Engine Maintenance and Marine Safety.

"At the annual meeting," Jacobson stated, "we expect to be discussing controversial issues of allocations, especially long-term allocations, as well as changes in gear, regulations and Native Land Claims."

Tom Siddon, Minister of Fisheries and Oceans, is to address the P.G.A. annual meeting goers, and will have senior staff people from the Ministry along to provide additional information.

Visitors are welcome to the annual general meeting. Tickets to Fish Pac '88 will be available at the door, from P.G.A. members, from exhibitors and through the P.G.A. Office, 7-17655 57th Ave., Cloverdale, B.C., V3S-1H1; 604-567-8032, Karen Radatzke, Secretary.

News writer wins award

Marilyn George of Petersburg, Southeast Alaska writer for *The Fishermen's News*, won first place in the documentary category of KTOO-TV, SE Alaska, Public Television station's Home Video Contest with an entry entitled "How to Enjoy Your Retirement."

In the 45-minute, 16mm movie that she submitted, KTOO selected a brief segment to air during an hour-long presentation of the winners on December 6. Other categories were drama, comedy, music, children and professional.

The professional presentation of a women's soccer game by Terence O'Malley of Juneau was judged the overall best.

George's film showed their experiences from the time they launched their salmon troller, "I Gotta", at Port Townsend in 1978, until they leased it in 1987. Marilyn put a



narration on tape, and KTOO put them together.

The segment that KTOO chose showed a 40-pound lingcod, a 40-pound salmon, Gut and Red Bluff Bays, herring and whales at Tyee, some sunsets and sunrises and an eagle diving for scraps.

George took the films for their own use and had not planned to show them publicly. "We wanted a record of our fishing for the children and grandchildren," she said.

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Sea Grant workshop set

Washington Sea Grant Marine Advisory Services has scheduled a workshop on fiberglass: Maintenance and Repair for commercial fishermen and recreational boaters. It will be held on Tuesday, Jan. 12, from 6:30 to 9:30 p.m. at the Maritime Training Center of Seattle Central Community College, 4455 Shilshole Ave. NW in Ballard. Fee

for the workshop is \$5.

The workshop will discuss boat construction, what to look for when buying a fiberglass boat, blistering, maintenance, painting and repair.

Because of limited space, preregistration is advised. Checks for the \$5 per person registration fee should be made payable to the University of Washington and mailed to Sarah Fisksen, Washington Sea Grant, Bldg. C-3, Rm. 124, Fishermen's Terminal, Seattle, WA 98119. For more information contact Sarah Fisksen at 206/543-1225.

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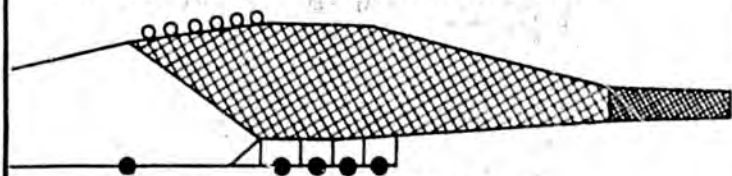
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High Seas Driftnet Bill

The House Subcommittee on Fisheries and Wildlife Conservation and the Environment recently passed legislation designed to monitor and control high seas driftnet fishing. The bill is sponsored by Congressman Don Young (R-Alaska).

HR 3584 would direct the Secretary of State to achieve agreements with foreign countries covering the cooperative monitoring of the effects of driftnets, and the cooperative enforcement of all laws currently in force covering the use of driftnets. Failure to achieve an agreement will subject those nations to sanctions against directed fishing allocations, joint venture activities, and fisheries trade.

The bill also directs the Secretary of Commerce to report to Congress on driftnet activities and to develop recommendations on how to mark driftnets for identification purposes.

"This bill is the result of a commitment that the Committee leadership made to me earlier this year," Congressman Young said. "The high seas driftnet activities being conducted by fishermen from Japan, Korea and Taiwan are a real threat to Alaska's salmon industry, and its marine mammal and sea bird populations. This bill puts in place mechanisms to insure that laws and regulations governing driftnet fishing are enforced."

Cayucas abalone farming flourishing after 15 slow years

The first and still the only operating facility that profitably raises abalone from seed-to-table completely on land, has now become the world's largest abalone hatchery of any kind. So states Frank Oakes, president of The Abalone Farm, Incorporated, Cayucas, California.

Based on three years of highly profitable operation, production capacity has been raised to 4.2 million abalone a year. According to reports, nothing in Japan, China or anywhere else approaches this scope. The 10,000 gallons per minute seawater pumping capacity is one of the largest in the world. Patented water-purifying techniques perfected by John Alexander Research Corporation enable them to operate by recirculation if seawater access were closed.

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acity within two years. This translates into \$8 million in gross revenues. With further plant growth, in five years they forecast \$17-\$18 million annually.

Their breeding stock and techniques for raising both abalone and its algae food took 21 years to develop. The abalone mature one-third faster than wild abalone, yield 30 percent steak instead of 15 percent. According to restaurateurs, who pay premium prices, they are more tender.

The Abalone Farm also has activated commercial-type pilot programs with other types of seafood to be raised away from the sea.

The Abalone Farm, Inc. evolved from one of the original abalone research partnerships. California Marine Associates formed in 1967, and its successor, Estero Bay Mariculture. The present successful firm emerged after 15 commercially unprofitable seasons.



FIGURING POWER — Manager Steve Mazepink talks Lehman Power with visitors to Fish Expo '87 from Duna Industries company, Arcadia, California. With Young B. Park, Duna president, and Kap D. Kim, a director of Duna, are Young Park (a cousin) and James Shim. The Duna company works in equipment export to the ROK, mostly seafood equipment. —TFN photo

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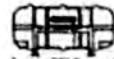
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'Commercial Fishermen Fishing For America' sues for open meetings

Salmon For All is pressing on for rights of its members as it has been doing since formed, initially, during the early 1960s.

"Commercial Fishermen Fishing for America" is the current bumper-strip line of the non-profit corporation comprised of major elements of non-Indian, licensed Columbia River commercial gillnet fishermen and fish processors and buyers of salmon harvested in the ocean, Washington coastal and Columbia River waters.

October 30, 1987, Salmon For All filed suit against the State of Washington, acting through its Department of Fisheries and director Joseph Blum seeking open-to-public meetings of state-tribal negotiations, per requirements of Washington's Public Meetings Act.

A companion bill had been filed on behalf of Salmon For All earlier in October in the state of Oregon.

According to Dennis Reynolds, fisheries issue specialist, of the law firm of Pressentine and Reynolds, depositions will be taken during January and February, with hopes of getting the matter to court sometime during March of this new year.

The suit notes that WDF "has operated, and continues to operate in a private fashion . . . that the director, or his deputy director or

assistant directors, have engaged in non-public policy discussions with tribal, Oregon and federal officials relating to management of Washington and Columbia River salmon . . . discussions resulting in agreements which control decision making of the Columbia River Compact (between Washington and Oregon) and the (WDF) Director of Fisheries . . . said public meetings are entirely a sham, in that they give the appearance of state officials being willing to receive comment, testimony and argument from members of the public affected by their action, while denying them that right in substance."

The brief quotes the Open Meeting Act: "All meetings of a governing body of a public agency shall be open and public and all persons shall be permitted to attend any meeting of the governing body of a public agency."

Relief sought, specifically, is for "A judgment of this court (Superior Court, Thurston County, Washington) declaring that the State of Washington, its Department of Fisheries and Director of Fisheries, is required by the terms of the Open Meetings Act "to open to all citizens of the State of Washington, in a public fashion all meetings, including deliberations, discussions,

considerations, reviews and evaluations, held with Washington State tribes or with the State of Oregon and Columbia River fishing tribes relating to management of salmon runs . . ."

Greg Neitzel, SFA president, early last month presented highlights of Salmon For All's current litigation efforts to the Washington Senate Environment and Natural Resource Committee at its special meeting in Longview, Washington, one of five such meetings in Western Washington, investigating complaints regarding management of Washington's fisheries resources.

"Our efforts were warmly received by Sen. Jack Metcalf (R-Langley, committee chairman)," Neitzel stated.

Vice president of Salmon For All is Jim Hogan. Bob O'Bryant is secretary-treasurer.

SFA's Board of Directors is comprised of Bill Finucane, John England, Les Clark, Keith Hartley, Doug Heater, and Alan Pakalo. Alternates (to ensure a quorum, should some fishermen members be away fishing during meetings) are Kim Barklow, Jack Davis, Dwight Eager, Bob Hyke, Jack Riser, and Steve Gray.

Meetings are held Tuesdays

(weekly, depending upon business) at 3:30 p.m. at the Port of Astoria, Pier One.

Contact: Salmon For All, Inc., P.O. Box 56, Astoria, OR 97103; 503/325-3831.

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Submitted by "FISH UNLIMITED"

Within the memory of men now living, the once tremendous runs of North Pacific salmon which thronged into every river and filled this entire coast, have dwindled away down. The species cannot stand the merciless inroads made upon them by every type of gear man's ingenuity can devise.

The onward march of so-called "civilization" is the worst hazard which every form of wildlife contends against. The fine balance which nature seeks to maintain is upset almost every case where man enters the picture. We might liken the setting of our country to the movement of a sort of super-locust swarm, as far as most natural resources are concerned. Our forests disappear, factories spring up, our waterways become open sewers and in the highly competitive life we lead, the people alter or spoil most natural things.

No one objects to making use of the things we find here upon this world of ours. There is no wrong in using for legitimate purposes. We invade only against shortsighted, needless waste. Our salmon constitute a striking case in point.

Extermination

We have been asking the impossible of the salmon species. In our greedy exploitation we have ruined vital watershed areas, blocked off once-populous salmon streams and fouled up, by pollution of every sort, so much of the waters through which these anadromous fish must migrate. Even though we have made progress in artificial propagation and rearing, to somewhat counteract these losses, it is a wonder that the species have survived as well as they have.

Much has been said and written on the subject. There is now a more or less widespread knowledge on the causes of salmon decline. Perhaps one-half of our state's population understand the situation fairly well and are quite in sympathy with any logical scheme which promises remedy. The great difficulty lies in combating human indolence and in eradicating certain abuses which impose utterly needless handicaps on the species. Our people seldom are as alert as they should be to their own best interests. They need accurate information. They need better leadership.

Conservation Effort

There are a number of groups working toward salmon conservation and improvement. "Fish Unlimited" is dedicated simply to Better Fishing, Better Health, Better Living. (We claim they all go together). It is an attempt to do for the salmon what has been done for waterfowl under "Ducks Unlimited." We draw our membership from every walk of life, not alone the actual salmon fishermen, either "sports" or "commercial." We serve no special interests, but desire only to build back our salmon runs.

We would band together all persons who are willing to make some sacrifices to bring the salmon back. We aim to build a constructive force which shall be heard and heeded. While we might liken in a way all conservation efforts at this time to the futile attempts of the old-time Indians who sought to stem the flood of "palefaces" over the

lands, yet we must not allow the species to go the way of the Atlantic or European salmon. Although the coming war brings bigger issues to the fore, it becomes our plain duty to keep those blessings which make our country the greatest among all the nations!

Our salmon fishery and the industry built up directly and indirectly around it is our State's most valuable asset, but we must consider this great resource from the standpoint of its recreational value even more than direct economic importance. However, there is no reasonable excuse for strife or hard feelings between sports and commercial fishing interests. Nature created salmon for both "hook" and net fishermen. Sockeyes, pinks and chum salmon comprise the far greater portion. They are the major commercial take. These kinds seldom bite a hook. It is the kings, silvers, and in less

more than 9 parts of free oxygen per million parts of water. This oxygen supply is constantly maintained by nature's processes. Pollution attacks this dissolved oxygen. Tubs have been made in some of our worst polluted harbors, with zero or near-zero oxygen readings recorded. Under such conditions all fish life suffers severely and baby salmon are among the first to die. They normally live in the top water where most oxygen exists, but because of their susceptibility are seldom seen in badly polluted areas. They die before reaching the worst polluted places.

In their early migrations young salmon must by nature spend some time in or near the river mouths, as they acclimate themselves to the change from fresh to salt water. It follows that sulphite pulp mills and other industrial plants whose liquid wastes are not

industry and resource. They should pay for the damage their death traps have wrought our fisheries!

More Dams?

In the past many dams have been built without proper regard for fish and wildlife welfare. So long as the damage has been already done in certain places (such as Grand Coulee Dam), we favor full development at such sites before building new dams. And since it is possible to locate future power plants where a minimum of damage would be done, we advocate that no new installations be built without the cooperation and approval of Fish & Wildlife Service and our State Game and Fisheries Departments.

In the past not enough attention has been given our fisheries, with over-emphasis placed upon power development and land reclamation. We demand that in future an equal consideration be granted fisheries; that everything of a reasonable nature be done to improve natural salmon spawning areas, to make up in all possible ways for outright losses of such natural areas.

Regulations?

From their very nature it is quite evident that our salmon cannot be rehabilitated by fishery regulations alone. We need more uniform legislation with the state of Oregon, to benefit the Columbia River. We need international cooperation to protect our offshore fishery, from lower California up to and including the Bering Sea.

We have a fine example expressed in the feeling between our organized Sportmen and the State Game Department. We need a greater spirit of friendly cooperation between our commercial fishing interests and the State Fisheries Department, but we feel that regulations on the fishing alone will never bring the salmon back!

Education Program

Even a cursory survey of the situation reveals the need of greater public education. Thoughtless individuals kill tiny salmon that should have been returned unharmed to the waters. Camp fires are left to burn themselves out, or cigarette butts carelessly slipped away, and thus great watershed areas have been burned over. Many common practices are to be condemned.

Industrial concerns drain all manner of waste liquids into our waters, while cities dump raw sewage where it can become a health menace and an offense to human decency. Not only is this a health menace, the practice is as unsound economically as it would be to shovel barnyard manure into our rivers. Forests are indiscriminately cut down and perhaps the final product so administered that little human benefit accrues. The aggregate needless destruction in our nation is a cause of great concern in every student. There is only one answer, MORE PUBLIC EDUCATION.

FISH UNLIMITED is an attempt to do this as regards our fish and wildlife. To understand the situation is to desire to preserve and perpetuate all our God-given natural resources. Help us do this job. It is YOUR obligation too.



ser degree the humpbacks (pinks) that are the "hook" fisherman's special concern.

Kings and silvers are present in Puget Sound and all coastal waters throughout the larger portion of their lives, and in the case of some of the families or sub-species, spend all their lives in near-by waters, where great numbers are taken as immature "salmon trout." These life habits throw the kings and silvers directly in contact with all forms of water pollution and contamination, which factor alone would decimate them in time. If our northwest becomes over-industrialized and overpopulated as is the east coast. This is a condition we must not overlook or under-rate!

Carp or Salmon?

Calfish, carp or suckers can live in an element fouled up with filth, but trout and salmon must have reasonably clean water. Normal stream water contains not

properly rectified create a deadly menace to such fish. Where such plants are built up or near river mouths a great harm has been done the salmon.

Statement of Position

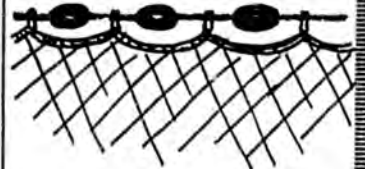
Our State Pollution Control Commission has proven that this damage exists! Experienced biologists contend that such damage to our state fishery amounts to millions of dollars every year! Therefore, we advocate that damage suits be instituted at once against the worst offenders and that moneys so collected be used to rebuild salmon runs.

We realize that with wartime conditions imminent these industries may be unable to obtain certain necessary materials to rectify their plants, and, contributing a vital war effort they should not be summarily closed down. We need their continued operation, but they must not be allowed to ruin an equally if not more important

This leaflet is paid for and distributed by FISH UNLIMITED

- Fishermen Unite - Circa 1940 leaflet of 'Fish Unlimited' notes that inter-state and international cooperation to protect Columbia River and coastal fisheries, from Lower California to the Bering Sea requires more than regulations. Also, that habitats must be protected, "if our Northwest becomes over-industrialized and overpopulated as is the East Coast." (thanks to Jack Metcalf)

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USCG issues recommendations for 'uninspected' vessel exposure suit requirements



The safety rule-making for "Uninspected Vessels," or commercial fishing vessels, was established as voluntary standards. The Coast Guard "recommends" that uninspected vessels carry USCG approved Immersion Suits for each crew member on vessels operating on the U.S. coastal waters, except for Hawaii, the Gulf of Mexico, and the Caribbean Sea. In these waters, the Coast Guard recommends suits be considered when vessels operate offshore in winter, or where prompt rescue may not be available.

However, Federal District Judge Edward Leavy's decision (Lasseigne & Sons Inc., vs Warren Bacon, May

6, 1987, Civil No. 86-490, Portland, Oregon) sets an important precedent for commercial fishing vessel litigation in the future, and will undoubtedly have an impact on insurance rates and coverage requirements. Judge Leavy held "as a matter of law that the lack of a suitable life raft and survival suit for each crew member rendered the vessel unseaworthy. I find the owner negligent in not providing basic lifesaving equipment for its employees in such a hazardous occupation."

The U.S. Coast Navigation and Vessel Inspection Circular (5-86) establishes voluntary standards for U.S. uninspected commercial fishing vessels with regard to: vessel stability; radio and navigation equipment; fire safety; lifesaving equipment; vessel construction and maintenance; machinery installation; electrical installation; and pollution.

Those standards on the "Lifesaving Equipment and Protection of the Crew" (Chapter 4), which pertain to Immersion Suits, appear below. Additional copies are available from Parkway/Imperial.

Parkway/Imperial has been producing neoprene exposure garments for 31 years. The foremost producer of immersion suits for cold water survival, Imperial supplies over half the suits used in the United States. The Imperial Immersion Suits are the only suits manufactured in the U.S. to have passed Norwegian Maritime Directorate standards, the most stringent in the world. For information about Imperial's Immersion Suits contact: Parkway/Imperial, 241 Raritan Street, South Amboy, NJ 07503; (201)721-5300.

(For "Inspected Vessels" -- ships, tankers, mobile offshore drilling units -- the U.S. Coast Guard requires Immersion Suits in compliance with IMO/SOLAS 74/83 regulations which came into force July 1, 1986, on new ships, and five years later on existing ships.)



U.S. Coast Guard "Lifesaving Equipment and Protection for Crew" standards for Immersion Suits on U.S. Uninspected Commercial Fishing Vessels (USCG Navigation and Vessel Inspection Circular No. 5-86):

EXPOSURE SUITS

A. Federal Regulations (46 CFR 25.25) Exposure suits may be substituted for required Type I, II or III PFDs on vessels not carrying passengers for hire. Exposure suits substituted for PFDs must be:

1. Coast Guard approved with an approval number beginning "160-071/-"
2. Equipped with Coast Guard approved retroreflective material (provided by the manufacturer on Coast Guard approved suits); and
3. If in ocean, coastwise, or Great Lakes service, equipped with a Coast Guard approved personal flotation device light. The light must have an up-to-date power supply (unexpired battery) and be securely attached to the shoulder area of the suit.

B. Recommendations

1. Coast Guard approved exposure suits are recommended for each member of the crew on vessels operating on all U.S. coastal waters, except for Hawaii, the Gulf of Mexico, and the Caribbean Sea. Even in these waters, exposure suits should be considered if the vessel will operate far offshore in winter, where prompt rescue may not be available. Exposure suits come in a variety of

Continued on page 35

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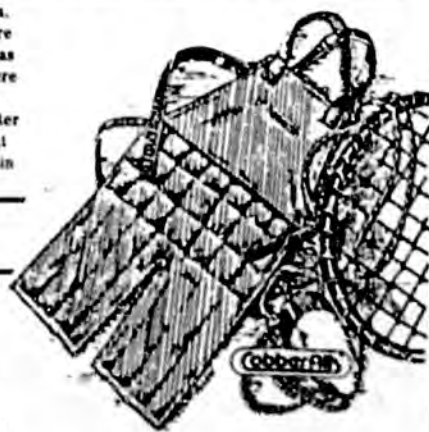
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Recommendations Issued for 'uninspected' vessel exposure suit requirements

Continued from page 34

sized so the operator should ensure each person on board has a suit that fits.

2. Exposure suits should be stored in a very accessible, dry place, such as the wheel house. Every crew-member should know the location of all survival equipment, especially the exposure suits. Donning instructions should be posted in a place where crewmen will notice it.

3. Exposure suits should be carefully checked and maintenance performed at least once a year, preferably more often. A recommended maintenance check list follows.

a. Check all zippers for smooth operation. Any corroded, broken or malfunctioning zippers should be replaced.

b. Lubricate the watertight zipper on the front of the suit with paraffin, and make sure that the zipper is open (down) when the suit is repacked.

c. Check the stitching and gluing on all of the seams on the suit as well as the seams on the storage bag.

d. Inflate the external flotation bladder to insure that it will hold air. Pay particular attention to the joints and connection point of the inflation tube. Contact the manufacturer for instruction if repair is required.

e. Write the date that you inspected the suit on the outside of the storage bag.

C. Exposure Suit Performance

1. The Coast Guard approved exposure suit is a one-piece, insulated, dry suit that reduces the crippling effects of "cold shock" and immersion hypothermia. The term "survival suit" is often used to describe an exposure suit, but there are also devices such as "work suits" or "anti-exposure coveralls" which are approved as Type V PFDs that are sometimes called "survival suits". These other devices do not provide the same protection as an exposure suit. Make sure what you buy is an approved exposure suit.

2. Exposure suits are tested by placing people wearing them in ice water (32° F) for 6 hours and measuring body temperature drop. The insulation of the suits is quite effective.

3. Exposure suits do not provide indefinite protection from hypothermia, but they reduce the rate of body cooling and survival is possible for many hours or even days depending upon water temperature.

4. Exposure suits are leak tested to prove that the wearer will remain dry. This adds to the effectiveness of the insulation, but the suit will still keep a wearer warm and afloat even with some water inside. A trickle of water through a small leak can cause discomfort, but constant flushing of water in and out of the suit, through an open zipper or a large tear, will render it ineffective.

5. Exposure suits are NOT flame-proof. They are tested to make sure that after a two second exposure to flame and six seconds of being

allowed to burn before being extinguished, the suit is still serviceable. In that length of time it is assumed the wearer will have been able to extinguish any flames.

6. Present designs of exposure suits will NOT turn an unconscious wearer face up in the water. The assumption is that the wearer is more likely to remain conscious if warm. The suit will allow the wearer to turn face-up easily, and float nearly horizontal. The flotation bladder or pillow supports the head further out of the water to reduce fatigue.

7. Exposure suits are not appropriate for routine wear while working on deck. Although the suits are tested to ensure that a wearer can do simple things like walk on a wet deck, climb a ladder, and even pick up a pencil and write, all activities are slower and more difficult in the suit. The suit is for wear when abandoning ship or when encountering dangerous situations such as crossing a bar where there is a chance of being thrown into the water or vessel capsizing. For routine wear, you may want to invest in a Type V work suit.



D. Exposure Suit Maintenance

1. The suit comes in a storage bag and should be kept in that same bag. The bag itself is tested to provide significant protection to the suit, and is clearly marked.

2. The zipper of the suit needs to be waxed periodically to lubricate it. If no wax came with the suit, or if it is used up, buy paraffin (the type used for home canning, from a supermarket) or beeswax (from a sewing or fabric store). Rub the wax over the zipper teeth, then open and close the zipper several times to spread it around. Store the suit with the zipper open.

3. Do take the suit out and try it on, in the water if possible, as soon as you get it and periodically thereafter. This is a good way to check its condition, and the more familiar you are with it the more likely you are to survive if you ever need it. Treat it with reasonable care.

4. After use, hang or spread the suit out to dry thoroughly. When the outside is dry, turn it inside out to dry again. Water usually does get inside somehow, and it will cause mildew and odor if you skip this step.

5. Leaks or rips can render the suit ineffective. If they cannot be repaired using a kit packed with the suit, or by the manufacturer, the suit must be replaced.

6. If the fabric covering the exterior

of the suit is worn through, exposing the foam underneath, it's time to replace the suit.

7. Two manufacturers voluntarily recalled early suits because of problems with the inflation tube for the auxiliary buoyancy unit. We still find these suits in use today on some uninspected vessels who didn't get the word. If your suit manufactured in 1981 or before does not have a clamp around the tube at each joint, contact the manufacturer. You may have one of the problem suits. The

manufacturers involved are still making free repairs to those early suits.

8. Mark the suit with the vessel's name in large letters using a waterproof marker or stencil. Avoid using paint which may become brittle. Marking the suit permanently may help prevent theft and will help rescuers who may find a suit afloat to identify the vessel it came from.

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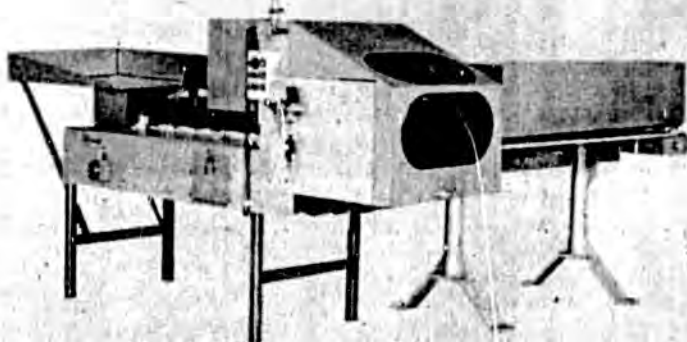
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LFS Inc., 851 Coho Way, Bellingham, WA 98225. Phone: (206) 734-3336, Washington toll free 1 (800) 562-8819, Alaska and Continental U.S., 1 (800) 426-8860.

Stainless steel platform scale

Circuits & Systems proudly announces the availability of a rugged high capacity platform scale with a large 20"x27" stainless steel platform for all heavy duty applications.

Series SX scales are available in capacities of 500 or 1,000 lbs., with

production and packaging.

List price of Series SX with stainless steel platform is \$1,045. Delivery is approximately two weeks ARO. Dealer inquiries are welcome. Call or write: Circuits and Systems Inc., Foot of Second Street, East Rockaway, N.Y. 11518. (516) 593-4301.

New digital bench-top scale

Circuits & Systems, Inc., proudly announces the release of their new model BX-5 digital electronic bench-top scale featuring a capacity of 5 lbs. with a resolution of .001 lb., ideal for precision industrial weighing.

Model BX-5 features a large 12" x 16" stainless steel platform. A heavy-duty industrial strength casing houses a stainless steel load cell and advanced circuit board.

Standard features include large LED display, auto tare, auto zero, lb./kg. conversion (2.25 kgs. .0005

Continued on page 37

The Longline Specialists

Halibut and Black Cod Gear

GROUNDLINES:

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Fisherman's Terminal Seattle, WA 98119 (206) 283-7000
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SEA-SHIP

VHF Channel 13 Survey

In order to determine the severity of traffic problems on VHF Channel 13 with regards to vessels transiting the Lake Washington Ship Canal and Hiram M. Chittenden Locks, the following brief survey has been prepared for regular marine radio users in the Seattle area. Results are to be used as a basis for reevaluation of local marine radio policies.

Name (Optional): _____

Vessel/Station (Optional): _____

Operating Area: _____

1) How many hours a week do you monitor VHF Channel 13 while in the Seattle Area?
1-4 hrs. _____ 5-20 hrs. _____ Over 20 hrs. _____

2) Do you feel that radio transmissions between vessels maneuvered in local area make up a Majority () or Minority () of the radio traffic or Haven't considered it ()

3) Have you ever had your transmissions blocked or broken by another transmission on Channel 13?
Yes _____ No _____ If yes: Often _____ Seldom _____

4) Have you noticed any appreciable change in the amount of radio traffic since the Locks limited their radio comm?
Yes _____ No _____

If yes: Improved () Made Worse () No Change ()

(Attach additional information if you wish.)

5) Do you as a radio operator approve of the limitations on radio comms. as enacted by the Locks?
Approve () Disapprove ()

6) Would you support a similar policy regarding pleasure boat radio contact with the Seattle bridges? Approve () Disapprove ()

Please mail to: VHF Survey, 2405 NW 80th #204, Seattle, WA 98107.

WHAT'S NEW

OFF THE PRODUCTION LINE

Continued from page 36

kg) and net/gross modes. Available options include rechargeable battery pack, set/point driver for filling



operations and BCD or analog outputs.

The BX-5 is the newest addition to a line of portable bench top scales, which now totals five models offering up to 100 lbs. capacity.

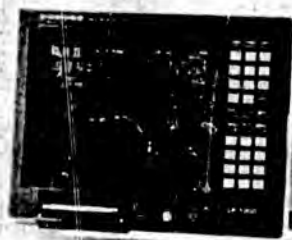
List price of Model BX-5 is \$845. Delivery is approximately two weeks ARO. Dealer inquiries welcome.

Write or call, Circuits & Systems Inc., Foot of Second St., East Rockaway, N.Y. 11518. Phone: (516)-593-4301.

New Loran/plotter

Furuno's new LP-1000 combines a high precision Loran C receiver with a 7" high resolution 512x400 pixel video plotter in a single, very compact cabinet. Presentation is

North-up Mercator with scaling from 1/2,000 to 1/5,000,000. The plot area can be easily expanded or contracted and memory capacity includes a 3,600-point course line and 100 points for waypoints and events. A ROM card stores 4 pages of 500-point electronic plots, equivalent to a whole day's trip for many commercial or sport fishermen.



Ten unique routes of ten waypoints each can be memorized and a course line can be entered into memory simply by sampling any 10 waypoints (defined by L/L, TD's, range/bearing, events, or cursor mark). Plot intervals can be set at 5 seconds, or as any integer-5 multiple of time or distance. The LP-1000 easily accepts input from external nav receivers, speed logs and heading sensors, and it has outputs for autopilots and printers.

For more information, write or call: Furuno U.S.A., Inc., P.O. Box 2343, So. San Francisco, CA 94083. Phone 415-873-9393.

Easy-to-use 'locator' loran

Interphase Technologies, of Santa Cruz, California, has introduced a new generation Loran C-the completely portable Interphase Locator, designed for fishermen and cruisers on both inland and coastal waters.



The Locator is so small and easy to use that it's hard to believe it has so many useful features. Its fully automatic operation makes finding your precise location a snap. And its simple waterproof keypad makes it easy to find and relocate up to 100 favorite fishing spots. Push the "Home" button and the Locator instantly displays the course and distance to reach home. Locator will even allow up to 40 positions to be "chained" together and then automatically help steer the boat to each point.

Its efficient microprocessor uses less than 1/10 amp, allowing up to 100 hours continuous portable use. It even comes complete with a built-in antenna for ease of installation. The Locator will also run on standard 110 VAC home wiring so the owner can take it home to practice, input

favorite locations and plan trips.

The Interphase Locator also displays actual speed and course over the bottom, time and distance to go, distance and direction off the desired course and an alarm sounds upon arrival.

The Locator comes complete and ready to use. Just extend the built-in antenna and turn it on. Locator measures only 6.75"Wx3.75"Hx4.5"D.

For further information, contact Tom Harris (408)426-2007.

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 skiff combo All aluminum 24' x 8'. Power roller,
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FV AURORA, 32' x 10' x 4 1/2' CEDAR/OAK/FIR
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 Consistent production record 1975-1987. Asking
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38' x 13' NET 13 TON HOLD, FORD 110 HP
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FV TAR BABY WITH SE GILLNET PERMIT.
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47' SUNNFJORD, LONGLINE, TROLL,
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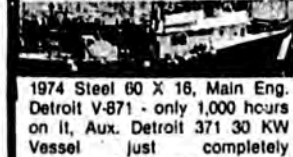
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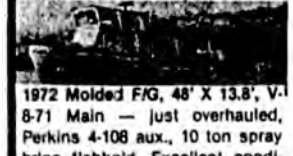
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1982 48' x 15' Wood - 15 Ton
 fishhold, Maine engine
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1974 Steel 60' x 16', Main Eng.
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 Vessel just completely
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1972 Molded F/G, 48' x 13.8', V-
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 Main GM 6-71N series Twin
 Screw, Aux. 2 ea. GM 2-71 to 25
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 Equipped for albacore bait
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1978 steel 65' x 19.5' main eng.
 CAT 3408, 6.1 gear, aux. two 4-71
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 shrimp, crab, drag, gillnet and
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85' x 22' x 10.7' - STEEL LONG-
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 recent conversion. CAT D353
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80' x 22' STEEL REFRIGERATED
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Boats



F/V WESTERLY, 40' TROLLER/CRABBER HYI Alaska built, high bow, beamy wide stern dol. ender. With large hold and plenty of deck area. Economical 150 hp 8 cyl. Cummins. Thompson anchor winch. Standard electronics. With recently added 24 mi. Furuno radar. Crab block. Simplex tuna pullers. Hyd. power steering for crabbing/longlining. Brass and stainless rigging and plumbing. Vessel is immaculate and in excellent condition throughout. An exceptionally beautiful and seaworthy all purpose design. Professionally built, rigged and maintained. Calif and Ore troll licenses available. Moored in Bandon, Ore. 503 347-2282 - 503 347-3664. 11/1



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Boats



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LONGLINER OCEAN CHALLENGER, 60' x 18' x 9'. Keel, steel const., built 79. First class hydraulic system, designed by Hydro Power Systems, Portland, Oregon. GMC 12V 71 N and a 453 GMC aux. 15KW Cen. 32V, 12V, 11V and 220V. 2 banks 32V, 2 banks 12V, 15 ton compressor, hydraulic blower system, also plumbed for spray brine. 6" foam and glass hold, hold cap. 80,000 lbs. halibut, 5000 gal. fuel, 1500 water. Electronics: 2 Stevens side bands, 2 VHF, 2 800 fthms. Furuno recorders, 2 Furuno radars, 48 and 64 mi., 3 Loran, 500 B Pilot, CB, collision alert, 275 fthms, 5/8" anchor gear, alum. 75 skate halibut drum with gear, also approx. 125 skate 11/32 black cod gear. New fully covered alum. shelter deck. Boat also plumbed for dragging and can be converted to a seiner. Boat first class all the way, turn key operation. Available Jan. 1, 1988. \$380,000 firm. Home phone 707/937-0158. Msp phone 707/964-1877. 10/11



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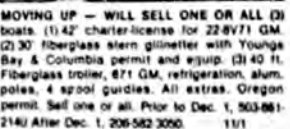
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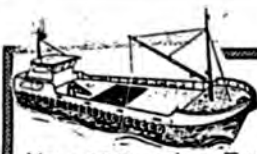
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FV CAROLE B., CA SALMON PERMIT, 46' troller 12 ton net GMC 6-71 reel cooled, 2 VHF, CB with scanner, 8" kodiak, flasher, radar, 5000 Wood Freeman auto pilot, low speed indicator, TV. Stainless rigging hydraulic gurdies and anchor winch, 2 spare anchors, skiff, salmon and albacore gear included. 3 bunks, good live aboard. Must sell because of health, so reduced to \$20,000. \$16025-4472. 1/41

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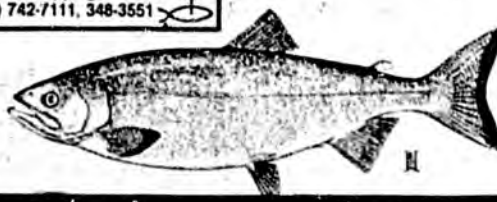
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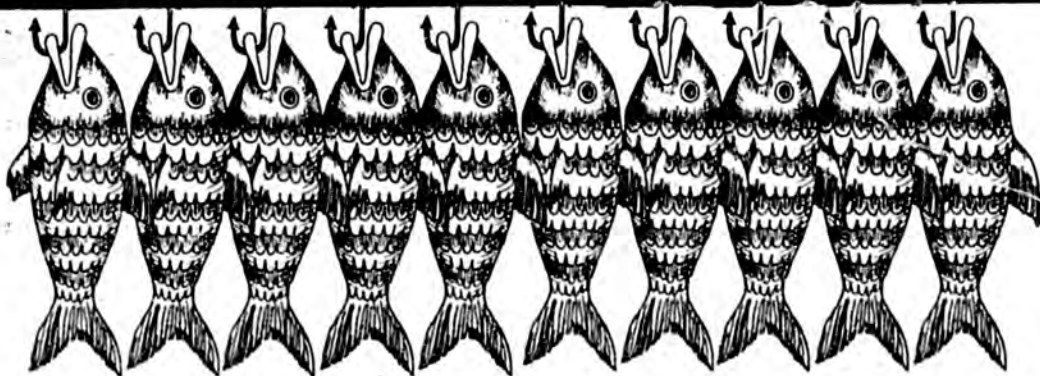
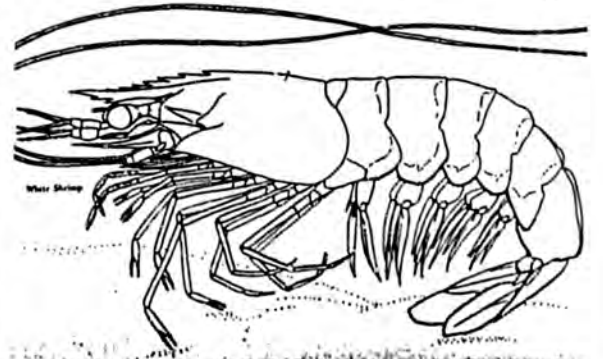


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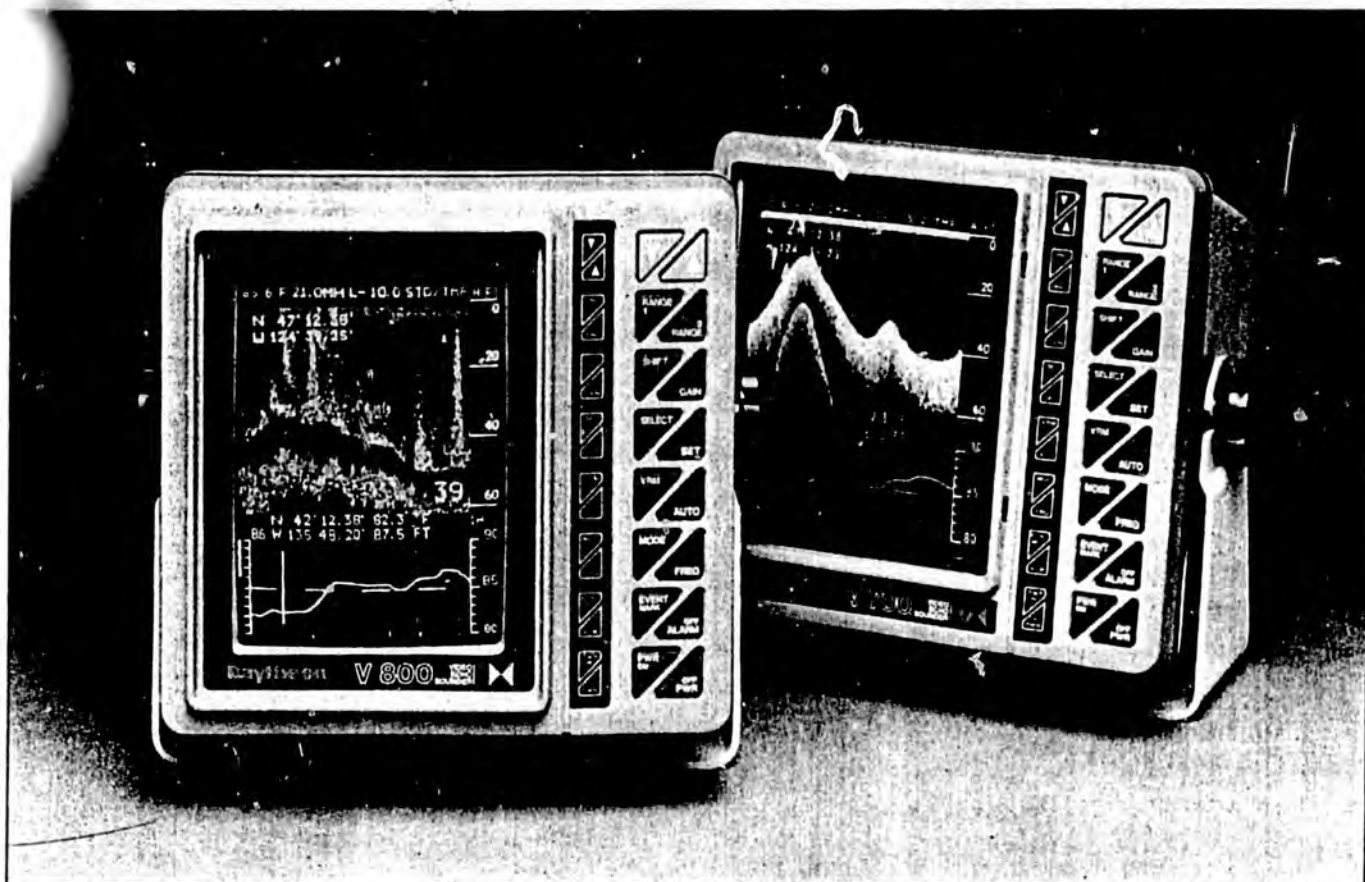
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Education a Job for All, ANB, ANS Told

By PAT FORGEY
Sentinel Staff Writer

William Demmert, commissioner of the state Department of Education, told the ANB Grand Camp convention Friday what he has been doing to advance Native education, but he also told the delegates what they must do to assist other Natives in getting a good education.

Demmert is a member of ANB Camp No. 2 in Juneau, and is the highest ranking Tlingit in the Cowper administration. His brother, LeRoy, is the principal of Sitka High School.

"The attitudes of parents and the community all work to influence how children do in school," Demmert said.

"We must strengthen family development programs for building parenting skills," he said.

Programs that strengthen families will help Native children do better both in school and in life, Demmert said.

"The extended family has broken down, and in some cases the immediate family has broken down also,"

Demmert warned. "We need to take steps to strengthen them."

Community-based early childhood educational programs are a must to help native children do well in school, he said.

"We see that as the single most important thing in helping to make children become successful adults," Demmert said.

Education for all Natives, not just some select people, is a must in order to strengthen the Native community, he said.

"We must encourage students who are not going to the university to stay in school," Demmert said.

Vocational and other especially designed programs may be necessary for those students, he said.

Demmert also told the convention about the ways the Department of Education is working to assist Natives in completing their education.

Alaska needs to have more Native teachers, if more Native children are to graduate from the schools, he said.

"We are working with the Universi-

ty of Alaska to attract and retain Native Alaskans into the ranks of the teachers," he said.

Demmert is a former dean of the school of education and liberal arts at the University of Alaska-Juneau.

Local ANS Camp No. 4 President Doris Bailey asked why more Native Alaskans are not hired as teachers in Alaska schools, and what Demmert could do about it.

"There are many qualified Native teachers, but they don't seem to be getting hired," Bailey said.

Demmert said that he was talking with local superintendents and principals about hiring more Natives, but the responsibility lies with local school boards.

"As school boards, they have the authority as well as the responsibility to hire proportional numbers of Native teachers for their schools," he said.

The placement office at the University of Alaska is making up a list of Native teachers who don't have jobs, which would give school districts looking for teachers a place to start, he

said.

Willard Jones, a Ketchikan ANB member, asked what Demmert was doing to make sure that non-Native teachers who teach Native children understand the Native culture.

Demmert said Alaska requires that every new teacher take classes in cross-cultural and multi-culture education.

Teachers currently working in Alaska will have to take similar classes in order to have their teaching certificates renewed, and before long every teacher in Alaska will have taken classes designed to familiarize them with other cultures.

Demmert promised his department will look at any recommendations made by the Grand Camp and other Native groups concerned with improving Native education.

One such group is the Southeast Alaska Native Education Commission, which comprises members of ANB-ANS, the Tlingit-Haida Central Council, and Sealaska Corporation.

Now is the time to take suggestions to that group, he said.

Commercial Pen-Rearing Of Salmon: Can Alaska Gamble?

By Senator Richard I. Eliason

There is a groundswell of interest in Alaska and around the world in the mariculture-aquatic farming industry, including the farming of finfish, shellfish and sea vegetables. Alaskans are actively exploring economic development possibilities and the concept of launching a new renewable resource industry in the state is a tantalizing one. Enthusiasm, however needs to be tempered with prudence.

The states or foreign countries currently involved in intensive fish-farming have done so because their natural stocks are no longer strong. However, the opposite is true in Alaska. Our wild salmon stocks yield harvest among the most abundant in the world. Alaska now produces 43 percent of the world-wide total of wild salmon, and 90 percent of all the wild salmon produced in the U.S. It is no exaggeration to assert that salmon is a mainstay of the state economy. The actual economic impact of Alaska's salmon harvest is worth many times the harvest value. Processing alone can nearly double the value of the catch. The seafood industry, in which salmon plays the leading role, provides more jobs than any other. The state's natural fishery resources and the industries they support must be protected.

The conscientious stewardship of Alaska's valuable seafood resources, maximizing their benefits while at the same time protecting them, is of overriding importance. If Alaska proceeds with finfish farming, the cost of this stewardship will increase significantly. Concern has been expressed about the potentially negative effect of fish farms on water quality. Water pollution from fish feces, unconsumed feed and land-based farm operations must be carefully controlled, necessitating the careful development of siting guidelines and a process for site reviews. The appropriate regulatory agency must have funding to carry out its monitoring and enforcement responsibilities. A means for resolving disputes over use of coastal waters must be created: many of the best prospective sites for finfish farming are cherished

as safe harbors by fishermen and recreational boaters.

The subject of fish disease has generated heated controversy. Indigenous fish diseases are found in natural stocks, but most are self-limiting in the wild. Wild fish tend to be dispersed, and are not subject to the stress of a pen-rearing environment. The effects of large concentrations of biomass in a limited area are largely unknown. The presence of unconsumed fish feed and feces provides a nutrient-rich environment conducive to the growth of bacterial populations harmful to fish, and no matter how clean the environment of the pen, there is always the risk of disease: bacterial, viral and parasitic.

The most disturbing aspect of the subject of fish disease is that most diseases are easily transmittable. Many pens are not designed to adequately safeguard against escapement of farm fish, wild fish can be attracted to the proximity of the pen by the presence of nutrients, and some diseases can even be borne in the water by currents. One can only speculate upon the impact of intensive pen-rearing of salmon on wild fish stocks. It won't necessarily be detrimental, but not enough scientific research has been conducted to prove that it won't be detrimental.

If private for-profit pen-rearing of salmon is authorized, the state will have to determine what government's role will be in terms of regulation and support. To what degree should the state regulate salmon farms to ensure their stocks are healthy? Is Alaska willing to expand public funds to gear up for a large-scale application of technical disciplines including fish-disease control? Failure to do so has been a source of a number of British Columbia's problems in its trouble-plagued experience with salmon farming.

Norwegian government subsidies have effectively reduced the price of their farmed salmon enabling that nation to become a leader in this new industry. Assistance takes the form of capital investment subsidies, capital grants, salmon shipping and transportation subsidies (including the creation of a complete road-sea-air system).

salmon product subsidier and salmon price subsidies. The government provides support in the areas of research and development, quality control, advisory services, free disease-diagnostic services and marketing assistance including international trade provisions.

These forms of government support make Norway a formidable competitor and will enable that nation to outstrip the U.S. as a leading fish exporter by 1990. By that time, worldwide farm production of the premium species of salmon may account for half of the total production of fresh and frozen salmon available on the work market. Some industry analysts predict that the supply of Atlantic salmon will overtake the demand by 1990. Given this scenario, will Alaska fish-farmers be able to compete successfully?

Just in order to gear up for the industry, the state would need to make operating budget appropriations to va-

rious agencies. How much support can the state afford to provide, or not to provide? Where will the money come from? Will we take resources away from our existing rehabilitation programs and product promotion efforts (programs which have already suffered from significant budget cuts the last two years) to put toward mariculture? Will we really be creating new jobs or will we be taking them away from one group and giving them to another? (Norway's 500 gillnetters will be legislated out of business next year — permanently.)

There may indeed be a place for mariculture in Alaska, but the unanswered questions about market conditions, profitability, fish disease and its impact on natural stocks and the degree to which the state is willing to support and subsidize the industry point to a cautious approach to finfish farming.

Court Wants Views in Alaska Mining Case

WASHINGTON (AP) — The Supreme Court said today it wants to hear the Reagan administration's views in a dispute over Alaska mining interests.

The court invited Justice Department lawyers to submit legal briefs in a case in which environmentalists and others are trying to force Alaska mining interests to pay the state for mineral deposits from public land.

A lower court ruling in the case is being challenged by miners and state officials on one hand and by a coalition of environmental, native Alaskan and fishing groups on the other.

The environmentalists and their allies want the miners to pay royalties or rent in compensation for minerals extracted from more than 103 million acres of land.

Jurisdiction over the land was transferred from the federal government to Alaska when it was granted statehood in 1958.

The federal law authorizing statehood said mineral deposits in the public land are "subject to lease by the state as the state Legislature may direct." The law also said that lands or minerals "disposed of contrary" to the statute would be forfeited to the federal government.

The Alaska Supreme Court ruled in May that the state's failure to require payment for land with mineral deposits violated the federal law.

But the state court applied its ruling "only to those lands known to have been mineral in character at the time" the state selected the property for inclusion in its public lands.

The environmentalists and their allies said mining interests should pay royalties for minerals extracted from any of the 103 million acres of public land.

SALMON FARMING IN ALASKA?

WHY?

The states and foreign countries now involved in salmon farming either don't have any wild stocks to worry about or are trying to offset losses from diminishing wild stocks. Most of Alaska's salmon runs are stronger than ever before. So what's in it for Alaska?

WHO WILL DO IT?

Alaskan banks, like Canadian banks, have said they are not willing to finance salmon farms. They say it's too risky and if the farmer goes broke all the bank has left is the fish. As a result, at least 60% of British Columbia's operations are controlled by foreign investors. Can we expect it to be different in Alaska?

Can we expect foreigners to care about maintaining the health of Alaska's wild stocks?

Won't foreigners want to protect their investments by hiring their countrymen instead of Alaskans? They have in British Columbia. The Alaska Legislature has been completely unsuccessful in requiring local hire.

Can we prevent foreigners from taking their profits out of Alaska?

Can we expect foreigners to be willing to compromise with fishermen for increasingly scarce state money for fisheries programs?

WHO WILL PAY?

Every place with success in salmon farming spends millions of government dollars for research and regulation. Alaska's budget is getting tighter and fisheries programs are being cut every year. Legislators will find the only logical source of money to regulate salmon farming is current fisheries programs. This means fishermen will be hurt to help salmon farmers.

In British Columbia some of the salmon farmers have already gone bankrupt. Since going bankrupt means you can't afford to pay for anything, the government has been forced to spend money to clean up the sites and take care of the fish. It's cost everyone except the guys who have gone bankrupt.

Norwegian investors have required British Columbia's salmon farmers to buy their equipment and supplies from Norwegian companies. This has meant salmon farmers can't take advantage of competitive prices and local store owners receive few spin-off benefits.

WHO WILL IT HURT?

Tourists: Alaska's attractions, wilderness and scenic beauty, will be marred by the sights, sounds and smells of salmon farms.

Environmentalists: Uneaten fish food containing drugs and other additives will be washed into the ecosystem with unknown results.

Sport fishermen: Access to favorite fishing areas will be restricted. Hatchery funding will be cut. Diseases may be spread to wild stocks.

Commercial fishermen: Fisheries management programs will be cut. Anchorages will be blocked off. Competition for markets will be increased.

Store owners: Business will be hurt as these other activities are curtailed and salmon farmers are prevented from buying locally by their investment contracts.

Municipalities: Decreased revenue from these curtailed activities and from reduced property value, plus increasingly difficult decisions due to competing interests will cause more problems than it's worth.

Legislators: Policy and budget decisions required by salmon farmers will become increasingly unpopular at home.

The closer we look at the salmon farming experiences of other places, the surer we are that it will be actively harmful for Alaska.

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FACTS ABOUT SALMON FARMING

** Alaskan policies protect wild stocks from disease and genetic problems by banning importation of other species. In British Columbia, salmon farmers are now demanding to be allowed to import Atlantic salmon. They have learned Pacific salmon mature too early in pens, so the product isn't worth as much. Can we be sure this won't happen in Alaska?

** 80% of the cost of insurance for salmon farms is based on the experience of the operator. Few Alaskans have any experience. Alaskans will have either sky-high insurance rates or partners from another country with fish farming experience.

** Fish consumption is increasing because it's considered health food. How successful will fish farmers be when it becomes known their fish food is laced with antibiotics to prevent disease and pigmentation to make the fish a right color?

** Farmers concede they pay out about \$500,000 before they begin to profit. How many Alaskans can afford to have this much money drain on bank accounts before they even make their first sale?

** Much of Alaska's coastline is made up of small bays and inlets. British Columbia has found Pacific salmon need larger pens than Atlantic salmon to avoid diseases caused by stress. This means reduced access to coastal areas by sport and commercial fishermen, recreational boaters, and tourists.

** British Columbia's farmers have found they have to be close to transportation centers to make a profit. It has lowered the value of waterfront property and discouraged tourism to have smelly fish farms so close to towns. Will this happen in Alaska?

** Instead of expanding its salmon farming businesses, Norway is limiting their size and beginning an ocean ranching program like Alaska's. They've decided it's cheaper to let the salmon feed themselves in the ocean.

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FISHERMAN'S FORUM



Omega-3: The Troller's Trump Card in the New Salmon Game

by Kate Montgomery

The cards have been dealt. Wild salmon's strong suit is omega-3 fatty acids. Trollers can stay in the game if they play this winning card.

Nature endowed wild chinooks and cohos with an abundance of omega 3, a unique polyunsaturated fatty acid that has recently been credited with substantially reducing heart disease. Medical evidence and research support this fact. Nutritionists agree that omega 3 is superior to vegetable oils and to omega 6 (a related fatty acid) in the prevention of atherosclerosis and coronary heart disease.

The highly independent, self-reliant troller has some very real concerns with the impact of farm-reared salmon on his livelihood. Rightly so, as pen-reared salmon from domestic and foreign mariculture could spell economic ruin for trollers. The individualism inherent in the trolling lifestyle hampers organized, cooperative efforts by trollers to promote wild troll-caught salmon. Besides improving quality control measures, however, trollers can increase demand for wild salmon by educating the consumer about its nutritional advantages.

The characteristic determination of trollers to succeed is evident in their admiration for those who fish the longest and hardest even in the face of deteriorating weather. With equal determination, trollers are shortening trips, converting to freezer boats, and applying meticulous standards of care to improve the quality of their product. While commendable, these quality-control efforts have limits to their impact. A fish can only be so perfectly dressed and promptly delivered.

This leaves marketing as the real arena for competition. The intricacies of consumer opinion and consumer choice can be directly affected by educating the public. The nutritional superiority of wild fresh or fresh-frozen salmon over pen-reared must be conveyed to health-conscious consumers. Trollers need to play this trump marketing card in the new salmon game.

Within the next few years, saturation of the market with farmed salmon will probably occur. The resultant depressed prices may become self-limiting for the salmon farmer. If wild salmon are distinguished from the pen-reared variety ("Wild Premium" vs. "Farmed Substitute") and their uniquely healthful characteristics are emphasized, troll-caught fish may hold their own in the marketplace.

The nutritional advantages of including more fish in the diet are inarguable. Fish are low in sodium, a lean protein source, and rich in iodine. Most important, fish are low in saturated fat, the culprit responsible for elevating blood cholesterol

and causing arteriosclerosis. Regular fish eaters have a lower risk of heart disease because the fatty acids in fish can actually reverse the process of arterial damage. For example, Japanese fishermen with a high fish diet have a low incidence of

colder waters have more omega 3 fatty acids, presumably because they need more flexible membranes than fish in warmer waters. (Fatty acids are integral building blocks for cell membranes.) The logical conclusion is that wild salmon from colder

"Wild salmon have a distinct advantage over farm-reared salmon in their levels of omega-3."

heart disease. The fat that fish do contain is in the form of beneficial unsaturated fatty acids rather than harmful saturated fats. The so-called "fatty" fish (salmon, mackerel, herring) are unique because they are so rich in these desirable fatty acids. This is why Greenland Eskimos have such low incidence of heart disease despite a high fat diet. The fats they consume are the omega-3's which are much more effective than the omega 6 fatty acids in vegetable oils.

Media campaigns have convinced "heart-smart" consumers to use vegetable oils and corn oils. These oils contain primarily omega 6 linoleic acid ("omega" refers to the position of the first double bond in the biochemical formula). Recent evidence that the omega-3 variety found in fish is superior to the omega 6 type in vegetable oil should be the cue to develop a marketing campaign that would put margarine and cooking oil to shame. Consider the impact that simple education of the public would have if they were made aware of fish's superiority. Moreover, wild salmon have a distinct advantage over farm-reared salmon in their levels of omega-3.

Omega 3 makes platelets and clotting factors in the blood less sticky. Because of this anti-clumping characteristic, fewer heart attacks occur in individuals prone to coronary heart disease who have diets rich in omega 3. In addition, omega 3 decreases blood levels of triglycerides, is a natural anti-inflammatory, inhibits the growth of tumors (in rats), and combats the vascular initiation of migraine headaches. Of the common fatty fish, the omega-3 content is highest in chinook salmon, followed in order by mackerel, pink salmon, coho and sockeye salmon, and herring.

The fat content of fish varies seasonally and geographically, and depends on species, sex, salinity, and water temperature. Fish in

offshore environments may have higher relative omega 3 levels than fish confined to pens located in typically warmer and shallower water. It is interesting to note that during El Nino, the omega 3 content of wild salmon dropped because of the warmer current. Apparently, they didn't need as much omega 3 to maintain the flexibility of their cell membranes in warmer water.

Critical to the trolling/farming issue is recognition that the omega 3 levels in fish depend directly on the marine food chain. Marine fish are high in omega 3 because marine fish feed on phytoplankton. Phytoplankton are very rich in linoleic acids. This is relevant in terms of what is fed to farmed fish. The diet provided to confined fish affects their nutrient composition when harvested, as well as the final product for human consumption. Nutritionists are concerned about the diet of farm-reared salmon, specifically the processed fish-oil supplements which concentrate cholesterol and the antibiotics in fish feed. The catfish-rearing industry has set the precedent of reliance on feed antibiotics, and it is expected that salmon rearing will follow suit.

Research has demonstrated that omega 3 is required for fish growth. For example, catfish reared on corn must have omega 3 supplements to gain any size. Wild salmon tap natural omega 3 sources that support growth to more than 60 pounds. In the economics of mariculture, the cost of providing supplemental omega 3 vs. accepting growth concessions in farmed salmon will determine their competitiveness with wild salmon.

The chance of "phytoplankton" appearing on the menu of farmed salmon is quite remote. Instead, farmed salmon will receive processed fish oils in their feed to provide the missing omega 3. Fish meal, a component of salmon feed, contains very little omega 3. This is

because the process of fish meal production (from menhaden, and industrial species of fish) expresses or removes most of the omega 3. Adding it back in the form of processed fish oil is undesirable because processed fish oil contains concentrated cholesterol.

Similarly, the American Heart Association has advised against fish oil capsules in its dietary recommendations, because efficacy and safety of the capsules has not been confirmed. The utility of omega 3 may depend on its consumption with interacting components present in fish flesh. Fish oil capsules are made from pressed, eviscerated fish in a process which concentrates the cholesterol. Wild fish as a source of omega 3 do not transmit these discouraging amounts of cholesterol.

Bioaccumulation of contaminants occurs readily in some fish, particularly those with high fat reserves. Great Lakes coho currently have so many contaminants stored in their flesh that commercial sales and commercial fishing of them is prohibited. Thankfully, salmon from the Pacific Ocean are much less contaminated. Ocean-caught fish have had relatively less exposure to toxic chemicals and pollutants than fish raised in confinement near shoreline developments associated with polluting effluent. Pen rearing large numbers of salmon also concentrates fish feces and nitrate levels in their watery "feedlot."

Considering that West Coast trollers produce 33 percent of the world's supply of troll-caught kings and cohos, it is sad that our domestic markets aren't stronger. (We import 60-70 percent of our fish and we're Norway's biggest customer.) With the knowledge that troll-caught wild salmon have marketable advantages over their pen-reared relatives, trollers can play their hand confidently. The natural foodchain, cold offshore temperatures, and limited exposure to shoreline pollution make wild salmon a superior source of healthful omega 3. Trollers have a premium product and a premium opportunity to teach the marketplace why. □

Kate Montgomery fishes with her husband Robert on the troller Osprey. She is a graduate veterinarian and has worked in atherosclerosis research at Mayo Clinic.



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ANB, ANS Convention Ends; Grand Camp Gets Endowment

By PAT FORGEY
Sentinel Staff Writer

Sealaska Corporation has set up a \$500,000 endowment program to help fund the Alaska Native Brotherhood Grand Camp, the regional Native corporation announced during the Grand Camp convention.

The endowment program, assuring a stable source of funding for the ANB in its efforts on behalf of Natives, is the most important thing to come out of the convention, said Roy Bailey, president of Sitka ANB Camp No. 1.

The earnings from the fund are not earmarked for any specific purpose, but may be used however the Grand Camp desires.

"Our biggest problem has been a lack of money," said Doris Bailey, president of ANS Camp No. 4, in Sitka. "This will mean that the Grand Camp can really become effective in today's world," she said.

The formal announcement of the endowment came at the Friday evening dinner hosted by Sealaska and the Tlingit and Haida Central Council, which were referred to as "children of the ANB."

The amount of money the endowment will provide the Grand Camp will vary each year according to the prevailing interest rates, but will probably more than double the amount of money available to the Grand Camp, Bailey said.

The convention concluded with passage of 47 resolutions on various issues affecting Alaska Natives.

The resolutions ranged from a request to the federal government for an expansion of the 1972 Marine Mammal Act to one calling for compilation of a written history of the ANB and ANS.

A proposed resolution, reported by some camps from smaller villages called for a ban on the serving or availability of alcohol at any ANB hall or activity. After extensive debate, a substitute measure was passed calling for a study on the issue of alcohol in native life and ANB activities.

Delegates from larger camps generally opposed passage of the original resolution. One of those larger camps, Juneau, has a liquor license.

The resolution concerning the Marine Mammal Act recommends that the federal government maintain the status quo.

The resolution opposes turning over responsibility for managing marine mammals to the state government, which, the resolution states, is neither funded nor staffed to carry out that task.

The loss of commercial fishing permits held by Natives, and its effect on village economies, was another area of

concern expressed by a resolution. Because no one knew the extent of the problem, ANB Fisheries Committee members first want the problem studied, and then some action, possibly through the Limited Entry Commission, to be taken by the ANB-ANS.

The setup of a separate corporation to address natural resource issues, primarily fisheries, was also given the go-ahead by a Grand Camp resolution.

Though the new entity will be formed by ANB-ANS Grand Camp, it will probably become completely independent, like the Tlingit and Haida Central Council and the Southeast Alaska Regional Health Care Corp., which also had their beginning in the ANB, convention delegates said.

That possibility concerned some delegates, who opposed the resolution because they wanted to keep the new natural resources corporation fully under the control of the Grand Camp.

Sitka Camp No. 1 sponsored a resolution recommending to the governor and the legislature that elders be allowed to subsistence hunt from boats. State game regulations prohibit shooting at game from boats.

Many Alaska Native elders lose their subsistence rights, the resolution stated, because they are too weak for the physical exertion of hiking in the woods. In many cases, those elders are the ones most in need of the food gained by subsistence hunting, the resolution states.

Another resolution, sponsored by Roy Peratrovich Sr. and Frank O. Williams Jr., asked that the Grand Camp appropriate money to fund the compilation of a written history of the ANB-ANS.

There are only a few elders left, according to Williams, who know the history of the ANB from its founding. If that knowledge is not recorded soon it may be lost forever, he warned.

"They are the ones who can come up with as accurate as possible account of the ANB and ANS, as many of them were practically born and raised in the organization," his resolution stated.

One of the strong forces supporting the recording of a written history was Roy Bailey.

The historical segments presented throughout the convention by elders and others familiar with the history of the ANB-ANS were well received and helped arouse an interest in the group's history, Bailey said.

"Out of the convention came a very definite desire to get part of our history in writing," said Doris Bailey.

This year's convention marked the first program of historical segments scheduled throughout the proceedings. They replaced the camp reports from

around the state, which had been presented in the past.

There were fewer resolutions passed this year than last year, said Albert Kookesh, ANB secretary.

"This year we emphasized quality over quantity," he said.

The 1987 convention wound up Saturday with a grand ball and installation of new grand officers who will serve until next year.

Richard Stitt of Juneau was re-elected ANB grand president. The new first vice-president will be Jim Martinez, Klawock, and the new second vice-president will be Dan Johnson Jr., Angoon. Albert Kookesh, Angoon, was re-elected secretary; Dewey Skan, Klawock, was re-elected treasurer, and Charlie Jimmy, Haines, was re-elected sergeant-at-arms.

The entire slate of ANS grand officers was re-elected.

Trudy Wolfe of Hoonah was re-elected grand president; Marge Byrd, Wrangell, first vice-president; Sue Sargent, Juneau, second vice-president; Selina Iverson, Seattle, secretary; Evelyn Hotch, Klukwan, treasurer, and Millie Guthrie, Klawock, sergeant-at-arms.

Next year's ANB-ANS Grand Camp convention will be held in Anchorage, from Nov. 7-12, 1988, Kookesh said.

Four Fined for Halibut Catch

KODIAK (AP) — Four King Cove fishermen have been fined more than \$55,000 for illegal halibut fishing.

Richard Koso, Alvin Newman, Corey Wilson and Carl Koso were found anchored in four separate boats with halibut on board in a closed area in August.

Wilson was fined \$16,700; Richard Koso, \$14,500; Carl Koso, \$14,250 and Newman \$9,000. Richard Koso and Wilson also were fined \$500 each for log violations.

Man, Bear Meet At Outhouse

KETCHIKAN (AP) — There may at last be at least a partial answer to the age-old question of what bears do — and where.

Just ask Larry Hadselord, camp cook and manager at the El Cap Gold Mine on Koonak Island, 680 miles southeast of Anchorage.

Hadselord had just taken his morning constitutional to the camp outhouse on Nov. 11 when he inadvertently gathered data for the bear debate.

"I was just about to sit down and I hear this noise," he said. "Then I turn around and I'm looking straight into a bear's eyes."

He said the black bear's head was sticking up through the seat hole.

It was not known how the bear crawled into the privy. Four men at the camp shoved the outhouse over, freeing the animal, mine workers said.

State Panel Looks at Rules For Disciplining of Judges

KETCHIKAN (AP) — A watchdog panel that oversees the activities of Alaska's judges is studying whether the state should continue allowing public disclosure of alleged infractions while disciplining the jurists secretly, an official says.

Frank Flavin, staff director for the Commission on Judicial Conduct, said the panel asked him to study commission disclosure policies. News media lawsuits challenging secret proceedings against judges in two other states have spurred interest in Alaska, he said.

Flavin said present Alaska rules allow public disclosure of a charge made against a judge, but close the hearing that follows.

The commission hears complaints against judges and then submits to the Alaska Supreme Court recommendations for action against the judges or dismissal of charges.

"It's a sort of strange situation, where you open the window, but close the drapes," Flavin said. "The question is whether the hearing following the charge should be public."

Private censures of errant judges by the Supreme Court are more common than public action, Flavin said.

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Dauenhauers Race to Preserve Language

By SUE CROSS

Associated Press Writer

JUNEAU (AP) — Nora Marks Dauenhauer remembers when speaking her native Tlingit tongue brought punishment at school and shame on the streets.

Today, she wins recognition as one of the last speakers of the language, known by thousands of people just two generations ago.

Professors in Germany and booksellers in Japan seek the legends she and her linguist husband, Richard, are trying to record before all who remember them are gone.

It's too late for Tlingit to survive as an everyday language, the Dauenhauers say, but they've taken a major step toward seeing it preserved as literature.

Their collection of Tlingit stories, "Haa Shuka," — Our Ancestors — is part of a series that, when completed, will be the largest collection of stories published in both Tlingit and English, and the first edited by a Tlingit. The book was released in July by the University of Washington Press and the Sealaska Heritage Foundation, of Juneau.

For the Dauenhauers, the work is a race against time. Since Mrs. Dauenhauer began collecting the stories in the 1960s, almost all the storytellers have died. Of the 12 elders whose tales are printed in the book, only three are living.

Mrs. Dauenhauer says perhaps 1,000 or more Tlingits still speak their native language, but they have not passed it on.

"We only know of two young men who can speak Tlingit, two under the age of 40. All of us who can speak it are now grandmothers," she says.

The Dauenhauers take great pride in responses they get from young Tlingits, even a note to say they got a given story all wrong.

A dispute over varied versions at least rekindles interest in the legends and might prompt youngsters to ask how their grandparents told the stories, Dauenhauer says.

The Dauenhauers hope such interest will turn their work of preservation into continuation, with the creation of new stories.

The potential for many new stories and versions is one major difference between oral traditions — those passed down through generations of storytellers — and written traditions, they say. Oral traditions generally have

more versions, and the stories are tailored to the knowledge of the audience.

Spoken tales also are created and forgotten more frequently, the Dauenhauers say.

The tales in "Haa Shuka" are considered Tlingit classics, which are not usually lost. But writing them, rather than recording on video or audiotape, gives the stories a life outside the Tlingit culture, Dauenhauer says.

To non-speakers, "If it's written, it's OK, it's true," says Mrs. Dauenhauer.

Around the turn of the century, when many white people moved into Southeast Alaska's Tlingit country, Indians lost land because their ownership was recorded by oral tradition, she says.

Names and boundaries were remembered and passed down by clan traditionkeepers. But that was not recognized by the whites, who said no one owned the land unless they had a piece of paper proving it.

The Marks family, which owned a mountainside near Juneau, lost all but 2.6 acres along the shore where the Dauenhauers live and work.



Nora and Richard Marks Dauenhauer

The emphasis on writing, plus school rules against speaking Tlingit, led to its rapid loss, Mrs. Dauenhauer says. Indians could have continued speaking the language out of school, but felt pressured not to. "There was a shame factor to speaking Tlingit," she says.

A written form of Tlingit in the Cyrillic alphabet was first developed by Russian priests in the 1800s. A Roman-alphabet version was developed later, and a modified version of it is used in "Haa Shuka."

Dauenhauer, who is not Tlingit, became interested in the language

before he came to Alaska. He moved to the state in 1969, intending to apply techniques learned studying Russian and German to native languages. While teaching at Alaska Methodist University, now Alaska Pacific, he met Nora Marks and read some speeches she had collected.

"I was absolutely moved by the beauty of the oratory. I thought this was as great as anything in English poetry," he recalls.

Dauenhauer says in addition to the scholarly research allowed by a written language, it has a hidden advantage: it

may help Tlingit stories get past what he views as discrimination in literary circles against oral traditions.

"There's a tendency for people to treat American native literature as though it was children's literature. But it's not," Dauenhauer says.

The themes of classic Tlingit tales are universal, he says: alienation, identity, conflict of loyalty, pride and arrogance, separation and loss, revenge.

He'd like to see the stories taught in comparative literature classes.

Medical Care Awards Given

ANCHORAGE (AP) — A 9-year-old boy who helped save his father's life, a doctor and a paramedic from Anchorage, a Skagway nurse and the Nome Ambulance Service were honored Friday for their contributions to emergency medical care.

The awards were announced at the banquet of the 12th annual Alaska Emergency Medical Services Symposium. About 600 doctors, nurses, firefighters and emergency medical technicians, most of them volunteers, were in Anchorage for the three-day event.

Young Andre Cossette of Kodiak won the consumer-citizen award for "quick thinking, common sense and initiative" not in the regular line of duty.

Cossette was working with his father at a boat storage yard in Dillingham when an overhead garage door, 14 feet by 20 feet, fell on the man. Coached by his father, Andre used a large plank to obtain leverage to lift the door enough to free the man. Firefighters said later they were impressed such a small boy was able to lift such a large door.

After freeing his father, the boy went to summon help, then returned and comforted his father until the ambulance arrived. The award cites Andre's "courage and aggressive action."

Dr. David Templin, chief of medicine at the Alaska Native Hospital, was given the George Longenbaugh Memorial Award for leadership and

dedication in the field of emergency medicine. Longenbaugh, a Sitka surgeon, is considered by many to be the father of emergency medical services in Alaska, and was known and respected by EMS professionals throughout Alaska and the U.S. He was killed in a traffic accident in Mexico in January 1985.

Templin is the emergency medical services coordinator for the Alaska Area Native Health Service. He was cited for his work in bringing advanced trauma life support training to the state. As a result, more than 270 doctors in Alaska have been trained in the special techniques for treating critically injured people.

The citation also notes Templin's work in promoting advanced cardiac life support training and medical evacuation flights.

Norm Miller, an Anchorage paramedic for 15 years, was named administrator of the year for emergency medical services. Miller began as a volunteer firefighter in Juneau in 1968. In 1972, he joined the Anchorage Fire Department, and the following year was a member of the first paramedic class in Alaska.

He was chief of paramedic training in Anchorage until a few months ago when he resigned to accept a similar position in Seminole County in southern Florida.

Miller also was well known around the state for counseling medical people, firefighters and law enforcement

personnel on coping with emotional stress resulting from deaths they encounter.

Polly Flemming has been a nurse in Skagway for 19 years. Often, she has been the only person staffing the clinic, meaning she's been on call 24 hours a day, seven days a week. Her citation notes that under similar circumstances, most people seek a less stressful job after just one to three years.

Her nearly two decades of service earned her the annual Health Care Provider award.

The Nome Ambulance Service was recognized for overcoming financial and logistical difficulties in caring for the sick and injured in the community and 14 surrounding Norton Sound villages.

Deschene Ends Training

Army Private Nelson B. Deschene, son of Charlotte McGuire of Angoon, has completed basic training at Fort Jackson, S.C.

During the training, students received instruction in drill and ceremonies, weapons, map reading, tactics, military courtesy, military justice, first aid, and Army history and traditions.

He is a 1986 graduate of Angoon High School.

Good Political Climate Said Key To Getting Sea Farms Financed

By WILL SWAGEL
Sentinel Staff Writer

People seeking financing for ocean farming will need to convince prospective investors of both the economic potential of their individual enterprise and the political stability of the industry as a whole, cautions a Canadian government official involved in ocean farm development.

Jim Fralick, the manager of aquaculture and industrial development for the British Columbia Ministry of Agriculture and Fisheries, delivered that message Thursday to a session of the Alaska Aquaculture Conference now under way in Sitka.

The British Columbia ocean farming industry, mostly involved with pen-rearing of salmon, has expanded rapidly not only because of favorable environmental conditions, but because of Canadian government support, Fralick said.

The government offered prospective salmon farmers interest-free startup loans of up to \$100,000, with no repayment required for several years.

But despite that program and others, British Columbia salmon farmers still find financing to be a major problem, he said.

Fralick said 129 B.C. salmon farms operating today are expected to need infusions of \$2 million each to expand to their potential.

The British Columbia farms are financed by a combination of venture capital and stock sales, he said. Foreign investment in B.C. mariculture is also high, Fralick said, adding that he did not know the exact figures.

Both Alaska and British Columbia have the ability to attract foreign investment, Fralick said, because of their proximity to the lucrative Pacific Rim market. That ability would increase, he noted, as more farmed products entered the market, and lower transportation costs could give Alaska and B.C. products a pricing edge.

Government could assist the young industry by building up the transportation and communication infrastructure between the salmon farming areas and their markets, Fralick said.

Without strong government support, Alaska mariculturists may find themselves

in a catch-22 situation, said Bill Hall, a business development officer with the Alaska Fishing and Agriculture Bank. The bank has helped provide financing for people entering various aspects of Alaska's fishing industry.

Hall said that if the economic viability of ocean farm enterprises can be proven, there would be no scarcity of private sector capital. But a prime test of economic viability is whether it will attract private sector capital.

That's the dilemma facing Tim Tirrell of Cordova, who wants to expand his already-successful oyster and herring roe-on-kelp operation in Prince William Sound, but can't get financial institutions to listen.

"I've got a phone bill that looks like the national debt," said Tirrell, referring to his search for capital in and out of state. "I've got proven abilities and I can't get in the front door."

Hall said he could promise that his bank would let Tirrell in the front door, but couldn't promise him much more than that.

Mariculture, he said "is, in essence, an untested enterprise."

Patrick Anderson, the director of the University of Alaska's Small Business Development Center, said the financing problems sea farmers face stem not only from a skittishness about the mariculture industry, but the overall

hesitancy of American banks to invest in small business.

Industry pioneers, said Anderson, might have to look to foreign investors or to possible state programs that might arise once the state has resolved some of the political questions about the industry.

He suggested that potential sea farmers draw up a detailed financial plan to present to banks or other investors. Anderson said the University's Small Business Development Center in Juneau, the Cooperative Extension Service, the Marine Advisory Program and private consultants are all sources of information that might help sell an investor on a project.

But one glimmer of financing hope may be signalled by the identity of those who traveled to Sitka to attend the conference.

E. James LeBouef, who heads credit operations for the First National Bank of Ketchikan (First Bank), said he had come to the conference because of the mariculture industry's world-wide growth.

LeBouef said Alaska banks will be forced to loosen up credit for mariculture ventures as the industry gains a larger and larger share of the world sea-food market.

"It has to happen," LeBouef said, "the question is when."

Village Corporation To Pay Dividend

ANCHORAGE (AP) — The Clarks Point village corporation will pay each of its shareholders a \$1,000 dividend this year, corporation President Joseph Clark said.

The dividend — \$10 a share for the corporation's 116 shareholders — would be the first offered by Saguyak Inc., Clark said. Each shareholder received 100 shares of village corporation stock as part of the Alaska Native Claims Settlement Act.

Saguyak's profits over the years from its stock market portfolio allowed the dividend, he said. The corporation's board committed to the dividend before the stock market crash last month.

Clark said the shareholders should be receiving their dividends before Christmas.

Corps Spends Record in Alaska

ANCHORAGE (AP) — The U.S. Army Corps of Engineers says it spent a record \$214 million in Alaska in the recently completed federal fiscal year.

Corps spokeswoman Pat Richardson said the total was 27 percent more than the previous year. The amount included spending on construction, goods and services and payroll.

The Corps has spent more than \$3 billion in Alaska since 1946, four-fifths of it for military construction.

The construction budget for the current fiscal year is being debated by a congressional conference committee.

Pay, Benefits Boost State Needs

JUNEAU (AP) — The state budget is climbing to cover employees wages and benefits, even though talks between the Cowper administration and the largest public employees union have collapsed with no firm result.

Budget Director Jay Hogan said Thursday the administration wants to win between \$27.6 million and \$32.8 million in supplemental appropriations from lawmakers. The money's needed to fully fund salaries and health insurance benefit costs through June 30, 1988, he said.

"The governor believes the level of state services has fallen as far as it should go. Last year we hoped that the outcome of collective bargaining talks would result in savings. That has not happened, but there is no direct connection between the talks and the level of services that the public should have," Hogan said.

"For that reason, until something happens in negotiations, we have to seek more money to pay for those services," he said.

Last spring the administration proposed to cut funding for state personnel services by 10 percent — about \$40 million — in anticipation of state workers accepting contract concessions. But in the face of union opposition, the state has stopped seeking any pay cut.

To cover that contingency, lawmakers in May inserted a clause in this year's budget providing \$37.7 million this spring for salaries if the concessions couldn't be won.

But a 29 percent hike in health insurance premiums, plus budgetary changes over the past six months, mean Gov. Steve Cowper will need at least \$27.8 million for personnel costs.

The amount could go as high as \$32.8 million, depending how much agencies can save elsewhere in their budgets during the remainder of the fiscal year.

Hogan said if the legislature refuses to spend the added money, many employees will have to be laid off next spring in order to keep the state from running in the red.

"The size of the layoffs is impossible to predict. They would increase each week this spring, depending upon how late you have to wait to see if the layoffs will be needed," Hogan said.

Political Consultant Cleared by APOC

ANCHORAGE (AP) — The Alaska Public Offices Commission decided Thursday that political consultant Bill McConkey didn't break campaign finance disclosure laws when he conducted a last-minute pamphlet attack on state Sen. Joe Flood in 1984.

After a 90-minute closed-door discussion, the commission voted 4-0 to dismiss the complaint against McConkey.

The combative McConkey, who also is a boxing promoter and referee, said he intends to sue the state for the whole controversy.

"The public offices commission kicked me around, cost me (consulting) business, cost me a fortune," McConkey said. "Now they shrug it off and go on about their business. The public offices commission is no different than Joe McCarthy."

McConkey was referring to the late Wisconsin senator who used innuendo and guilt by association to label thousands of people as communists in the early 1950s.

Commission Chairman Daniel O'Tierney said the decision to dismiss the case was made "with some reservations."

The Anchorage attorney said the evidence just wasn't sufficient to substantiate the exact allegations that were made initially.

"There's no question it was one of the most revolting series of facts that's happened in recent years in terms of campaign activity, and we don't overlook that fact," O'Tierney said.

McConkey used almost \$2,000 from Sarah Closkey to prepare the pamphlet, which claimed Flood had dodged child support payments to his two ex-wives. The commission decided McConkey did not violate the law by failing to report the activity because the expenditure was made independently of the campaign of state Sen. Mitch Abood, R-Anchorage, Flood's opponent.

McConkey was Abood's paid campaign consultant at the time.

Under APOC regulations then in effect, such independent expenditures did not have to be reported. Since then, the regulations have been revised to require such activities be reported.

"I also want to make very clear that that problem has been cured," O'Tierney said. "This sort of scenario could not be repeated and escape a conclusion by this panel that a violation occurred."

Closkey said the money she gave McConkey came from her husband-to-be, Joe Norris. Closkey was unemployed at the time, and did not live in Abood's Senate district.

Norris told investigators he had gotten the money from someone else, but declined to identify the donor.

Alaska Movie Wins Award

FAIRBANKS (AP) — "Make Prayers To The Raven," a documentary series on Alaska natives produced by KUAC-TV and the University of Alaska-Fairbanks, has won the silver medal for cultural programming at the International Film and Television Festival of New York.

Producer Mark Badger received the medal on behalf of KUAC at the 30th annual festival in New York last week.

The five-part series, inspired by the book of the same title by anthropologist Richard Nelson of Sitka, competed with

22 other entries.

The review by the Christian Science Monitor said the production may be "the most profound series airing on any channel this year."

The series explores how traditional spiritual values and beliefs guide the lives of people living on the Koyukuk River in Alaska's northwestern interior.

Mariculture Red Tape Short, Agencies Say

By PAT FORGEY
Sentinel Staff Writer

Although applications for mariculture permits must be approved by five different government agencies, most requests should be either approved or rejected within 90 days of submission, a panel of representatives from those agencies told the Alaska Aquaculture Conference Thursday.

More than 100 persons are attending the fourth annual conference, which started here Wednesday in the Centennial Building. It is sponsored by the University of Alaska Sea Grant program.

Represented on Thursday night's panel on "permitting" were the state Department of Natural Resources, the U.S. Forest Service, the U.S. Army Corps of Engineers, the Alaska Department of Fish and Game and the state Department of Environmental Conservation's Divisions of Environmental Health and Environmental Quality.

The panel was moderated by Diane Mayer, of the Division of Governmental Coordination.

Mayer's agency coordinates the review of each mariculture permit application. It uses a "project-based" review system, in which each of the agencies reviews the entire application simultaneously.

"That prevents the problem of receiving approval for the first part of a project, and then having the second phase rejected after the first is already complete. It also helps to speed the process along, she said.

"If the project doesn't meet regulatory requirements, you may have to change the location or proposal," she said, but you won't be stopped partial-

ly through construction.

The first step for somebody considering entering the mariculture business is to contact Mayer's agency, she said.

"We help the applicant determine what permits are needed, after considering what their proposal is," she said.

One kind of permit that nearly every project requires is some type of site approval.

That approval must be granted by the state Department of Natural Resources, and, if the land is on a national forest, the Forest Service must give its approval also. Most mariculture facilities must be located in the ocean or tidelands, so approval from the U.S. Army Corps of Engineers is also required.

Authority to use federal lands comes either as a temporary land use permit or a lease, said John Harmening, representing the Forest Service.

The temporary land use permit is easier and cheaper to get, but the lease gives much stronger legal rights to the land.

To get a lease, the applicant must pay for a site survey and appraisal, which can cost several thousand dollars.

Land use permits, Harmening cautioned, are only given if there is no usable private land available, the project is judged to be in the public's best interest, and it is consistent with applicable land use plans for the area.

The Forest Service does feel that aquaculture is a valid use of Forest Service lands, Harmening said.

The first step in getting a permit, after a site has been selected, would be an informal talk with the Forest Ser-

vice.

"We'll tell you what the other users we know of are, and what the land use plans say about the area," he said.

Mariculture usually conflicts with other types of uses, Harmening warned.

"We don't have a lot of areas that are really good for mariculture that are not needed for a lot of other purposes," he said.

The Army Corps of Engineers requires a permit for any structure placed in navigable waters, said the Corps' Jeanne Hanson.

Corps of Engineers approval involves 30 days of public notice about the proposed construction, after which conflicting uses are considered before permission is given.

The state Department of Environmental Conservation's Division of Environmental Quality must also give its approval before the Corps of Engineers can issue a permit, Hanson said.

That state permission is a certificate of reasonable assurance that water quality can be maintained.

The other area in which Environmental Quality Division comes in is concerning sewage disposal for any caretaker's cabin on the site.

The Alaska Department of Fish and Game considers things like how the project will affect natural stocks, particularly commercial stocks, said David Benton of the department.

"We want to protect wild stocks from potential disease and genetic problems," Benton said.

Fish and Game also reviews success potential of various operations, in case it is necessary to decide who should be able to use choice sites.

The Department of Environmental Conservation's Division of Environmental Health must also give its approval for harvesting and processing shellfish.

"Normally our section of the department doesn't get contacted until one or two years down the line," said Manny Soares, of that division.

The division checks shellfish for paralytic shellfish poisoning, as well as surveying growing areas for sources of pollution, he said.

He requested that early informal contact be made with the department by those interested in mariculture, as a way of avoiding problems before they start.

At present, most of the state and federal officials responsible for issuing the various permits only devote a small part of their time to dealing with aquaculture, Mayer said.

The processing of permits is going to become more efficient as more facilities are begun, Mayer said.

"As more and more of these come on line, the understanding will increase," she said.

Friday's sessions focused on shellfish mariculture, and the conference was to wrap up Saturday night after a full day devoted to discussions and reports on finfish mariculture.

Saturday panelists will include representatives of the Alaska Department of Fish and Game, the Alaska Mariculture Association, the Alaska Trollers Association, the National Marine Fisheries Service, United Fishermen of Alaska and Seafarm Norway. The Alaska Legislature will be represented by state Sens. Dick Eliason and Fred Zharoff.

Tasty toppings highlight holiday pumpkin pies

For many, pumpkin pie is one of the most delicious elements of a sumptuous Thanksgiving or Christmas dinner. No matter how full we all claim to be, there always seems to be room for a slice (or two) of pumpkin pie.

Pumpkin pie, whether served plain, or topped with a dollop of whipped cream, is always popular. This year, though, why not add an extra special touch to this traditional dessert? A myriad of delicious toppings exists which can add fun and spark to your holiday pumpkin pie.

One particularly appetizing garnish for pumpkin pie is Streusel Pecan Topping. This crunchy, sweet mixture combines chopped pecans, cinnamon, ground ginger, sugar and a bit of flour for a lip-smacking "topper" bound to please the most finicky dessert fans.

Those who regard pumpkin pie and whipped cream as an inseparable twosome should appreciate Spiced Whipped Cream Topping.

Flavored with pumpkin pie spice and powdered sugar, this tasty whipped cream also complements a mug of steaming apple cider, hot chocolate or coffee.

Pastry Decorations are another unique topping. From the variety of holiday cookie cutters available, create shapes such as turkeys, fall leaves, Pilgrim's hats, Christmas trees, stars, Santas, elves or specially wrapped gift boxes.

Serve — and enjoy — these uniquely-decorated pies as traditional, yet novel, desserts at this year's holiday dinner.

FAMOUS PUMPKIN PIE (Makes one 9-inch pie)

- 2 eggs, slightly beaten
- 1 can (16 ounces) LIBBY'S Solid Pack Pumpkin
- ¾ cup sugar
- ½ teaspoon salt
- 1 teaspoon ground cinnamon
- ½ teaspoon ground ginger
- ¼ teaspoon ground cloves
- 1½ cups (12-ounce can) undiluted CARNATION Evaporated Milk
- 1 9-inch unbaked homemade pie shell with high fluted edge

Preheat oven to 425° F.

Combine filling ingredients in order given; pour into pie shell. Bake 15 minutes.

Reduce temperature to 350° F. Bake an additional 45 minutes or until knife inserted near center comes out clean.

Decorate with favorite pie topping.

STREUSEL PECAN TOPPING

- ½ cup flour
- ½ cup sugar
- ¼ teaspoon ground ginger
- ¼ teaspoon cinnamon
- 4 tablespoons butter, chilled and cut into small bits
- ¾ cup chopped pecans

Combine flour, sugar, ginger, and cinnamon. Cut butter into flour mixture until crumbly. Stir in pecans. Sprinkle over pumpkin pie during last 20 minutes of baking time.

SPICED WHIPPED CREAM TOPPING

- 1 cup whipping cream
- 2 tablespoons powdered sugar
- ½ teaspoon pumpkin pie spice

Combine all ingredients and whip at high speed for four minutes or until whipping cream holds its shape. Chill. Spoon over cooled pumpkin pie.

PASTRY DECORATIONS

Roll out leftover pie dough trimmings to approximately ⅛". Cut out shapes using holiday cookie cutters. Place on lightly greased cookie sheet. Brush tops lightly with milk and sprinkle with sugar.

Bake in preheated 350° F. oven for approximately 10 minutes or until golden brown. Allow to cool completely. Use to decorate the tops of cooled pumpkin pies.



SPRUCE UP YOUR PUMPKIN PIE THIS YEAR with Streusel Pecan Topping, Spiced Whipped Cream Topping or Pastry Decorations in festive holiday shapes.

Man Sentenced To Wilderness

KALISPELL, Mont. (AP) — A man convicted of breaking into two wilderness cabins has been ordered to restock them by packing in food over 27 miles and hand-cutting 3½ cords of wood.

Larry Courtois, 38, of Seeley Lake, was fined \$625 and ordered to replace what he took last winter from two Forest Service outposts deep in the Bob Marshall Wilderness Area.

Because of wilderness regulations, Courtois will have to ferry the supplies more than 27 miles on foot or horseback and cut the wood only from dead or fallen trees, without the use of a chainsaw.

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Former SJ President Les Yaw, 86, Dies

Services for William Leslie Yaw, an outstanding Sitka community leader, were held this week.

Yaw died last Wednesday evening while gardening at his home, 701 Lincoln St. He was 86.

A memorial service was held Monday at the First Presbyterian Church with the Rev. David Morelli moderating. A reception followed at Latta Hall.

A memorial worship service was held 10 a.m. Tuesday at the church, followed by commitment at Sitka Memorial Park. Members of the family served as pallbearers.

The family suggests that in lieu of flowers donations be made to the Yaw Family Scholarship Fund at Sheldon Jackson College.

Yaw was born Dec. 26, 1900, on a farm near Alexander, Iowa, to W. H. and Gertie (Robbins) Yaw. He was graduated from Iowa Falls High School and from Cornell College in Mt. Vernon, Iowa.

He married Caroline Ruth Witzigman June 1, 1923, and in August he left for Sitka and a job serving as a teacher, coach and dorm counselor at Sheldon Jackson School. His bride stayed in Iowa to finish her last year of college, then she too joined the SJ staff.

The next year they were transferred to what is now Warren Wilson College in Asheville, N.C., but midway through the year the SJ superintendent, Dr. James Condit, asked Yaw to return to Sitka to be his assistant. After he received his master's degree in education at Columbia University, the Yaws returned to Sitka.

He was named superintendent in 1930 and, in 1944 when the school became a college, he became the first president.

He resigned in 1952, and in 1954 was appointed superintendent of the Pioneers Home. After his retirement five years later he went into investments.

His association with and support of SJ continued until his death. He led a successful effort in 1980 to keep the school then struggling from financial hardships, from being merged with the University of Alaska or having its assets sold.

He was a trustee of the school for many years and was consulted frequently by those at the school. At last summer's reunion of Sheldon Jackson school, many tributes were paid to him, and the affection and respect the students and faculty held for him was obvious.

Two buildings, the Caroline Yaw Chapel and the Yaw Building, are named in his family's honor.

He received the school's Christian Citizenship Award in 1963.

The award was one of many his philanthropy and dedication to his church, school and community earned him over the years.

In appreciation of the major role he played in the rebuilding of St. Michael's Cathedral, destroyed in a fire Jan. 2, 1966, he was presented the Holy Cross of St. Herman by the Orthodox, Catholic and Apostolic Church in 1978.

He was presented with the Chamber of Commerce's Cossack Cap Award in 1976 for his service to the community; Jessen's Weekly of Fairbanks gave him the Distinguished Service to Alaska award in 1948; and he received many, many certificates of appreciation from such groups as the Salvation Army, Boy Scouts and Girl Scouts, school groups, Rotary Club and the Presbyterian Church.

He also was involved in such projects as getting bells for St. Michael's; moving the "Blarney Stone," reputed to be the one Russian-American Company Manager Alexander Baranof stopped by on his walks to Indian River, to a more prominent position by Crescent Harbor; establishing the first Sitka bank, now National Bank of Alaska; obtaining the Prospector Statue for the Pioneers Home; carving a Tlingit canoe which is now on exhibit by Ketleson Memorial Library; and transferring the utilities from private to public operation.

He was a lifetime member of the Rotary Club; a member and past president of the Chamber of Commerce; served on the Salvation Army advisory board for many years; helped raise funds for the Boy Scouts and Girl Scouts; and at the time of his death was a member of the Governor's Advisory Council on the Pioneers Homes.

He was active in the Presbyterian Church, serving as a trustee and elder. The Alaska Presbytery presented him with an award for "faithfulness and service" in 1983, and in 1985 he was presented with a certificate of appreciation by the Synod of Alaska Northwest.

He also was the author of "Sixty Years in Sitka," published in 1985. A collection of hunting tales is being published.

Caroline Yaw died June 29, 1983.

On June 6, 1985, he was married to Elisabeth Tyler at Mary Lake, Minn. A friend of the Yaw family, Mrs. Tyler had served as a Volunteer in Mission at Sheldon Jackson in the 1980s.

The Yaws' oldest son, Robert Edgecumbe Yaw, drowned in San Francisco in 1946 while serving with the U.S. Navy.



William Leslie Yaw

Survivors include his wife, Mrs. Tyler-Yaw; daughters Helen Finney of Ketchikan, Nancy Davis of Anchorage and Betty Jo Potter of Miliani, Hawaii; son Charles Yaw of Kirkland, Wash.; and a brother, Forrest K. Yaw of Hampton, Iowa.

Also surviving are grandchildren Debra Finney Brandes of San Antonio, Texas; Kevin and Brad Finney of Ketchikan; Terry Potter of South

Bend, Ind.; Dee Ann Potter of Honolulu; Lance Potter of Washington, D.C.; Lt. Taylor G. Potter, stationed with the U.S. Air Force in Spain; Caroline Yaw Davis, now touring in Australia; Scott Davis, Princeton College; Roblyn "Rob" Davis of Whitman College, Walla Walla, Wash.; Brian Yaw and Monica Yaw of La Conner, Wash.; and one great-grandchild, Brannon Finney of Ketchikan.

Wash. Fish Farmers Like Atlantic Salmon

SEATTLE (AP) — Washington's budding fish farming industry is moving toward use of Atlantic, rather than Pacific, salmon, says the fish enhancement project manager at the National Marine Fisheries Service at Manchester in Kitsap County.

"It's a numbers game, really," said Conrad Mahnklin. "We have found that the Atlantic salmon is growing faster and has a better survival rate than the Pacific salmon."

"The major new producers here will go for the Atlantic," added Dr. John Pitts of the Washington State Agriculture Department, the state's aquaculture coordinator. "It has been easier to domesticate, and the Atlantic salmon reared in Puget Sound is hardy and relatively disease-free when compared to the native Pacific salmon."

While British Columbia salmon farmers are raising Pacific salmon, Washington farmers increasingly are electing to raise Atlantic salmon.

The reasons are economic. The Atlantic salmon attracts a better price in the market.

The smaller coho, a Pacific native, gives a return of 75 cents to \$1.50 on the dollar, while the Atlantic salmon return is from \$3 to \$4.

The wholesale value of Washington's fish-farmed trout and salmon was \$15 million in 1985, the most recent figures available showed.

Washington now has 11 commercial salmon net pen farms, four of which have begun harvesting.

Three Washington fish farmers will produce about 1 million pounds of Atlantic salmon this year and come close to doubling that next year. A fourth farm will produce about 2 million pounds of coho, but is likely to switch to Atlantic salmon during the next three years.

"If that happens, it'll set the tone for this state," said Mahnklin.

During the past three years, British Columbia has added about 125 fish farms.

The Canadian province has been reluctant to permit the import of salmon eggs from the Atlantic for fear of introducing new diseases. Some fish farmers say that fear is unfounded, and the Atlantic salmon used in Washington actually is not a newcomer to the Pacific.

Under the administration of Gov. Booth Gardner, who took over in January of 1985, the state has adopted a pro-development aquaculture policy. The policy is providing a new incentive for fish farming on Puget Sound and the Strait of Juan de Fuca.

The state will help in streamlining the permit process.

Gardner has called for a state aquaculture conference on Jan. 30.

Standard Time

Standard time is reckoned from Greenwich, England, recognized as the prime meridian of longitude. The world is divided into 24 time zones, each one hour different from those adjacent to it.

Richard Kito Dies of Cancer

PETERSBURG (AP) — Services are scheduled here Tuesday for Richard Kito, former Petersburg mayor and past director of the Alaska Housing Finance Corp.

Kito died here Saturday after a long fight against cancer. He was 56.

The Petersburg native and fisherman served as mayor in 1969-1973 and 1978-1981.

He was director of the AHFC in 1979-1980.

Kito, of Tlingit and Japanese descent, also was active in native affairs. He was a member of the Alaska Native Brotherhood from 1947, was named to the first board of directors of the Sealaska regional native corporation in 1971 and served on the board until 1983. Kito was a member of the Tlingit-Haida

Central Council committee for 10 years.

He was born in Petersburg on Feb. 9, 1931, graduated from the local high school as valedictorian of his class, and served with the U.S. Marine Corps in Korea during the 1950s. He is a past state commander of the American Legion.

In Petersburg he was known for pioneering the harvests of herring roe and roe on kelp, and for his ownership of Kito's Kave, a bar.

Kito is survived by his father and mother, Tom and Lucy; sisters Anhe Kito and Geannette Yamada; wife Leilani and sons Richard, Thomas, Tyroon and Thurman.

The family has asked that in lieu of flowers, memorial donations be sent to the American Cancer Society.



DOT IN THE WILDERNESS — Bill Lockard looks over the mining camp on Admiralty Island, where the Greens Creek Mining Co. is building what's expected to be the nation's most productive silver

mine. Because of environmental conditions, the company cannot expand its mine site much beyond what is shown in the photograph. The entrance to the mine is at the bottom of the excavated hillside in the background. It's expected to open in the fall of 1988. (AP photo)

Greens Creek Developers Keep Low Profile in the Wilderness

By SUE CROSS

Associated Press Writer
ADMIRALTY ISLAND, Alaska (AP) — It's a ramshackle place to prompt all these superlatives, this tiny shantytown of trailers and mud.

The crude camp on the banks of Greens Creek is home to what will be the country's biggest silver mine, in a huge wilderness, a national forest monument, and smack in the middle of the thickest bunch of grizzly bears known in the world.

It also sits on one of the richest deposits of silver, gold, lead and zinc ever discovered.

But there'll be no boom town, no second Klondike here.

From the window of a De Havilland Beaver flying overhead, the Greens Creek mine might be the head of a pin, lost in the haystack mountains of spruce forest, above an invisible lode of riches.

The mine will never look like much more, and that's part of the plan since environmentalists and miners — traditional adversaries — decided to make Greens Creek a model of cooperation.

"To build a 1,000-ton-a-day mine is no great feat, if you do it in Nevada or even Seattle. But to do it on an island, in the middle of a national monument, adjacent to a wilderness where you have no facilities, is quite a challenge," says Jack Bingham, vice president of Greens Creek Mining Co.

"Our site preparation costs alone are going to be almost 10 times higher here than they would be for a similar plant in

Washington state, say, because of the soil conditions and the environmental conditions," Bingham says.

The mine's development budget is \$80 million and growing. At least a third of that is being spent solely to protect the environment, he says. As a result, he says "It's not a bonanza."

Conservationists weren't happy about the mine when most of the rest of Admiralty's 1,790 square miles were designated a wilderness in 1980.

But they've been pleasantly surprised by the Greens Creek management, says K.J. Metcalfe, a former Forest Service manager for Admiralty Island who resigned and now speaks for the Southeast Alaska Conservation Council.

Environmentalists see Greens Creek as proof of a position that's rarely believed, Metcalfe says, "That they're able to support development when it's done in a responsible way."

Environmental protections dictate the mine's design, from the construction camp and future port, a tight little town where every square foot counts, to the equally cramped mine entrance camp a few miles away.

"That's one of the problems with the space," says mine employee Bill Lockard, as his Silverado 4-x-4 comes windshield-to-wheel with a massive logging truck. Lockard takes refuge on the road bank. The truck takes the track with inches to spare.

The mine's entire surface development — 91.8 acres, excluding 13 miles of road — is squeezed into less than half the area normally required for such a project, Bingham said. The roads are

unpaved and precariously narrow.

Developed areas are sharply defined. On one side is the mine; on the other is wilderness.

Vivian Kee's job is making sure the two don't overlap.

"It's kind of an unusual marriage. Their primary interest is in production and our main interest is in preserving the environment. It involves constant coordination — I pull my hair out a lot," says Kee, Forest Service coordinator for the project.

The Alaska National Interest Lands Conservation Act of 1980 gave the mine site the unusual status of a forest monument, where only a specific type of development is allowed by Congress — in this case, the mine.

"Once the mine life is over and they are put to bed, the land is essentially going to go back to wilderness state," Kee says.

Kee, two other Forest Service employees who work full-time at the mine, and five special advisers are in charge of protecting the wilderness.

Among the odd conditions there are a ban on hunting or hiking in the surrounding mountains. With 200 construction workers and up to 250 miners once Greens Creek opens in the fall of 1988, it wouldn't take many walks to damage the delicate rain forest.

Construction workers now bunk in on-site trailers, but as soon as the mine is built, workers will travel to and from it on two ocean-going ferries, now under construction in Sitka.

Every day, a ferry will make a 25-minute, 15-mile crossing from the mainland just north of Juneau, across

Stephens Passage to a floating dock in Admiralty's Young Bay. From there it's a five-minute bus ride across an isthmus to the shores of Hawk Inlet and the marine port. It's another eight-mile ride to the mine entrance in the mountainous heart of the island.

All told, the daily commute will take about 1½ hours each way, Bingham said.

Communication now is limited largely to three-a-day float plane flights, a schedule that makes "getting out" a frequent topic of conversation among mine workers.

But things are getting easier. At the construction camp and headquarters, which will become the marine port, two satellite dishes sit on a bluff next to the workers' trailers.

Lockard, community relations manager for the company, says they're part of an independent phone system that will tie Greens Creek to the rest of the world.

Until a month ago, the road to the mine was not passable and the only way there was by helicopter.

Now dump trucks, cranes, backhoes and buses play dodge-em in a basin of mud outside the mine entrance, a sort of Paul Bunyan-scale bumper-car arena where workers are racing against construction deadlines.

In 1620, a group of religious dissenters known as the Pilgrims set sail on the Mayflower for the New World. In November of that year, they sighted Cape Cod and decided to land at Plymouth Harbor. Before going ashore 41 members of the group drew up the Mayflower Compact.

Villages Tell of Deep Financial Troubles

ANCHORAGE (AP) — Nearly half of Alaska's towns and villages say their residents are worse off economically this year than last, and 95 percent of the local governments say they have reduced at least one municipal service.

David Hoffman, commissioner of Community and Regional Affairs, said Friday 18 villages are deeply in debt and 20 more will be by year's end.

Some are so desperate for money that they have sought disaster relief from the state Department of Military and Veterans Affairs — the agency that delivers help only in life-threatening emergencies such as floods and fires.

Of 128 Alaska towns and villages

recently surveyed by Hoffman's department, 14 percent reported they are so strapped for cash that they're having trouble paying even federal withholding taxes.

The grim picture was painted by officials who attended a presentation by Gov. Steve Cowper's Cabinet Committee on Economic Dislocation.

Many came to hear what Cowper intended to do for them as they scratch for cash to heat buildings and meet payrolls in the aftermath of state budget cuts brought by the oil bust of 1986.

They were told the state wants to help with financial and technical advice, but

can offer no immediate financial relief. Cowper himself put it more succinctly earlier this week when he told an Alaska Municipal League luncheon crowd that unless legislators find new sources of revenue, he foresees no increases in state aid to cities and villages.

"I guess I'm a little bit disappointed," said Walton Smith, the city manager of Mountain Village, a community of 700 on the Yukon River in western Alaska.

Smith, who waited anxiously all week for the committee to unveil a rumored relief package, is looking at a \$250,000 deficit in his budget after cutting his

staff from four people to two.

"You talk about bankruptcy. I don't know what that means. But I can tell you we're broke," Smith said.

He drew one of the few laughs of the session when he said: "There are some advantages to being broke. You don't get many bill collectors on the Yukon River."

Smith said those who think Mountain

Village is in tough shape haven't looked closely at scores of other villages around the state.

"If you look, you're going to find that we're a long ways from being in the worst shape."

Denali Park Resort Plan is Resurrected

ANCHORAGE (AP) — Planning efforts for a resort in Denali State Park have been resurrected with \$100,000 from the National Park Service, state officials say.

A combination of public opposition and the Legislature's refusals to ante up \$200,000 for further study and preparation of a concession contract halted the planning 18 months ago.

But with the \$100,000 from the park service, the state over the next 10 months will revise the Denali State Park master plan. The revisions will provide site selection criteria for a visitor complex and assess the effects of increased public use and recommend park amenities such as trails, campgrounds and parking areas, officials say.

"One of the elements will be the

concept of a resort complex and a National Park Service visitor center," said Neil Johannsen, director of state parks.

The state Department of Natural Resources and federal government hope to increase tourism at the 324,240-acre state park and relieve overcrowding at Denali National Park about 100 miles to the north.

"Things are getting worse up there," Johannsen said of the national park. "We're hitting the point where arguably the top visitor attraction in the state has hit the saturation point."

The Department of Natural Resources also will try again for \$200,000 grant when the Legislature convenes in January. The money would allow the state to look more closely at the economics of a visitor complex in

the state park, draft a contract proposal and seek bids from private developers, Johannsen said.

The idea of a resort at Denali State Park has been kicked around for nearly 20 years. It first surfaced in state-federal study of how and where tourism might be increased. That study prompted the Legislature in 1970 to create the state park.

"For all the work, the study, setting aside the land, the controversy, the state has never offered the opportunity to the private sector" to develop a resort, Johannsen said.

No site for a resort will be selected until public comments have been considered, Johannsen said. The plan would either select a site for a lodge or create a zone of consideration. Developers could submit proposals for

sites in the zone.

"This is clearly a better process," said Cliff Eames, issues director for the Alaska Center for the Environment. That conservation group opposed the state's 1986 proposal to allow development on Curry Ridge, a section of high ground east of Byers Lake on the south end of the park.

Eames said his organization likely will renew its objections if Curry Ridge again is selected. "I would urge the department to look at what scale might be appropriate and to look at private lands first. Next, they should look at sites on public lands where the environmental impacts are less and the physical conditions are superior."

Public hearings are expected between February and May. The final master plan revision is due on Aug. 1.

EMS Progress in Alaska Described

ANCHORAGE (AP) — Seriously ill or critically injured people in Alaska have much better access to care today than 10 or 15 years ago, the chief of the state's emergency medical services section says.

But the budget restraints affecting all levels of government threaten the progress made in recent years, Mark Johnson told the 12th annual EMS symposium Friday.

About 600 doctors, nurses, paramedics, emergency technicians and firefighters — most of them volunteers — participated in the three-day session.

Excluding the military and other federal agencies, there were only 22

ambulances services statewide in 1972, Johnson said, and none was capable of providing advanced life support.

Today, there are 80 ambulance services, 35 of which provide round-the-clock advanced life support, he said. Seventy are staffed entirely or mostly by volunteers.

In 1973, there were only 29 ambulances, none of which met current standards. Today, there more than 190.

In 1973, barely half of the 335 ambulance personnel were certified emergency medical technicians. Today, there are 1,761 EMT I's, 385 EMT II's, 229 EMT III's, 110 paramedics, 148 EMT instructors and thousands of emergency trauma technicians.

EMT III's are more highly trained to provide special cardiac care.

Johnson said a national study in 1985 showed Alaska was among 14 states with the highest standards for EMT training and certification.

In addition, tens of thousands of Alaska residents have been trained in cardio-pulmonary resuscitation through the EMS system and the American Red Cross and American Heart Association.

Johnson said 85 percent of Alaska's population can reach police, fire or emergency medical services by telephoning 911.

The state vital statistics reports show a 30 percent reduction in the unintentional injury death rate between 1978 and 1985, Johnson said. "While EMS system improvements probably can't account for all of the reduction, they undoubtedly were contributing factors."

But fiscal crises could undermine the progress, Johnson said.

"Since EMS is a relatively new program, it could face continued funding reductions as hard choices are made regarding services to be cut to balance budgets," he said. "Even if government funding support stays about the same, it will be very difficult to continue development of the system, because maintaining current levels of services will use up most, if not

all, available funds."

In a state where injury is the number-one cause of death and disability, the benefits of a sound EMS system should far outweigh the costs of continued development, Johnson said.

"We need to educate our political leaders of the value of a comprehensive, state-of-the-art EMS system, so they fully understand the potential impacts of cutting EMS budgets."

Cruise Ship Crewmen Sentenced Over Drugs

KETCHIKAN (AP) — Three Colombian crewmen on a cruise ship were sentenced to six months in jail for selling cocaine in Ketchikan, but they will be released this week because of credit for time already served, officials said.

The three will be handed over to the U.S. Immigration and Naturalization Service, which will send them home, said Assistant Ketchikan District Attorney Stephen West.

The men sold 78 grams of cocaine to an undercover state officer in a Ketchikan bar last July.

Ketchikan Superior Court Judge Thomas Schulz passed down sentences Monday against Jairo Diaz, 26, Jairo Banda, 25, and Jaime Banda, 30. Each was charged with third-degree misconduct with drugs.

Michael Harpold, Ketchikan-based Southeast agent for INS, said the agency will fly the men to Colombia and

bill the owner of the cruise ship Regent Sea for costs of their deportation.

Court records show that on July 9 in

Juneau, Jairo Diaz contacted Cpl. John Lichtenberger, an undercover state trooper, and arranged to deliver 5 ounces of the drug the next day in Ketchikan. The agreed price was \$2,200 per ounce, or \$11,000.

Lichtenberger and another trooper then met the three men in a bar, where less than 3 ounces of the drug was handed over to the officers on promise of a \$6,600 payoff. The authorities promptly arrested the Colombians.

Ketchikan prosecutors said \$5,300 in cash was found in Jaime Banda's room. West said federal authorities have filed a civil suit for forfeiture of the cash, alleging it was gained in illegal drug trafficking.

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Young Seeks Tough Fish Boat Bill

Congressman Don Young introduced legislation January 6 that would require all vessels engaged in fishing, fish processing, and fish tendering to be built in the U.S., owned by American citizens, and manned by American crews.

While the 1987 bill is similar to the one introduced by Young last year, there are some important differences. Foremost is the requirement that 75 percent of the crew aboard any processor, tender or fishing vessel be American citizens.

The perceived danger of reflagging lies not only in the competitive advantage of being able to use cheaper, foreign-built vessels, but in staffing them with a foreign crew. While the current loophole in the law is yet to be fully tested, one scenario suggests that if the voyage starts in a foreign port, a reflagged vessel can crew-up in Korea, process fish as an American processor and deliver product to Vancouver, B.C., with a minimum of U.S. officers on board.

Korean processing workers are said to make as little as 45 cents per hour. Maintaining a foreign crew on a reflagged foreign vessel would offer operators a substantial cost advantage over those utilizing a fully American crew on a U.S.-built vessel.

Another provision of Young's bill clarifies what is meant by American ownership where a corporation owns a vessel. There is currently some confusion over situations where a corporation may be substantially foreign-owned, though it maintains a majority of U.S. citizens on its board of directors. The new legislation would require that 50 percent of the corporation be owned by American citizens.

The third provision is the same as last year, requiring that any fishing, fish tendering, or fish processing vessel documented after October 31, 1986 be built in the United States. The current definition of U.S.-built requires that the hull and superstructure of a vessel be built in the U.S. It places no restrictions on the origin of the engines, gear or electronics; nor does it require that the outfitting be done in the U.S.

Though the 1986 cutoff date remains in the 1987 legislation, some sources doubt whether the Congress will pass the legislation without consideration for projects already under way.

Nevertheless, Young would like the bill to move swiftly.

"I have written this bill as broadly as possible to cover all aspects of foreign control," Young said. "I intend to seek early hearings from the Committee and have a final bill reported that will resolve this pressing problem." □

SALMON prices are falling, and the Irish Sea Fisheries Board/BIM is predicting that they will continue to do so over the next five years.

BIM commissioned a study to examine the potential supply and demand situation for farmed Atlantic salmon in the next decade, and the effects of increased production levels on prices.

Using information based on the Norwegian, Scottish and Irish salmon farming industries, BIM concludes that adherence to strict quality standards and efficiency in production, marketing and distribution will become of crucial importance; but prices will still fall.

At the SIAL food show in Paris last year, some experts were forecasting a situation where salmon prices would be on a par with cod. The last two months of 1986 certainly saw a drop in price levels.

In France, farmed salmon from the Faroes was selling at Fr29-32 per kg (\$2.07-2.8/lb), while top quality Norwegian salmon was available at

Salmon prices fall as supply forecasts rise

between Kr36.50-39.50/kg (\$2.28-2.46/lb). In Germany, prices for Norwegian product were higher at between Kr40 and Kr51/kg (\$2.49-3.17/lb).

Prices were higher still in Switzerland, but lower in Italy and Belgium.

In the USA plentiful supplies also pushed prices down, and this is expected to continue. Primary wholesale selling prices for Norwegian Atlantic, head-on and dressed at the end of November were: 4.8-7.2lbs, \$3.35-4.25/lb; 7.2-9.6lbs, \$3.80-4.50/lb; 9.6-12lbs, \$3.60-4.75/lb.

Meanwhile, in all countries, production forecasts are up for this year. According to Globefish, Nor-

way anticipates 55,000 tonnes (40,000 last year) and Scotland 14,000 tonnes (9,700). Ireland and Canada also expect large increases.

In Iceland, sources are forecasting a big future for Atlantic salmon farming. This year's production will be around 500 tonnes and is forecast to reach over 2,000 tonnes by 1988. Icelandic Freezing Plants Corp has invested over \$530,000 in two new projects.

Future emphasis is likely to be on frozen fillets, portions, blocks and prepared items, with merchandising aimed at convincing the consumer that each country's salmon is the best.

COD

FORECASTS coming out of Canada look depressing on cod. A 50,000 tonne reduction is anticipated in the quota next year.

In the USA the market for cod blocks continues to be strong with very good demand and limited supplies, reports the Irish Sea Fisheries Board/BIM in its market information bulletin. Prices at the end of 1986 were round \$1.50 per lb, compared to \$1.25 in 1985.

Boneless, skinless fillets in 5 lb packs (containing one to three fillets) were making \$2-2.15 per lb for product from Canada and \$2.55/lb for supplies from Denmark.

In Europe, landings of cod continue to be disastrously low in the main supplying countries, although there were some slight signs of recovery at the end of last year.

AGB Fishnet reports that November landings were down 6 per cent on October, and were still way short on November 1985 at 17.6m lbs, a 28 per cent drop.

Prices reacted in a predictable manner, with average November figures reaching £10.76 per lb (\$1.06), up 20 per cent on October and showing a 53 per cent increase over November 1985.

However, there is better news from Norway where good spawning years will see the cod quota shooting up to around 350,000 tonnes in 1987 from 250,000 tonnes.

HADDOCK

THE 1987 supply situation looks difficult and Canada is expecting quotas to be cut by 35 per cent.

The EEC is also in trouble: on scientists' recommendations total allowable catches could be cut by half. This will particularly affect the UK which could come down from 146,000 tonnes to 80,000 tonnes.

Only Norway seems to have good news with quotas expected to rise by 80 per cent to 160,000 tonnes.

At the end of last year, haddock landings in Europe fell back considerably to 20.3m lbs in November, down 34 per cent on November 1985. Prices however, showed little change at £0.45/lb (\$0.7).

SEATROUT

BUYERS in West Germany are now reluctant to handle fresh seatrout farmed in the country. This is because farmers use the additive Canthaxanthine in trout feed to give the fish flesh and pink colour. The Federal authorities are now investigating the matter.

The problem of marketing smoked seatrout as smoked salmon now appears to have ended. Consequently, there is now little or no demand for larger fish for smoking.

SARDINES

NORWAY'S boycott of South Africa is expected to cost Norway Foods Kr100m (nearly \$6m) in lost sales.

South Africa is a big consumer of Norwegian canned sardines. It takes about 100,000 cases a year from Norway Foods, reports the fishery paper *Fiskaren*.

Meanwhile, South African seafood traders are reported to be looking to the East for their

markets. Oriental countries, it is believed, are unlikely to follow the West in boycotting the country.

SALTFISH

PRICES have moved up fast. This has resulted in Iceland increasing exports by 14 per cent in the first nine months of 1986. By mid-September, Icelandic saltfish exports at 49,000 tonnes were worth \$126m, compared to \$29m for the same period in 1985.

Portugal continues as the main market, taking around 50 per cent of Icelandic exports. Spain, Italy, France and West Germany are also taking Icelandic saltfish.

MUSSELS

THE current shortage of Dutch mussels is causing the price of both Dutch and French bottom product to increase, reports BIM.

LOBSTER

INDIA has found a good market for rock and slipper lobster in France which is paying 20-30 cents a lb more than the USA.

Lower freight charges also put France in front of the USA as a market.

Prices for live Canadian lobsters are falling in Europe, reports BIM. By the end of November 1986, prices (in Canadian dollars) were as follows:

Chicks: 1lb, \$8 per lb; 1.25lb, \$8.10/lb; 1.5lb, \$8.35/lb; 2lb, \$8.55/lb. Jumbos: \$8/lb. Cripples: \$6.85/lb.

These prices were expected to have dropped another 20 cents/lb during December.

TUNA

SASHIMI prices are on a high in Japan. Low supplies of large southern bluefin tuna have sent prices soaring to a top level of Y9,000 (\$41) per kilo (\$17/lb).

ALASKAN POLLOCK

SURIMI prices could move up as a result of problems with the main resource. The biomass of Alaskan pollock is in trouble, according to scientists.

CRAYFISH

A SERIOUS shortage of Turkish crayfish (*Astacus leptodactylus*) may be developing, according to reliable sources associated with FAO.

As 4,000 tonnes of this species is exported to western Europe, principally Sweden and France, there may be an increased interest in importing Louisiana crayfish.

American exporters, however, must be prepared to send a purged product that has been boiled according to the importer's precise instructions.

See also this month's special Crayfish feature on page 40.

SQUID

AFTER the prawnburger from Denmark, the haddock burger from Britain, the salmonburger from the USA and the sardineburger from Japan, squid is the latest species to receive the burger treatment, and this time it is New Zealand which has set its eyes on the gigantic fast food market.

A test batch of 50 tonnes of squid burgers from Wanganui Trawlers was favourably received in the USA.

FARMED FISH: Do They Really Compete?

by John van Amerongen

Competition for salmon markets is a lot like musical chairs—nobody loses as long as there are enough seats to go around. The big question come 1990 is whether there will be enough salmon markets for all the salmon produced, given the astronomical production figures currently being tossed about by salmon farmers and those who keep an eye on them.

The growth potential of the Norwegian salmon industry is now beyond debate. In 1971 Norway produced a mere 100 metric tons. By 1985 Norwegian farmers produced 34,000 mt. There's no reason to doubt they'll produce at least 80,000 mt. of Atlantics by 1990. That same year Canadian farmers are expected to market 30,000 mt. of coho and chinook. And that has wild harvesters legitimately nervous. The Canadian projection alone is 6,000 metric tons more than the total wild catch of coho and chinook salmon in

White explained. "Pessimists believe competition is going to be the result...increased demand will be met by increased production and drive down the price."

The optimists, said White, believe that farmed and wild salmon will complement each other in the marketplace. "High priced and high quality imports will create a taste in consumers' mouths that will create an explosion in the market," he said, assuming the role of one whose glass was half-full instead of half-empty.

But White had a problem with the upbeat view that wild and pen-reared salmon will walk hand-in-hand to economic glory. There's "no evidence," he said; "I can't find

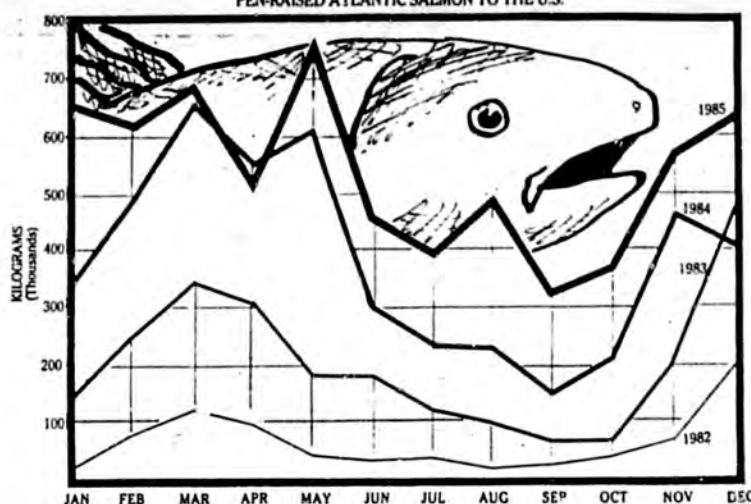
anything concrete that makes me believe that is going to be the result."

Still, White had almost as much

difficulty finding evidence to confirm that the sky was falling. What he did find was a recent study

See FARMED FISH page 33

MONTHLY EXPORTS OF FRESH NORWEGIAN
PEN-RAISED ATLANTIC SALMON TO THE U.S.



FARMED FISH

continued from page 5

co-authored by Ron Rogness of the North Pacific Fishery Management Council and the School of Management at the University of Fairbanks, and Dr. Bing-Hwan Lin of the Department of Agricultural Economics at the University of Idaho. The title of the Rogness-Lin study is "The Marketing Relationship Between Pacific and Pen-Raised Salmon: A Survey of U.S. Seafood Wholesalers."

According to White, the survey was taken as preliminary research for a master's thesis on the subject in conjunction with Alaska Sea Grant. Now that the authors are busy elsewhere [away from the University of Alaska at Fairbanks], White doubts that the research will be completed. Nevertheless, the survey does reveal some interesting information.

In July of 1985, Sea Grant sent out surveys to 925 seafood wholesalers and distributors in Boston, New York, Chicago, Los Angeles, San Francisco, and Seattle. About 24 percent (127) of those surveyed responded to a series of questions dealing with their salmon purchasing decisions.

Of central concern to White were the survey questions aimed at the "substitutability" of wild and farmed salmon. If there's no substitutability, the argument goes, there's no competition.

The responses concerning pan-sized coho, the variety raised by Domsea Farms in Puget Sound, offered no particular cause for alarm among wild salmon harvesters. The "overwhelming majority" of respondents said they did not consider the small silvers a legitimate substitute for wild Pacific salmon. If anybody has to worry about pan-sized coho, it's the farmers of rainbow trout.

And if you can believe the survey, the bulk of frozen Pacific salmon appears to be on its own in the marketplace as well. Only 15 of the 57 respondents viewed fresh pen-reared Atlantics and frozen wild Pacifics as substitutes. Since only about three percent of the Alaska harvest is sold fresh, the authors concluded that "97 percent of the harvest...would be more or less unaffected by the pen-raised Atlantics."

That's good news unless you happen to be a troller. "...It should be noted," the authors caution, "that a significant portion of the troll-caught chinooks and cohos in Southeast Alaska is frozen and marketed to white tablecloth restaurants which is one of the primary markets of fresh pen-raised Atlantic salmon; the 15 (out of 57) votes for the substitutability between fresh Atlantic and frozen Pacific salmon should therefore not be discounted."

Still, the authors weren't particularly worried about the overall impact of fresh Atlantics on the domestic market for Alaska-caught fish. According to Rogness and Dr. Lin, "...the results seem to suggest that much of the concern shown by many commercial salmon fishermen in Alaska may be somewhat unwarranted."

Like it or not, the survey suggests two separate market niches for fresh farmed and frozen wild-caught Pacific salmon. In automotive terms, one is viewed as a BMW, the other is a lot like riding the bus.

The situation for fresh wild-caught fish seems to be different. The overwhelming majority of respondents (49 of 62) said that pen-raised Atlantics were a legitimate substitute for fresh wild Pacifics.

But legitimate substitutes are not always the same, as the Rogness and Dr. Lin discovered.

Two questions in the survey asked respondents to list the advantages of each variety over the other.

Asked what advantages pen-raised Atlantics had over wild Pacifics, the characteristic most often cited was availability year round (28), followed by freshness or quality (26), consistency (19), size (12), price (11), and shelf life (5).

Asked what advantages wild-caught had over farmed, the most common response was price (27), followed by flesh characteristics — color, firmness, fat content (19), availability of large fish (5), volume of supply (2), and ease of ordering (1).

Price appeared to be the most motivating factor in choosing wild over farmed, while year-round availability and high quality were the best reasons to buy farmed fish, according to the survey. Four respondents could find no advantages



Only the best wild fish are considered "legitimate substitutes" in the pen-raised market.

of pen-reared over wild, while eight could see no advantages of wild over pen-reared. In automotive terms,

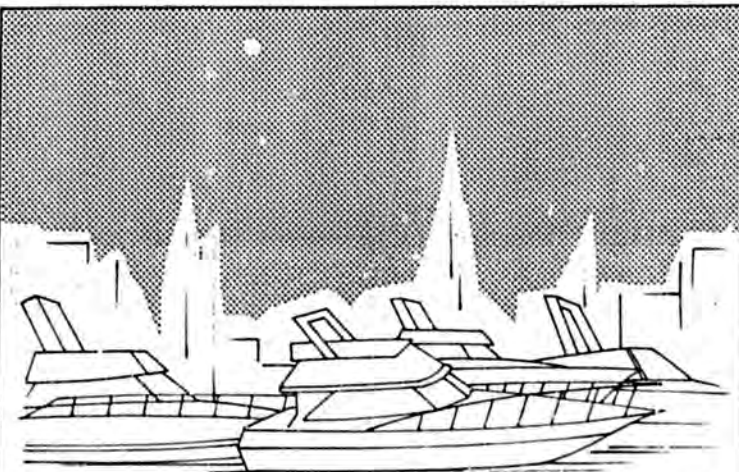
they are both good cars — one a BMW, the other a Ford Thunderbird. Ford has a better idea as long as the sticker price is right.

How long wild salmon can maintain a price advantage over pen-reared fish is another key question addressed by Mr. White at the FRI seminar. Trollers would understandably like to see the price of wild salmon rise, and salmon farmers aren't anxious to see the price of pen-raised fish fall. As the world supply of salmon increases, however, it's going to be more and more difficult to keep the prices apart and avoid a head to head battle in the marketplace.

Right now transportation costs and the relative inefficiency of the small farms have kept the cost of Norwegian salmon up. The falling value of the dollar in world currency markets is helping, too. When British Columbia comes on line in 1990, however, the situation could be very different. As one industry wag put

See FARMED FISH page 35

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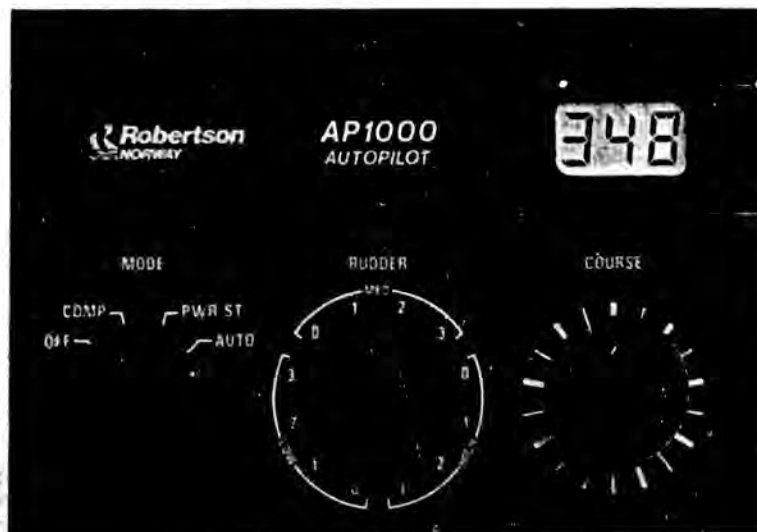
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In Salmon School the Favorite Subject Is Lunch

And how to avoid becoming the special

by John van Amerongen

Ever wonder what fish are really learning in school? A select group of coho salmon smolt at Hatfield Marine Science Center in Newport, Oregon, has been learning how to avoid becoming lunch for lingcod as part of a research project studying juvenile survival in the marine environment. Head teacher and director of the three-year program is Bori Olla, behavioral scientist and professor of oceanography at Oregon State University.

According to Olla, his salmon self-defence class is only part of a larger project aimed at pinpointing factors that govern the survival of a variety of species, including pollock and sablefish, in the open ocean.

Hatchery salmon, Olla said, have a particular problem because species like chinook and coho are held in hatcheries for a year in what Olla termed "a deprived environment." Leading a sheltered hatchery life with regular feedings of food pellets and few predator attacks, the smolt may not be getting everything they need to make it in the big water of the real world.

To examine whether a hatchery childhood really makes a difference, Olla and his colleagues first studied the feeding habits of hatchery fish.

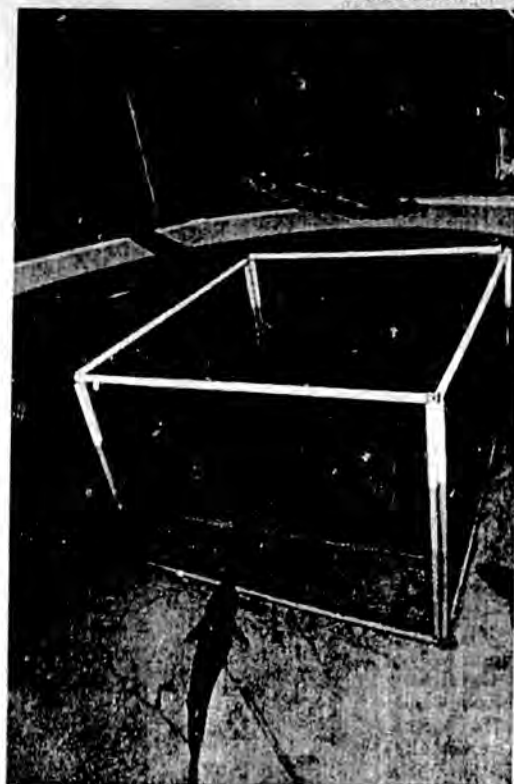
What does a fish that has been fed pellets all its life do when it has to catch its own dinner for the first time?

To find the answer, Olla placed the smolt in a tank equipped with two feeding tubes. One tube presented the familiar pellets; the other offered two types of natural live prey, sand shrimp and sand lances.

"We didn't want to make it too easy for them," said Olla, who noted that shrimp and lances possess "great escape mechanisms" in their ability to hop and wiggle. To catch them, the coho would have to develop a different strategy for each. The pellets, on the other hand, could be eaten at will.

The scientists hypothesized that the salmon would take the path of least resistance and go for the pellets. What they found was that the coho preferred to catch their dinner, even though they had trouble doing it, expending energy in the process. Still, it didn't take them long to get the hang of it. In two hours, Olla said, "they were as practiced as they were ever going to be at capturing prey."

Looking at results from a series of experiments, Olla said, "We had to reject the hypotheses of a disadvantage (to hatchery rearing) in terms



A frozen lingcod is lowered into the plexiglass tank as unfrozen ones bang their noses against it.

Courtesy of Bori Olla

of feeding." The coho possessed an easily awakened genetic predisposition to eat on the run.

But what about predators? How fast could the coho learn to avoid the multitude of jaws waiting for them as soon as they left the hatchery raceway?

Olla noted that coho have few opportunities for error when learning to avoid predators. Two hours may be an acceptable time in which

to learn to catch a live sand lance, but it only takes one mistake and school's out for good when it comes to playing tag with a lingcod.

Olla hypothesized that hatchery fish might be victimized easily, since they were almost always fed at the surface of rearing ponds, free from attack by birds and other natural predators. Such "free-lunch" experience could prove to be "maladaptive."

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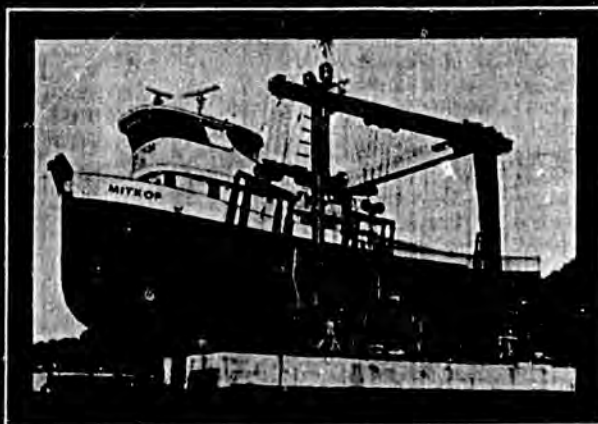
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To study the hatchery coho response to predators Olla set up several experiments using a 16-foot pool inhabited by lingcod up to 10 pounds.

Why lingcod?

"Because they're voracious predators," explained Olla. "They're so great because we can predict their motivation to feed." It's tough to watch a game when nobody wants to play. And the lingcod were always willing to play catch-the-coho.

The first thing Olla did was to 20 or 30 smolt into the pool with the lingcod. After half of them had been eaten (about 30 minutes), he rescued the survivors and let them rest and recover from the stress. But, alas, their trials weren't over. When they'd recuperated, Olla put them back into the pool with an equal number of inexperienced smolt.

"In every case," said Olla, "the animals that had the experience were less likely to be captured."

In another variation, Olla conducted a series of tests timing equal numbers of experienced and 'naive' smolt separately. As before, the experienced fish lasted significantly longer.

"Every time we got this result," Olla said, "but it didn't tell us they learned anything."

What it did tell researchers, said Olla, was the existence of a "a tremendous individual variation in their ability to escape predation. It was classic 'survival of the fittest,'" Olla said, "but we didn't know what made them the fittest."

So Olla set out to see if learning had anything to do with it. This was the fun part of the experiment: how to give all the naive smolt, even the wimps, the experience of a lingcod attack without getting them killed.

To accomplish this Olla created a safe chamber of plexiglass that he lowered into the tank with the lingcod. Smolt to be tested were put into the chamber with the lights out so as not to excite them or the lingcod. Other smolt were put into the larger tank to give the lingcod something to chew on.

When the lights went on, the lingcod would typically charge the chamber in the center of the tank and bump against the plexiglass. The fish inside would be duly startled and swim to the other side of the chamber. To add realism, researchers dropped a frozen lingcod into the tank repeatedly, for visual effect, and pumped water into the chamber from the main tank, where the smolt were really being eaten. Olla didn't want his students deprived of the "smells and chemical cues" associated with feeding predators.

After two separate trials of 15 minutes, the coho were removed and allowed to recoup again. Then they were mixed with naive smolt for the final exam. If their lessons really helped, they would last longer than their uneducated friends.

Unfortunately, the results, while positive, were "not as overwhelm-

ing as the survival of the fittest test," Olla said. It was difficult to isolate the positive of the learning experience from the negatives of the stress.

So you can put a fish in school but you can't always make him learn. Still, Olla thinks the results are significant. "If our experiments continue to bear out," he said, "it can be applied cheaply in hatcheries. We're suggesting that some practices can be changed to awaken a genetic memory."

He didn't suggest that hatchery workers tow frozen lingcod around the ponds to "Flight of the Valkyrie," but he did suggest that they might simply disturb the pond surface at feeding time or at least feed fish at the bottom of the pond for a few weeks before release.

Hatchery returns are typically so low, and the cost of raising fish is so high, Olla noted, that even a small increment in terms of survival could be a great improvement overall. □

FARMED FISH

continued from page 33

it, "The Canadians have never met a market they couldn't dump."

White put it another way: "There's a great potential for over-supply." British Columbia is planning to produce 'a lot of product,' White said, "...and there's no indication that product has any market set up for it."

This may have been music to the ears of fishermen who are looking for a gigantic shake-out to put the salmon farming industry on its gills. But White saw it differently.

"Which industry is going to survive the Crash of '89?" White asked. "If the farms crash," he said, answering his own question, "we'll go down with it."

One might think White's best advice to the fisheries students in the audience would have been to pack up their pee-chees and head it on over to the School of Dentistry.

But he didn't suggest that. Perhaps all the doom and gloom was just a test to see who was really serious about a career in the salmon industry.

His conclusion offered a ray of hope, even if the light at the end of the tunnel turns out to be Madison Avenue.

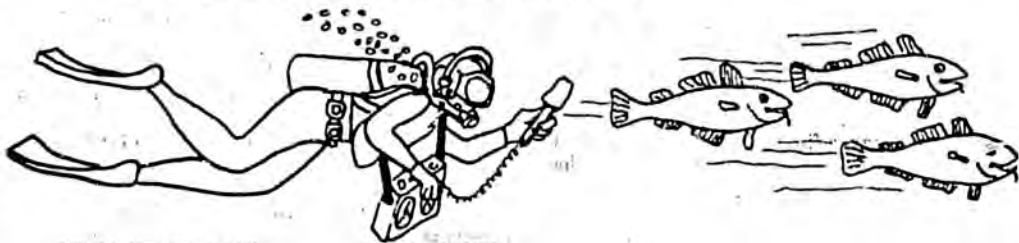
The salmon industry, said White, is in a state of transition. "The biological hurdles," he said, "are pretty much over."

"The next problem," said White, "is how [the salmon] can be marketed to keep the [aquaculture] industry alive and maintain the commercial fishing industry."

To accomplish this White suggested 'a conciliation' between wild harvesters and farm producers. "Our real target is not each other," he said, noting that salmon sales are completely eclipsed by beef and chicken. "They're the targets, not each other."

—John van Amerongen

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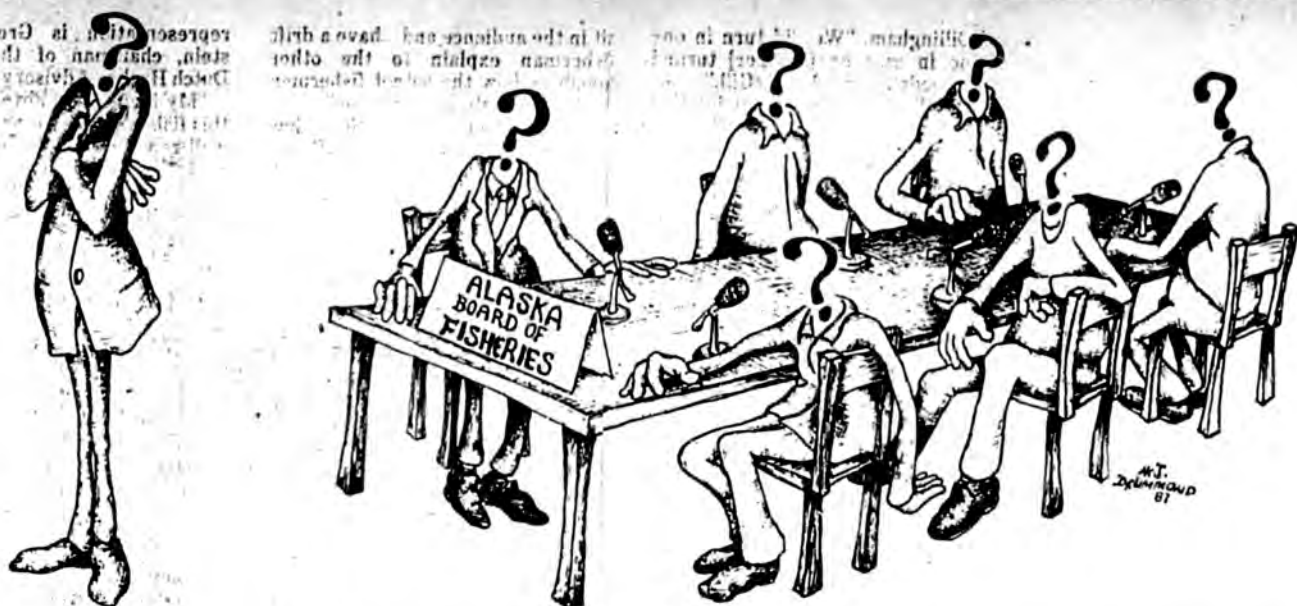
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Cowper Studying Long List of Board Candidates

Names have been rolling into Governor Steve Cowper's office, from Anton Anvel to Vernisa Zylis, as fishing groups, Native leaders, and other interested parties push their particular candidates for the Board of Fish.

The Board's membership depleted rapidly during its last meeting, amid charges of vote-swapping over the False Pass seine fishery. Three members whose terms were set to expire January 31 took "early retirement," and the Board adjourned abruptly, leaving several hundred

proposals lying on the table.

Cowper has sent a letter to more than 250 groups and individuals around the state, calling for nominations to those three seats formerly occupied by Ron Jolin of Kodiak and John Garner and Jeri Museth of Juneau. By mid-January, 29 potential candidates had surfaced, including False Pass seiners and sport and recreational-use advocates.

Although the Board is supposed to be above partisan politicking and gear-group squabbling, the events of the last meeting lend political over-

tones to whatever appointments are eventually made. One version of the meeting's breakdown alleges that four Board members, the four that are staying, cut a secret deal to enhance salmon escapement for sport fishermen in exchange for the elimination of the False Pass fishery. Another holds that the False Pass supporters on the Board saw the tide turning against them and simply refused to go on with the meeting.

Whether either version is accurate may never be known, but False Pass supporters are convinced

that changes are needed on the Board, and simply filling the three vacancies won't do the trick.

"We feel very strongly that the entire Board should be replaced," said Juneau attorney Michael Stanley, who represents a group known as Concerned Area M Fishermen.

"We see the four people who are left [Val Angasan, Bix Bonney, Ernie Carter and Jesse Foster] as the ones the vote-trading rumors were swirling around. They got the Board off track. We feel they were making decisions for political reasons and



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their own political benefit."

Stanley said the group has not yet endorsed any of the 29 names on the Governor's list, but had not offered any suggestions of its own. He said the group might sponsor a candidate before the January 30 deadline, but the group's primary concern is that the four alleged vote-swappers not be allowed to remain.

"The people who are getting off the Board were the ones saying, 'Let's listen to the Department [of Fish and Game] on this,'" he said. "The others were ignoring the data, and attempting to make an allocation decision on a conservation rationale."

"We feel that's intellectually dishonest," said Stanley, "and it's the wrong path for the Board to be taking. That's why we don't think any of the Board members should remain."

Mitch Kink, executive director of the the Alaska Independent Fishermen's Marketing Association, doesn't agree.

"We're recommending that we hold on to Val [Angasan]," said Kink. And he expressed additional concern that the Governor might be pressured to scrap the whole idea of a board of fishermen, given the conflict-of-interest hassles.

"We should avoid a professional Board," Kink said from his home in Bellingham. "That's just what we've got down here in Washington and Canada—with no input from fishermen at all."

"Put more laymen on it," Kink advised, "and let the chips fall where they may. At least we have some semblance of being heard."

So far, Cowper has made no move to effect a clean sweep of the Board; aides say he recalls the mess created when Governor Sheffield tried that a few years ago.

Jeff Stephen, manager of United Fishermen's Marketing Association in Kodiak, remembers it too. "That," he said, "was a political disaster."

By exposing seven appointments to a year-long confirmation hassle, said Stephen, Sheffield prevented the Board from acting effectively on many pressing issues. "There were good productive people [on that Board] who should have served out their terms," he said.

As for the Board that just adjourned, Stephen said, "History will judge them as one of the best...given the issues before them."

UFMA has endorsed the nomination of Oliver Holm.

"We had a series of meetings where we discussed other potential Kodiak candidates," said Stephen, "and decided to endorse Oliver because of his longevity in the fishery. He has a very good geographic and species background...and we feel he would be the most unbiased representative for this area and Western Alaska as well."

The Alaska Dragger's Association has offered a different candidate from Kodiak, endorsing longtime fisherman and processor Harold Jones. Jones has been fishing in Alaska since 1947.

"We feel there's no finer candidate around than Harold," said association president Mickey Serwold. "He has the honesty, integrity, and the broad-based experience the Board needs right now."

As for re-appointments, Serwold said, "Personally, I don't think any of the four should be re-appointed...not necessarily over this False Pass thing either. It would take too long to tell you why I think they have to go."

"As long as we get somebody from here," said Harvey Samuelson, president of the Western Alaska Cooperative Marketing Association

of Dillingham. "We did turn in one name in case he [Cowper] turned everybody down... Joe McGill."

McGill, a Dillingham fisherman and former legislator, is president of Alaska Herring Corporation, the group involved in the Togiak herring J-V with the Japanese.

"I hear the setnetters are in a position to put a setnetter on the Board," said Samuelson, "and I just want somebody with a broader basis than a setnetter...that's involved in herring, salmon, and possibly halibut, if that [proposed halibut Area 4G] comes about."

Linda Dowie didn't share Samuelson's feelings about setnetters. As a setnetter herself and president of the Alaska Setnetters Association, Dowie said, "We are pushing for a setnet fisherman on the Board."

"I think it's important," she said, "...that they [the Board] have the knowledge and information about the setnet fishery, because we do fish a little bit differently than the drift fishermen or the seine fishermen do. It's very difficult for me to

sit in the audience and ...have a drift fisherman explain to the other members how the setnet fishermen do it...it isn't always accurate."

The Setnet Association has endorsed three setnetters for Board appointment: Doug Blossom of Cook Inlet; Michael Owecke of Prince William Sound; and Sid Omlid of Kodiak.

While he didn't want to name names, Sid Gronholdt of the Peninsula Marketing Association in Sand Point expects some local candidates. "I don't think there's any question that most of the people here felt that they've been on the short end of the stick," Gronholdt said. "Some people on the Board vote one way, regardless of what the facts are—at least the facts as the guys out here see them."

"We just want people with an open mind on the Board," Gronholdt continued. "It doesn't matter if they're all from Barrow. As long as they're all good candidates, we wouldn't care."

Another one looking for better

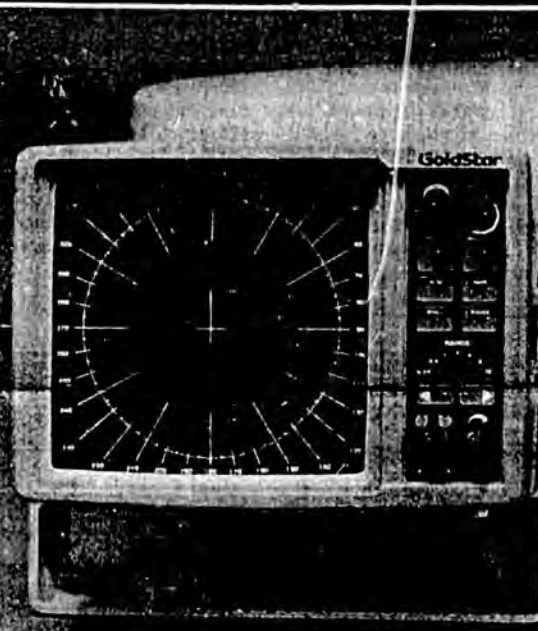
representation is Greg Gerhardtstein, chairman of the Unalaska/Dutch Harbor Advisory Committee.

"My feeling has always been that this fishery out here has never been well represented on the Board," he said. "We had Jolin who was probably as well-versed with Bristol Bay, Dutch Harbor, and the western Aleutians fishery as anybody," Gerhardtstein continued, "but he was still from Kodiak."

"I would like to think that one of these days," he said, "one of these boards will have an individual on it that's from this area, a Dave Stanchfield-type of individual or somebody that's a resident of this area."

Dave Stanchfield, an Unalaska resident, is skipper of the *Morning Star* and active in both the crab and bottomfish industries.

Whether Governor Cowper will appoint another sportfishing representative is an open question, but the Alaska Sportfishing Association is pushing a full slate of three candidates, according to executive



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director Russ Redick.

"We support Bob Stickle's of Talkeetna, the former director of [Alaska Fish and Wildlife] Protection, as well as myself and Bud Hodson, the owner of the Tikchik Narrows Lodge," said Redick. Redick is a former regional supervisor for the ADF&G sportfish division.

As for replacing or re-appointing current members, Redick said his group would be happy to see either Garner or Jolin back, but they don't see that as a likely event.

"In general, we'd like to see more names in tune with recreational interests," Redick said.

United Fishermen of Alaska weighed in with a list of ten candidates for the three seats. They advocated the re-appointment of Jolin and Museth, and threw Larry Painter, Tim Towarak, Don Kalb, Jack Foster, Sr., Mike Haggren, Joe Demmert, Alvin Osterback, and Paul Dale into the ring, as well.

Some groups contacted by the JOURNAL have not made endorsements at press time. These include Bethel's Nunam-Kitlutsitsi and the Alaska Federation of Natives.

The Kodiak Area Native Association supports Bill Berestoff, and the Traditional Council of Kotlik is backing Terry Cook.

Haines residents Cecily Stern and Carmen DeFranco's names are in the hat, while Paul Dale has the support of United Cook Inlet Drift Association. Juneau's John Martin, Sr., and Robert Roys have been nominated. Other names include June Thiele, Jonathan Solomon,

Lonnie Thomas, and Dennis Watson. The Bristol Bay Driftnetter's Association is backing David Whitmire.

Beth Stewart, executive director of the Division of Boards, says she has advised the Governor's Office that they should make a decision on these appointments by February 13, at the latest. The new members would then have to get together immediately to decide which proposals to consider. Thirty days public notice will have to be given before the Board can meet.

Complicating the issue is the upcoming meeting of the joint Boards of Fish and Game, said Stewart.

"It's a big one," she said. "That meeting is set for March 13th or 14th...so I suspect it's more than likely that the joint boards will meet in mid-March, and then they'll split up, at which point the Board of Fish could consider some or all of these proposals that were left on the table. Right now, we're just waiting for a new Board, so we know what they want to do."

It's also possible the March meeting may take place in Anchorage. With just one Southeast issue that has a sunset problem (relating to net-catch mortality), the Board may opt to save on travel expenses by staying in Anchorage.

Stewart added that the Board has already decided not to have a shellfish meeting this year. That one will not be a conflict.

—Peter Kenyon, Bob King,
John van Amerongen

STIKINE

continued from page 31

frontage backed by a naturally occurring salmon rearing pond.

As a fisherman, Blanchard is unhappy with the United States/Canada Salmon Treaty. He thinks Canadian fisheries gave away Stikine River salmon in exchange for fishing rights on the Fraser River. "The treaty should have been negotiated by commercial fishermen instead of people from Ottawa who don't know a river of salmon when they see it. There's a lot more fish than Fisheries knows about. Originally, they based their statistics on Tahltan Lake, but the lake probably contributes only about forty percent of the fish," Blanchard says that most of the sockeye spawn not in the river, but in side sloughs and glacial lakes.

One of Blanchard's main concerns is logging and specifically, how it will affect his own backyard rearing pond. He has twenty-eight acres, but his property doesn't protect the entire stream that empties into his pond.

Blanchard sees the Stikine as the last major river on the North American continent that hasn't been appreciably damaged, and he'd like to see it stay that way. He proposed that the province make the area a protected reserve but says the response was, "You just want your own private moose hunting preserve." What Blanchard was actually prepared to offer, he says, was to trade his own property so that it

might be included in the protected area.

Meanwhile, the river rushes along its mighty and familiar way. Dave Ellis of Petersburg, who sometimes takes older fishermen up the Stikine River after they retire, has been exploring its channels and sloughs for thirty years. He says the changes that have taken place since he's known it are almost imperceptible. "Thirty years of time is such a snatch in the grand scheme of things. You see these huge banks and tree stumps and river bars and you think it would be able to fill up Sumner Straits and the flats out here in just a matter of weeks, and then you think about the fact that it's been doing that for hundreds of years and hasn't really made a noticeable change. A hundred feet of bank will go one year and the next year it looks as if it's been that way forever."

This report was prepared with support from Alaska Discovery.

LETTER

continued from page 27

remove all restriction quotas—observe, do not manage. The Montague Straits experimental area has shown the "resilience" of the spot shrimp. Of course, restrict it to trap fishing, as least destructive to bottom habitat—very important in the spot shrimp life cycle.

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Salmon Farming Goes Crazy in B.C.

by Clark Miller

Salmon farming in British Columbia— they're calling it a Gold Rush, an out-of-control frenzy of production that will glut the world market and plunge prices in two years. Is it really that hazardous?

Vance Lipovsky thinks so. He is director of aquaculture development for British Columbia Packers, Ltd., in Vancouver, B.C. He says production of farmed salmon in British Columbia will hit 30,000 tons by 1990— in 1984 it was only 107 tons. Meanwhile, prices to producers will dive below \$3 a pound—right now, they're between \$3.50 and \$3.75.

Kicking off a series of lectures on aquaculture at the University of Washington's School of Fisheries last month, Lipovsky said, "It's impossible to keep up with the industry up there... and the pace will not change." In 1985, there were 45 farms. Last year, there were 106 farms. This year there are perhaps 150, with more than 500 applications pending.

"In the three or four years British Columbia will be the largest exporter of salmon to the U.S.," he predicts.

Orders for salmon cages are backed up for six months. B.C.'s 20 hatcheries are charging 65 to 79 cents each for smolts (there ten to twenty more hatcheries on line, Lipovsky says).

The provincial government slowed things down with a 30-day freeze on licenses in October, in order to ask a few questions, but basically decided there are no com-

elling reasons to interfere with something that is boosting the economy of a traditionally depressed area with 69,000 miles of wilderness coastline. "A month later, it was business as usual," Lipovsky said.

One question asked during the moratorium involved the impact of aquaculture on wild salmon prices. The answer in Canada was, None.

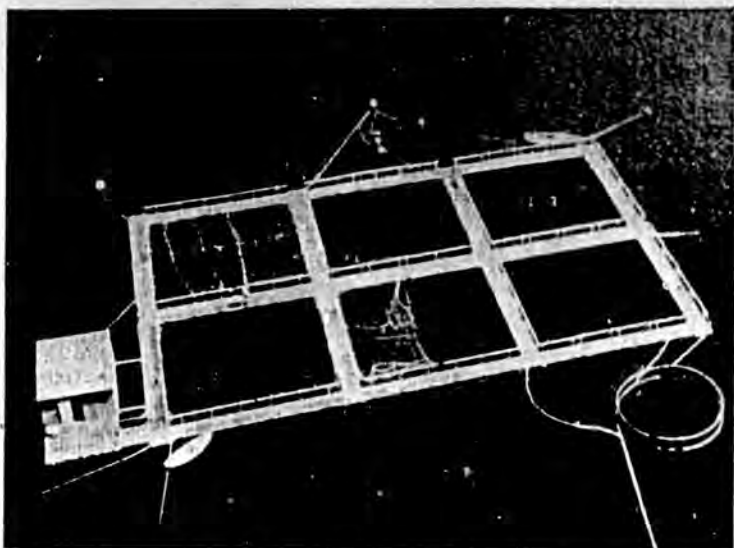
One way of measuring the growth is the number of smolts that are reared each year. In 1984, the number was 1.5 million. In 1985, it was 5 million. In 1986, it was 14 million. This year it will be 30 million. Figuring 50 percent mortality (35 percent is typical, even lower in the north), a million smolts yields about 1,000 tons of salmon. Therefore, 1990's harvest should easily reach 30,000 tons; the B.C. government predicts 40,000, with a potential value to farmers of \$352 million.

Will the market be able to absorb that amount? "Markets are the big unknown," says Lipovsky. "Only the markets will limit us."

Lipovsky thinks the future will be a mixture of successes and failures. In addition to softening prices, he's worried about the high price of feed and a predicted shortage of skilled labor. He told the mostly student audience that employment prospects in aquaculture look very good in B.C. for the next five years at least.

"1991 will be the first crash of the industry," he predicts. Then the "merger phase" will begin; Lipovsky expects to see bargains on farms in two years.

Forty percent of the investment



This photograph from a Norwegian equipment supplier shows a typical small Norwegian fish farm. B.C. farmers have no such size restrictions.

so far is Norwegian, Lipovsky speculates. Norwegian applications for sites began mounting in 1984.

Have the commercial fishermen of B.C. become involved? No, Lipovsky said, the lifestyle is too harsh (he wasn't joking— he said the stresses of living in these isolated wilderness areas is taking its toll on participants, especially women).

The B.C. government makes it easy to get into this business: \$100,000, interest-free loans; grants; no environmental impact statement required for sites. You can claim virtually any wilderness site for \$150, as long as it's a mile and a half from the nearest salmon farm (that's one of the new rules, non-retroactive; formerly, it was only a half mile). Annual rent on government land is only \$200 per acre.

This massive buildup of salmon farming includes some problems. The fish— chemically neutered coho and feminized chinook— aren't growing as fast as they should, and no one is sure why. Inventories are

mysteriously low— farmers accuse the hatcheries of shortchanging them. Much of the feed has been low in quality, but now farmers are being offered high-fat, extruded feeds (at 40 cents a pound, expected to climb to 60 cents by 1990).

Some stress-related diseases have cropped up, as well as some minor hassles with algal blooms. However, Lipovsky gave the impression that the government finds very little to worry about with aquaculture so far.

One of the paradoxes of the business, according to Lipovsky, is that farmers are mostly growing 4-6 pounders, even though the greatest market-size need is for 6-9 pounders (restaurants prefer the big fish for "steaking"). The reason— the price of feed. Physical growth is rapid and economical during the first 24 months, especially for coho; continued growth, however, cuts profits.

"Coho will be the fish of the future because of its fast growth rate," Lipovsky said. □

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SPECIFICATIONS

BASIC ENGINE—Detroit Diesel 6.2L. ENGINE TYPE—Diesel 4 cycle. NUMBER OF CYLINDERS—Eight (8). BORE/STROKE—3.98 in. x 3.82 in. (101 mm x 97 mm). DISPLACEMENT—380 cubic in. (6.2 Liters). COMPRESSION RATIO—21.3 to 1. ROTATION—Left-hand. ENGINE HORSEPOWER RATED BRAKE—170 HP (127 Kw) @ 3600 RPM. RATED SHAFT—162 HP (121 Kw) @ 3600 RPM. WEIGHT (DRY)—930 Lbs (422 Kg). Specifications subject to change without notice.

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1

ADDRESS BY ROBERT W. LOESCHER
VICE PRESIDENT FOR RESOURCE MANAGEMENT
SEALASKA CORPORATION
TO
UNITED FISHERMEN OF ALASKA
ANNUAL MEETING
FEBRUARY 5, 1986

AQUACULTURE DEVELOPMENT

INTRODUCTION

SEALASKA CORPORATION HAS BEEN ASKED TO SPEAK TO UNITED FISHERMEN OF ALASKA DUE TO OUR INTEREST IN AQUACULTURE DEVELOPMENT IN ALASKA. BRIEFLY, SEALASKA BELIEVES THAT AQUACULTURE REPRESENTS AN OPPORTUNITY FOR ALASKA TO:

1. DIVERSIFY STATE AND LOCAL ECONOMIES;
2. PROVIDE ECONOMIC GROWTH AND EMPLOYMENT FOR ALASKANS;
3. AND, TO DEVELOP AN INDUSTRY THAT UTILIZES ALASKA'S VAST NATURAL COASTLINE, ESTUARIES AND HABITAT RESOURCES IN A MANNER COMPATIBLE WITH EXISTING LIFESTYLES AND INDUSTRIES.

WORLD AQUACULTURE PRODUCTION

AQUACULTURE IS OF INTEREST BECAUSE THE WORLD PRODUCTION OF NATURAL STOCKS OF ALL SPECIES HAVE REMAINED STATIC AT 70-75 MILLION METRIC TONNES DURING THE LAST 15-20 YEARS. AT THE SAME TIME, THE WORLD DEMAND FOR QUALITY FISH AND OTHER AQUATIC PRODUCTS IS INCREASING. ONLY AQUACULTURE HAS THE POTENTIAL TO SIGNIFICANTLY INCREASE THE PRODUCTION OF FISH AND OTHER AQUATIC PRODUCTS TO MEET THESE NEEDS. THE WORLD PRODUCTION OF AQUACULTURE PRODUCTS IS INCREASING RAPIDLY. IN 1984, IT WAS

ESTIMATED THAT ABOUT 10 MILLION METRIC TONNES OF AQUACULTURE PRODUCTS WERE PRODUCED.

AQUACULTURE IN ALASKA

IN ALASKA, OPPORTUNITIES AND INTEREST IN AQUACULTURE DEVELOPMENT FOCUS ON OYSTERS, MUSSELS, SEAWEED AND SALMON. OTHER POTENTIAL OPPORTUNITIES ALSO EXIST FOR OTHER SHELLFISH, MOLLUSCS AND FINFISH SPECIES. THE PRESENTATION TODAY WILL FOCUS ON SALMON AQUACULTURE AND PARTICULARLY SALMON FARMING.

TYPES OF SALMON AQUACULTURE

SALMON AQUACULTURE OCCURS IN TWO FORMS -- SALMON OCEAN RANCHING AND SALMON FARMING. OCEAN RANCHING CONSISTS OF THE PRODUCTION OF AND RELEASE OF SALMON FRY OR SMOLTS INTO THE NATURAL WATERS OF THE STATE. THESE FISH MIGRATE THROUGH THE OPEN OCEANS AND LATER RETURN TO THEIR PLACE OF ORIGIN. DURING THIS MIGRATORY PHASE THE FISH ARE HARVESTED BY THE VARIOUS FISHERIES OF THE STATE. WITHIN ALASKA, THE OCEAN RANCHING PROGRAM IS WELL ESTABLISHED UNDER STATE LAW AS A STATE OR PRIVATE NON-PROFIT HATCHERY PROGRAMS.

SALMON FARMING IS THE REARING OF SALMON IN NET PEN OR OTHER ENCLOSURES. THE FISH ARE HARVESTED BY THE GROWER WHEN THEY REACH MARKETABLE SIZE. THERE ARE TWO GENERAL MARKET SIZES OF FARMED SALMON, PAN-SIZED AND GROW-OUT. PAN-SIZED SALMON ARE SOLD WHEN THEY REACH APPROXIMATELY ONE POUND IN SIZE. GROW-OUT SALMON ARE GENERALLY SOLD WHEN THEY REACH TWO POUNDS OR MORE. THE BEST PRICES FOR GROW-OUT SALMON ARE FOR SIZES BETWEEN SEVEN TO TWELVE POUNDS. CURRENTLY SALMON FARMING IS BELIEVED TO BE PROHIBITED IN ALASKA. THERE WILL BE A NEED TO ENACT ENABLING LEGISLATION IF THIS TYPE OF INDUSTRY IS TO PROCEED IN ALASKA.

WORLD SALMON FARMING INDUSTRY

SALMON FARMING AS IT CURRENTLY EXISTS EVOLVED IN NORWAY IN THE

1960S. THIS WAS LARGELY AN EXPERIMENTAL PROGRAM TO CREATE A BROAD BASED, GEOGRAPHICALLY DISPERSED INDUSTRY, THAT WOULD PROVIDE EMPLOYMENT OPPORTUNITIES IN REMOTE REGIONS AND FOR NATIONAL SECURITY PURPOSES. THE FIRST COMMERCIAL PRODUCTION OF NORWEGIAN FARMED SALMON OCCURRED IN 1971 WHEN 98 METRIC TONNES WERE PRODUCED. BY 1973, THE NORWEGIAN FARM PRODUCTION INCREASED TO 171 METRIC TONNES. IN 1981, NORWAY PRODUCED ALMOST 9,000 METRIC TONNES OF FARMED SALMON. IN 1981, TWELVE OTHER COUNTRIES PRODUCED AN ADDITIONAL 3,000 METRIC TONNES, FOR A TOTAL 1981 PRODUCTION OF 12,000 METRIC TONNES OF FARMED SALMON. BY 1984, THE WORLD FARMED SALMON PRODUCTION DOUBLED TO OVER 24,000 METRIC TONNES AND BY 1990 THE FORECAST FOR A WORLD PRODUCTION IS 126,000 METRIC TONNES.

THE IMPORTANCE OF SALMON FARMING BECAME READILY APPARENT IN 1980. BY THIS PERIOD SIGNIFICANT QUANTITIES OF FARMED SALMON WERE BEING EXPORTED FROM NORWAY TO 14 OTHER COUNTRIES. THE UNITED STATES AND JAPAN BEING THE LARGEST MARKETS FOR NORWEGIAN SALMON. FARMED SALMON WAS BEING WIDELY RECOGNIZED AND ACCEPTED AS A PREMIUM QUALITY SEAFOOD PRODUCT. SEALASKA HAS FOUND THESE PRODUCTS TO BE ENTERING EUROPEAN MARKETS TRADITIONALLY HELD BY FRESH FROZEN SALMON FROM ALASKA.

THE RAPID GROWTH AND MARKET ACCEPTANCE OF FARMED SALMON IS OCCURRING BECAUSE IT IS A "NEW PRODUCT FORM" THAT MEETS THE BUYER AND CONSUMER NEEDS. THE ATTRIBUTES OF FARMED SALMON IN THE MARKETPLACE ARE:

1. AVAILABLE IN THE SIZE PREFERRED BY THE CONSUMER.
2. OFFER CONSISTENTLY EXCELLENT QUALITY WITH FIRM FLESH, GOOD COLOR AND SILVER SIDES.
3. ARE AVAILABLE FRESH TO ALMOST ANY MARKET WITHIN THREE DAYS.
4. AND, DO NOT ENCOUNTER THE SEASONAL AVAILABILITY AND HIGH

STORAGE COSTS THAT OCCUR WITH COMMERCIALY CAUGHT FISH.

NORWAY, WHICH HAS 592 FARMS AND 649 HATCHERIES, SUPPLIES MOST OF THE CURRENT WORLD PRODUCTION. OTHER EUROPEAN COUNTRIES, JAPAN, CHILE, NEW ZEALAND, CANADA AND THE UNITED STATES, ARE PROMOTING SALMON FARMING IN THEIR REGIONS. THE OBJECTIVE IS TO DIVERSIFY LOCAL ECONOMIES AND TO CREATE NEW JOBS. IN 1984 BRITISH COLUMBIA HAD 10 FARMS PRODUCING APPROXIMATELY 100 METRIC TONS, IN 1985 THERE WERE 35 PRODUCING FARMS AND IN 1986 THERE WILL BE AN ESTIMATED 146 PRODUCING FARMS. BRITISH COLUMBIA OFFICIALS CONSERVATIVELY ESTIMATE THAT IN 1990 FARM SALMON PRODUCTION WILL BE BETWEEN 12,000-15,000 METRIC TONS, WORTH APPROXIMATELY \$122 MILLION DOLLARS. IN WASHINGTON STATE, THE GROWTH OF SALMON FARMING IS EQUALLY DRAMATIC. OFFICIALS IN WASHINGTON ESTIMATE THAT THERE WILL BE 100-140 FARMS BY 1990. IN BOTH WASHINGTON AND BRITISH COLUMBIA THE GOVERNMENTS RECOGNIZE THE SOCIAL, ECONOMIC AND ENVIRONMENTAL BENEFITS OF SALMON FARMING AND HAVE FORMULATED LAWS AND OTHER INSTITUTIONAL PROGRAMS TO PROMOTE SALMON FARMING IN THEIR RESPECTIVE REGIONS.

THE SUCCESS OF SALMON FARMING IN NORWAY AND OTHER COUNTRIES AND NOW CLOSER TO HOME IN BRITISH COLUMBIA AND THE PACIFIC NORTHWEST STATES IS PROOF THAT FARMED SALMON HAVE ESTABLISHED A PERMANENT PLACE IN THE WORLD FOOD MARKETS. THE PRODUCTION OF FARMED SALMON IS NOW MARKET-DRIVEN WITH PREVIOUSLY NON-PRODUCING REGIONS AGGRESSIVELY PROMOTING SALMON FARMING IN ORDER TO CAPTURE A SHARE OF THE NEW MARKETS AND REALIZE THE SOCIAL AND ECONOMIC BENEFITS FROM SALMON FARMING. CLEARLY, AS A RESULT OF THESE DEVELOPMENTS ALASKANS MUST NOW CONSIDER SALMON FARMING AS PART OF THE GROWING ALASKA SEAFOOD INDUSTRY.

SEALASKA CORPORATION, AS A MAJOR FISHERIES INDUSTRY PARTICIPANT, HAS CONCLUDED THAT SALMON FARMING MAY BE WELL SUITED FOR ALASKA CONDITIONS. IF ECONOMICALLY FEASIBLE, SALMON FARMING WOULD PROVIDE SIGNIFICANT ECONOMIC AND SOCIAL BENEFITS IN ALASKA. EQUALLY SIGNIFICANT IS THAT A FAILURE OF ALASKA TO ACT ON SALMON

FARMING WOULD MEAN A LOSS OF INCOME AND SOCIAL BENEFITS TO THE STATE AND ITS RESIDENTS. IN LATE 1984 AND 1985, SEALASKA COMMISSIONED AN AQUACULTURE FEASIBILITY STUDY WITH SWEDISH AND ALASKAN CONSULTING FIRMS TO EVALUATE SALMON FARMING POTENTIAL.

THE STUDY OBJECTIVES WERE TO:

1. EVALUATE COSTS OF FARMING SALMON IN ALASKA.
2. DETERMINE IF SALMON FARMING IS ECONOMICALLY FEASIBLE; AND
3. EVALUATE POTENTIAL SOCIAL AND ECONOMIC BENEFITS TO ALASKA AND ITS RESIDENTS.

THIS STUDY FOUND THAT:

SALMON FARMING IS ECONOMICALLY FEASIBLE IN ALASKA UNDER CURRENT CONDITIONS, HOWEVER, COST CONTROL FARM EFFICIENCY AND A FAVORABLE REGULATORY STRUCTURE ARE ESSENTIAL TO MAINTAIN PROFITABILITY.

- o THE CURRENT MARKET PRICE FOR FARMED SALMON IN HOUSTON OR LOS ANGELES IS IN EXCESS OF \$4.00 PER POUND.
- o THE DELIVERED COST OF FARMED SALMON FROM SOUTHEAST ALASKA FROM URBAN OR RURAL/REMOTE LOCATIONS RANGES BETWEEN \$2.78 AND \$2.98 PER POUND FOR AN ESTABLISHED METRIC TON FACILITY.
- o ASSUMING A CONSERVATIVE PRICE OF \$3.50 PER POUND THE GROSS PROFIT FOR A 200 METRIC TONNE SALMON FARM IN SOUTHEAST ALASKA WOULD BE BETWEEN \$217,000 AND \$268,000 OR 17% TO 21% PROFIT MARGIN.
- o THE PRODUCTION COSTS OF FARMED SALMON IN ALASKA ARE APPRECIABLY HIGHER THAN COSTS TO PROVIDE THE SAME FISH IN WASHINGTON OR BRITISH COLUMBIA. IF GOVERNMENTAL AND REGULATORY PROGRAMS DO NOT ENCOURAGE SALMON FARMING, ALASKA

WILL BE UNABLE TO COMPETE WITH THE LESS EXPENSIVE FISH FROM THESE REGIONS.

A SALMON FARMING INDUSTRY IN ALASKA WILL CREATE A SIGNIFICANT NUMBER OF NEW JOBS AND PROVIDE SMALL BUSINESS OPPORTUNITIES FOR ALASKANS.

- o AN ALASKA FARMED SALMON INDUSTRY PRODUCING 20,000 METRIC TONNES WOULD HAVE A PRODUCT SALES VALUE OF OVER \$132 MILLION DOLLARS AND WOULD CREATE 2,800 JOBS. THIS IS 20% OF THE 1982 FISH AND SEAFOOD HARVESTING INDUSTRY ANNUAL AVERAGE EMPLOYMENT.
- o IN AN ALASKA COMMUNITY FIVE TO TEN FARMS PRODUCING 500 METRIC TONNES WOULD CREATE APPROXIMATELY 33 NEW JOBS AND HAVE A SALES PRODUCT VALUE OF 3.3 MILLION DOLLARS.
- o A 500 METRIC TONNE SALMON INDUSTRY IN A TYPICAL SMALL ALASKA VILLAGE WOULD EMPLOY 25% OR MORE OF THE AVAILABLE UNEMPLOYED LABOR FORCE AND CONTRIBUTE UP TO 50% IN ADDITIONAL WAGE EARNINGS TO THE COMMUNITY.

SALMON FARMING WILL PROVIDE DIRECT AND INDIRECT JOBS AND BENEFITS TO THE COMMERCIAL FISHING INDUSTRY.

- o COMMERCIAL FISHERMEN MAY OWN AND OPERATE SALMON FARMS AS WELL AS CONTINUING TO FISH COMMERCIALLY. SALMON FARMING IS A YEAR-ROUND ACTIVITY, HOWEVER, DURING THE SPRING AND SUMMER MONTHS OPERATING A SALMON FARM IS AT A MAINTENANCE LEVEL REQUIRING REDUCED LABOR FORCE AND DIRECT MANAGEMENT THEREBY FREEING THE OWNER TO COMMERCIAL FISH. DURING THE WINTER HARVESTING AND PROCESSING PERIOD, THE COMMERCIAL FISHERMAN OWNER WILL BE AVAILABLE TO MANAGE THE OPERATION.
- o SALMON FARMING REQUIRES LARGE QUANTITIES OF RAW FISH FOR USE AS FISH FOOD OR FISH MEAL. THESE RAW PRODUCT DEMANDS WILL

CREATE NEW AND DIFFERENTLY COMMERCIAL FISHING OPPORTUNITIES.

- o CURRENTLY, SIGNIFICANT PORTIONS OF THE STATE AND PRIVATE NON-PROFIT OCEAN RANCHING FACILITIES BUDGET IS FOR PURCHASE OF EXPENSIVE FISH FOOD WHICH IS RECEIVED FROM WASHINGTON OR OREGON. THE FISH FOOD DEMANDS OF THESE FACILITIES IS INSUFFICIENT TO JUSTIFY A FISH FOOD PRODUCTION PLANT NEAR THESE FACILITIES. WITH THE GROWTH OF A SIGNIFICANT SALMON FARMING INDUSTRY SUFFICIENT FOOD REQUIREMENTS WOULD EXIST TO JUSTIFY REGIONAL FISH FOOD PRODUCTION PLANTS. THIS WOULD REDUCE COSTS TO THE OCEAN RANCHING FACILITIES.

SALMON FARMING IN ALASKA WILL NOT EFFECT THE ALASKA COMMERCIAL FISHING INDUSTRY DUE TO WORLD PRODUCTION AND MARKETS THAT ALASKA FARMED SALMON WILL ENTER

THE PRODUCTION OF FARMED SALMON IS VERY EXPENSIVE. IN ALASKA THE PROJECTED DELIVERED COSTS OF PRODUCING FARMED SALMON IS \$2.78 TO \$2.98 PER POUND. DUE TO THESE COSTS, FARMED SALMON FROM ALASKA WOULD ENTER ONLY VERY SPECIAL DOMESTIC MARKETS THAT WILL PAY PREMIUM PRICES.

AREAS OF POTENTIAL COMPETITION MAY BE FOR PREMIUM QUALITY COMMERCIALLY CAUGHT CHINOOK AND POSSIBLY COHO SALMON ENTERING FRESH AND FRESH FROZEN MARKETS. COMPETITION WILL NOT BE DIRECT BECAUSE FARMED SALMON CANNOT COMPETE WITH THE PRICES OF COMMERCIALLY CAUGHT FISH. FOR THIS REASON, FARMED SALMON GENERALLY ENTER THE MARKET DURING A 31-WEEK PERIOD (WINTER THROUGH LATE SPRING) WHEN FRESH COMMERCIALLY CAUGHT SALMON ARE NOT AVAILABLE. FARMED SALMON MAY ALSO IMPROVE MARKETING OF COMMERCIALLY CAUGHT FISH BY CREATING NEW MARKETS SUCH AS RESTAURANTS THAT PREVIOUSLY DID NOT CARRY SALMON. IN THESE MARKETS, PREMIUM QUALITY COMMERCIALLY CAUGHT FISH WOULD BE PURCHASED IN SEASON WHILE FARMED SALMON WOULD BE PURCHASED DURING THE OFF-SEASON.

SALMON FARMING IS OCCURRING THROUGHOUT THE TEMPERATE AND SUB-ARCTIC CLIMATES OF THE NORTHERN AND SOUTHERN HEMISPHERE. THERE IS PRESENTLY AN UNDECLARED RACE THROUGHOUT THESE REGIONS TO DEVELOP A SALMON FARMING INDUSTRY WHICH CAN SECURE A SHARE IN THE NEW MARKET. EACH COUNTRY IS POSITIONING ITSELF TO FIND THE GEOGRAPHIC MARKET AREA IN WHICH THEY WILL HAVE A COMPETITIVE ADVANTAGE OVER OTHER PRODUCING REGIONS. RECOGNIZING THE EXISTENCE OF THIS RACE, IT IS SAFE TO CONCLUDE THAT THE WORLD DEMAND FOR FARMED SALMON WILL BE FILLED. THUS, REGARDLESS OF ALASKA'S PARTICIPATION, IN SALMON FARMING THE MARKETS WILL BE FILLED. FAILURE OF ALASKA TO PARTICIPATE WILL ONLY MEAN A LOSS OF JOBS AND INCOME TO ALASKA.

EXPEDIENT DEVELOPMENT OF SALMON AQUACULTURE POLICY AND REGULATIONS IS NECESSARY IF ALASKA IS GOING TO COMPETE IN MARKETS FOR FARMED SALMON

- o THE GROWTH OF A SALMON INDUSTRY INVOLVES CONSIDERABLE LEAD TIME. FOR EXAMPLE, IT TOOK NORWAY 20 YEARS BEFORE THE COUNTRY WAS ABLE TO PRODUCE 9,000 METRIC TONNES.
- o IN ALASKA, THE LEAD TIME REQUIRED TO PRODUCE A MARKETABLE PRODUCT WILL BE AT LEAST FOUR YEARS.
- o IT IS ESTIMATED THAT IT WILL TAKE A MINIMUM OF EIGHT TO 10 YEARS FOR ALASKA TO PRODUCE MORE THAN 5,000 METRIC TONNES. THIS ASSUMES THAT THE STATE WILL PROVIDE A MINIMUM OF 1.1 MILLION EGGS ANNUALLY AND THAT VERY FAVORABLE GOVERNMENTAL SUPPORT AND REGULATIONS ARE IN PLACE.
- o A DELAY IN AUTHORIZING SALMON FARMING IN ALASKA WILL PREVENT ALASKA FROM ESTABLISHING ITS OWN FARMED SALMON MARKETS. THIS WILL ENABLE OTHER COUNTRIES SUCH AS CANADA AND FARMS IN THE UNITED STATES TO FILL THE DOMESTIC MARKETS BEFORE ALASKA PRODUCTION IS AVAILABLE.

SALMON FARMING WOULD BE BENEFICIAL TO ALASKA, HOWEVER, THE SUCCESS OR FAILURE OF THE INDUSTRY IS PREDICATED ON EXPEDIENT POLICY DECISIONS TO ALLOW THE INDUSTRY IN ALASKA

THE PROJECTED DEMAND FOR FARMED SALMON WILL CONTINUE TO EXCEED SUPPLY THROUGH THE EARLY 1990S. THIS DEMAND WILL MAINTAIN A HIGH PRODUCT PRICE AND EXCELLENT PROFIT MARGIN. IT IS ANTICIPATED, HOWEVER, THAT AS THE MARKET DEMAND IS MET THE PRICE MAY DECREASE. ESTABLISHED SALMON FARMS WILL STILL BE ABLE TO MAINTAIN GOOD TO EXCELLENT PROFIT MARGINS THROUGH IMPROVED EFFICIENCY OF THEIR OPERATIONS AS PRICE DECLINES OCCUR.

THE SUCCESSFUL EVOLUTION OF A NEW SALMON FARMING IN ALASKA IS PREDICATED ON DEVELOPING THE INDUSTRY WHILE THE PRODUCT REMAINS HIGH. IF THE PRICE DROPS BEFORE ALASKA'S INDUSTRY IS ESTABLISHED, ALASKA WILL NOT HAVE THE EXPERIENCE AND IMPROVED EFFICIENCY NECESSARY TO MAINTAIN PROFIT MARGINS. THIS WILL HAVE ADVERSE IMPACTS ON DEVELOPING SMALL SALMON FARMING BUSINESSES THAT DO NOT HAVE SUFFICIENT CAPITAL TO WITHSTAND THE DEVELOPMENT PHASE.

IN CONCLUSION

ALASKA IS ON THE THRESHOLD OF OPPORTUNITY TO PROMOTE A NEW INDUSTRY IN THE STATE. THIS INDUSTRY WILL AFFORD SIGNIFICANT OPPORTUNITIES TO:

1. DIVERSIFY LOCAL AND STATE ECONOMIES.
2. ADD SIGNIFICANT NEW CAPITAL TO THE COMMUNITIES, PROVIDE NEW YEAR-ROUND EMPLOYMENT OPPORTUNITIES ALLEVIATING THE EXTREME UNEMPLOYMENT LEVELS DURING THE FALL AND WINTER MONTHS.
3. PROVIDE SIGNIFICANT NEW SMALL BUSINESS OPPORTUNITIES TO OUTLYING COMMUNITIES; AND

4. INCREASE OFF-SEASON OPPORTUNITIES FOR THE COMMERCIAL FISHING AND SEAFOOD PROCESSING INDUSTRIES.

THESE BENEFITS AND MORE CAN BE REALIZED BY DEVELOPING A SALMON FARMING INDUSTRY. SALMON FARMING IS A NON-EXTRACTIVE INDUSTRY WHICH REQUIRES MAINTENANCE OF ENVIRONMENTAL AND WATER STANDARDS AND IS CONSISTENT WITH ALASKA LIFESTYLES.

THE SUCCESSFUL DEVELOPMENT OF SALMON FARMING CANNOT ENCOUNTER PROTRACTED DELAY. THERE IS A WINDOW OF OPPORTUNITY TO DEVELOP THE INDUSTRY BUT DUE TO RAPID GROWTH OF SALMON FARMING IN OTHER REGIONS OF THE WORLD, COMPETITION FOR MARKET WILL INCREASE. ONCE THIS HAPPENS THE WINDOW OF OPPORTUNITY FOR MANY ALASKANS, PARTICULARLY SMALL BUSINESSES, MAY BE CLOSED.

SEALASKA BELIEVES THAT AQUACULTURE AND SALMON FARMING WILL BE BENEFICIAL TO ALASKA AND THAT EXPEDIENT DEVELOPMENT OF PUBLIC POLICY TO PROMOTE SALMON FARMING IS NECESSARY. DEVELOPMENT OF THIS MUST OCCUR WITH THE CLOSE COOPERATION AND INVOLVEMENT OF THE ALASKA SEAFOOD FOOD INDUSTRY. RECENTLY, THE GOVERNOR'S AQUACULTURE ADVISORY COMMITTEE PROPOSED AN AQUACULTURE POLICY FOR THE STATE AND A PLAN OF ACTION TOWARD IMPLEMENTING THAT POLICY. SEALASKA CORPORATION IS A PARTICIPANT TO DEVELOPMENT OF THE POLICY AND BELIEVES THAT IT REPRESENTS A PRACTICAL AND ACHIEVABLE PROCESS FOR THE PUBLIC TO CONSIDER THE BENEFITS AND IMPACTS OF OCEAN FARMING AND TO MAKE INFORMED DECISIONS REGARDING THE FUTURE OF SALMON FARMING IN ALASKA.

From the desk of

Rick Harris



SENATOR ELIASON

I THANK YOU FOR TAKING TIME TO
MEET WITH ROGER AND I, FOR OUR
DISCUSSION ENCLOSED IS A COPY OF
A PRESENTATION SEALASKA MADE TO
THE UFA. IT INCLUDES SOME BASIC
BENEFITS THAT WOULD BE DERIVED
FROM THE SALMON FARMING. I WILL
BE COMPILING SOME MORE STATISTICS
IN THE NEAR FUTURE.

ALSO ENCLOSED IS A PRESENTATION
MADE BY ANFAA AT THE S.E. MUNICIPAL
CONFERENCE REGARDING AQUATIC FARMING.

RICK HARRIS

SEALASKA CORPORATION
One Sealaska Plaza
Suite 400
Juneau, Alaska
99801
(907) 586-1512

Richard P. Harris
Vice President
Resource Planning & Administration

STATE OF ALASKA

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SEALASKA CORP.
JUNEAU, ALASKA

October 1, 1986

Richard P. Harris
Environmental Coordination Manager
Sealaska Corporation
One Sealaska Plaza
Juneau, AK 99801

Dear Rick:

Per your request, please find the enclosed copy of my presentation at the Southeast Conference. I look forward to receiving copy of yours, as well as the resolution passed by the conference on mariculture.

Thank you.

Sincerely,

Katherine Aschaffenburg

for Tom Kron
Chief of Operations

Enclosure

Presentation given to S.E. Conference, Petersburg, Alaska
September 18, 1986

I would like to thank Karen Hofstad and the Southeast Conference for the opportunity to talk with you today. Seafood production through sea farming is increasing rapidly around the world and represents a very real opportunity for economic diversification in southeast Alaska. In my presentation this morning, I will try to provide you with an overview of the world perspective and then try to bring some of the local options into focus.

Landings from world commercial fisheries have increased dramatically since 1950 (see Fig. 1). In 1983 landings reached slightly more than 158 billion pounds. Most of the world's natural fish production potential is now being tapped for harvest. As such, the harvest is expected to increase only slightly in future years.

Americans ate an average of 14.5 pounds of fish or shellfish in 1985 (see Fig. 2). This was slightly more than the per-capita consumption of chocolate. Seafood consumption in the United States is increasing and is expected to double in the next three decades. Seafood is health food; the omega three fatty acids in seafood are reported to possess near-magical qualities for improved human health. The trend toward increased per-capita seafood consumption is being observed in other developed countries as well. World population increases further increase the demand for seafood.

It is apparent that the demand for many types of seafood is going to outstrip the natural-production capacity of the world's commercial fisheries.

Sea farming is driven by demand for seafood products and economic opportunity. In 1983 sea farming produced 22 billion pounds of seafood worldwide. This was 12.2% of the total seafood supply. At present, most of the seafood production from sea farming is coming from the Orient and northern Europe. Oyster farms produce the lions' share of the oysters on the market. In the past two decades, Japan has developed the technology for farming scallops and now commands the world market with more than 50% of the total world production. Farmed shrimp are also dominating world markets. In 1983 73% of the shrimp consumed in the United States was imported with most of the imported shrimp coming from shrimp farms. Sea vegetables are also a very important product of sea farming in some parts of the world. In Japan, for example, the production of one species of sea vegetable, called nori, is a billion-dollar industry. That makes nori farming in Japan a bigger industry than the commercial salmon fishing industry in Alaska.

While the imports of hundreds of tons of farmed shrimp, scallops, and oysters into the United States have not precipitated a great deal of public concern, the import of ten thousand tons of farmed

salmon has. It is easier to understand that concern when you look at this figure (see Fig. 3). Please also note where the production is coming from.

The United States moved rapidly to become a world leader in agriculture on land. We have progressed from buffalo hunters to ranchers and farmers, and presently hold a commanding position in the world in the production of food grains, land vegetables, fruits, and live stock. . . At present we lag far behind countries like Japan and Norway in farming the sea.

Based on Alaska's abundant, high quality, coastal water resources, the close ties between our coastal communities, and our marine environment, some forms of sea farming represent real opportunities for economic diversification. Oyster and mussel farms have been developing in several areas along our coast. There are a number of oyster farms in the Wrangell area.

Governor Sheffield established an advisory committee in July 1985 to evaluate sea farming. The committee included representatives from fishermen's organizations, fish processors, a native corporation, government agencies, the university, as well as individuals involved in sea farming. Both of the speakers who will follow me (Rick Harris and Earl Krygier) served on that committee. The committee observed that farming of shellfish and sea vegetables appears to be quite compatible, and generally promoted their development. Based on the possibility for social and economic conflicts with existing fisheries, the committee recommended that a more cautious approach was in order for salmon farming. I have copies of the committee's proposed policy for those of you who are interested. The proposed policy is currently undergoing further review.

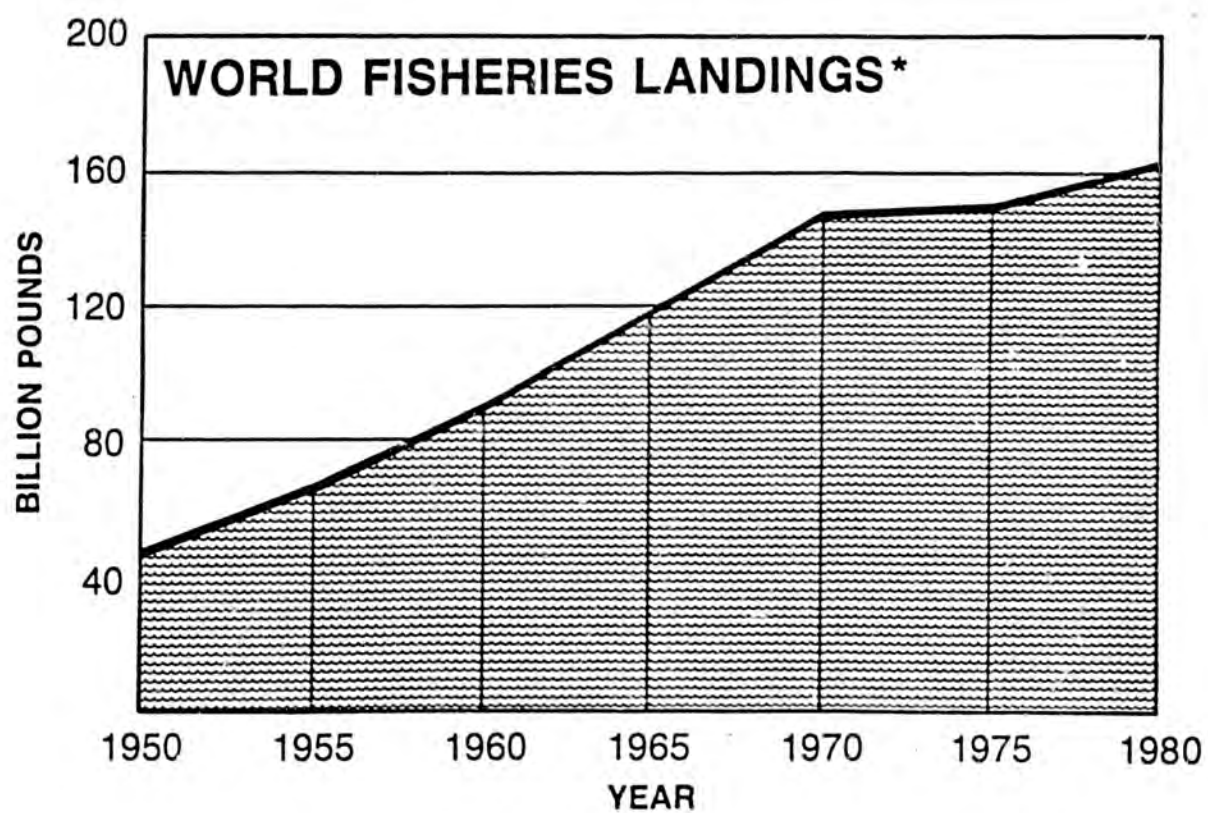
A cooperative agreement was signed this summer between Alaska and Japan's Overseas Fishery Cooperation Foundation which will incorporate Japan's technical support in feasibility studies for farming weathervane scallops in the Kodiak area and giant Alaskan kelp in the Sitka area. The scallop farming feasibility study is scheduled to begin next spring. Japanese and Alaskan scientists are just now meeting in Kodiak to solidify work plans for the scallop portion of the project. The giant kelp project is to begin in summer 1988.

A research project at Little Port Walter on the southern tip of Baranof Island is examining the biological and economic feasibility of salmon farming. This cooperative project is being conducted by the NMFS, ADC&ED, and ADF&G.

In both the past and present, Alaska has been characterized by change. Sea farming will be part of our changing future. While we promote some types of sea farms, we may decide not to participate in others since they are controversial. Decisions to restrict our options could one day be viewed as an important opportunity lost rather than a wise choice to protect and maintain the status quo.

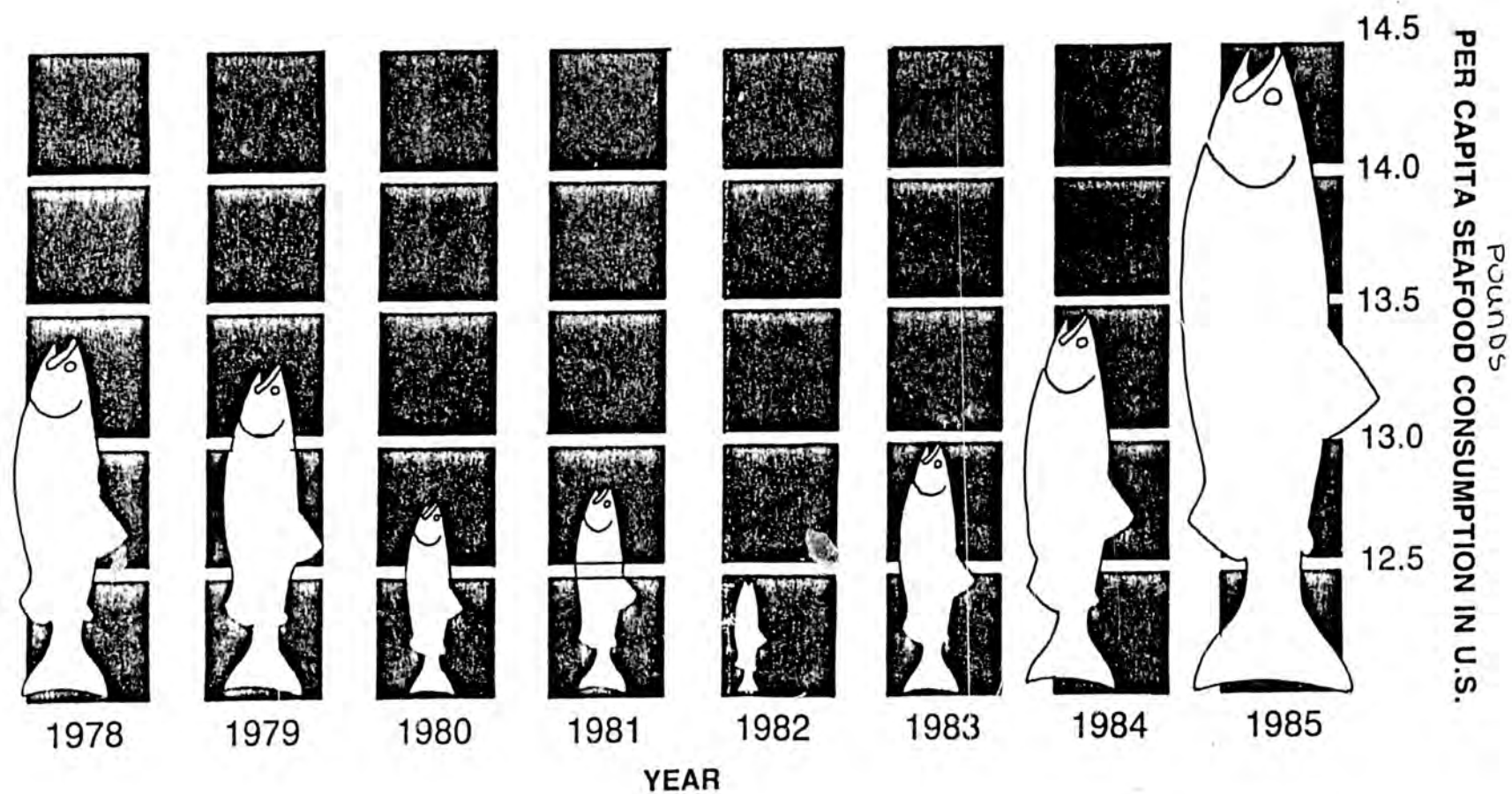
For me, the need for economic diversification and the creation of the opportunity for more jobs becomes most real when we ask ourselves what new jobs will be available for our kids in Alaska? Are they going to farm barley? Will they be able to get a limited entry permit to commercial fish? Will there be new jobs in the timber or oil industry 10-20 years from now? Will there be any new jobs for our kids in Alaska? How will you and I create the opportunity for more jobs in fisheries in Alaska for the future?

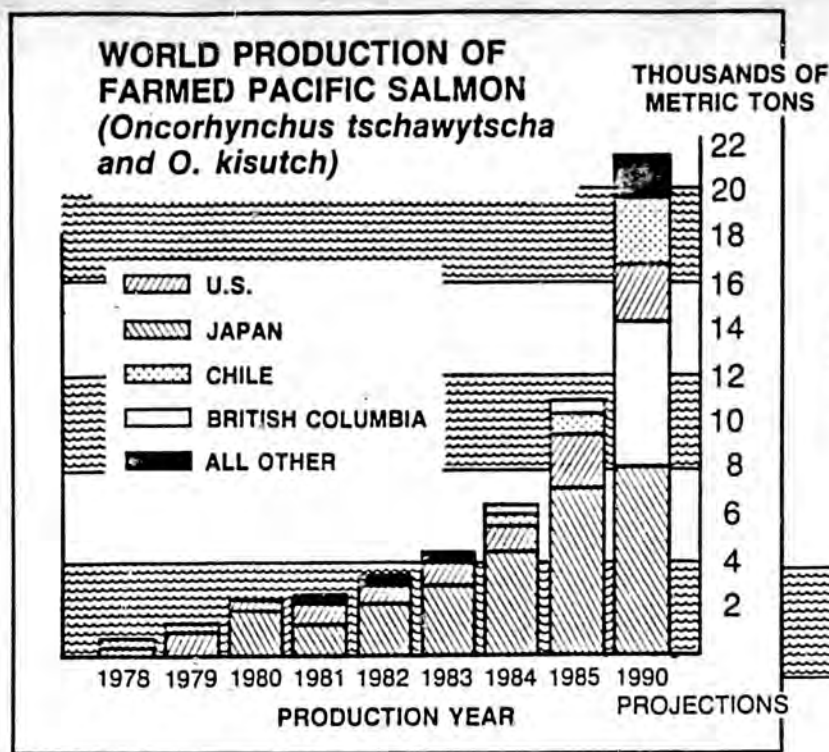
Thank you.



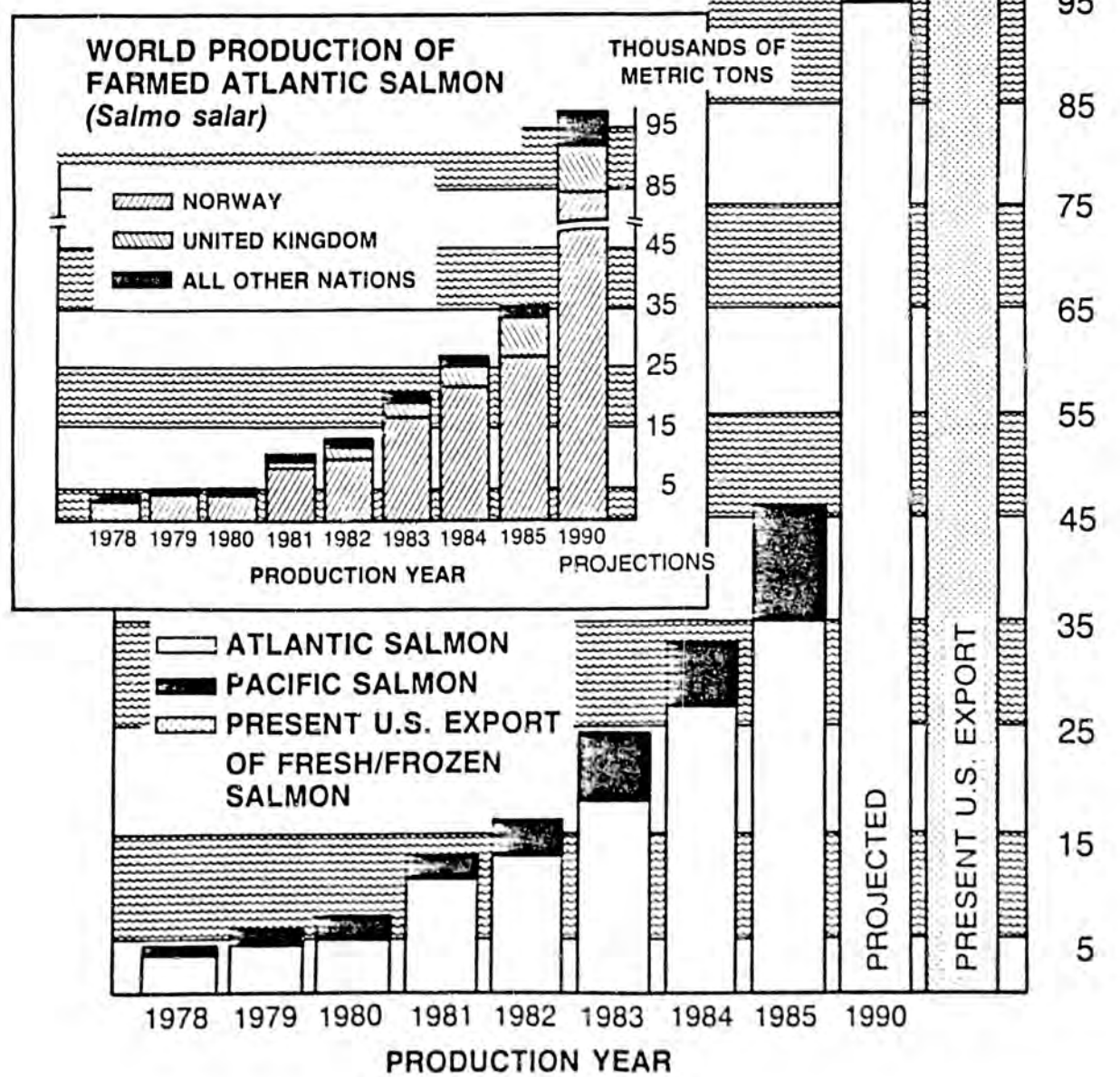
*Fish and shellfish captured from the sea.

SEAFOOD CONSUMPTION SOARS





WORLD PRODUCTION OF FARMED SALMON AND U.S. EXPORTS OF FRESH, FROZEN AND FILLETED SALMON



Alaska State Legislature

Advisory Council Members
Senator Kerttula, Chairman
Senator Bennett
Senator Fahrenkamp
Senator Vic Fischer



JAN 17 1984

Pouch V
State Capitol
Juneau, Alaska 99811
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SENATE ADVISORY COUNCIL

MEMORANDUM

TO: All Senators

FROM: Bill Hall *art*
Senior Advisor

DATE: January 17, 1984

RE: Alaska's Salmon Aquaculture Program -- Issue Identification

Senator Kerttula requested that I prepare this for your information.
Please do not hesitate to call on me if you desire more information.

ALASKA'S SALMON AQUACULTURE PROGRAM -- ISSUE IDENTIFICATION

PREPARED BY BILL HALL, SENIOR ADVISOR

JANUARY 1984

Background:

The Fisheries Policy Task Force appointed by Governor Sheffield in February of 1983 addressed the subject of salmon aquaculture in the State. In their report dated June of 1983 they prefaced their review with the following statements:

"It is ... necessary for the State of Alaska to promote the stability of the seafood industry by managing the salmon resources in a manner that will contribute to increased stock stability."

"...Alaska's salmon resource managers have two avenues by which they can contribute to the production of a stable and predictable supply of salmon: management of natural stocks and production of hatchery stocks."

"...it is readily apparent that the State must develop a plan for the management of its salmon resources that integrates the management goals of wild salmon stocks with the production of hatchery salmon in such a manner that will produce the maximum benefits for the industry and the people of the State."

The Task Force then identified the following problems as requiring immediate attention:

1. Coordination between public and private salmon aquaculture programs needs to be improved.
2. There is dissatisfaction with the production levels of hatcheries operated by the ADF&G.
3. More money is needed to complete the construction of State owned hatcheries so that they can operate at designed capacity.
4. The regional salmon enhancement planning process needs to be improved.
5. The lending policy of the Division of Business Loans is not consistent with statutory intent for the enhancement loan program.
6. Public misconceptions about possible adverse consequences resulting from interactions of hatchery salmon and wild salmon stocks needs to be addressed through an educational program.
7. A disease control program involving strict State regulation is necessary to ensure the continued health of the State's salmon resource.

8. Private sector aquaculture must be maintained on a non-profit status. Any efforts to change this would be considered a threat to the industry.

The final recommendation of the Task Force was the creation of an Aquaculture Policy Study Group to perform an in-depth examination and analysis of the present State Salmon Aquaculture Program, its goals and its problems.

In December of 1983, Governor Sheffield announced a moratorium on new loans for construction of hatcheries in the private sector pending a review of the State's Salmon Aquaculture Program. He assigned the responsibility for this review to his fisheries mini-cabinet which is composed of Commissioners Collinsworth, Lyons and Neve'. Lennie Boston, the Governor's Assistant for Natural Resources, is Chairman of that mini-cabinet, and Greg Baker, the Director of the Office of Commercial Fisheries Development, is the mini-cabinet's staff member.

Concurrent with the above described events the first session of the thirteenth Alaska Legislature considered two bills dealing with the transfer of State owned hatcheries to private non-profit corporations. One bill was sponsored by Senator Eliason (SB156) and the other was sponsored by Representative Bettisworth (HB393). Senator Eliason's bill was passed by both houses of the Legislature and subsequently vetoed by the Governor. In his veto message the Governor cited the following reasons for his action:

"The Governor is elected by the citizens and is directly accountable to the citizens. This bill fragments that line of accountability..."

"The Attorney General has also advised me that there is a possible constitutional problem with the bill in its provision that the Commissioner may grant hatcheries to aquaculture associations or non-profit hatchery corporations. If "grant" means without payment, as it presumably does, the transaction might be in violation of the requirements of Article IX, Section 6, of the State Constitution..."

The Governor concluded by stating that: "Until these several issues are clarified and until the Legislature and I have had an opportunity to establish the State's Aquaculture Policy I have determined that it is not in the public's interest to approve this legislation..."

In a letter to Governor Sheffield dated August 5, 1983, Representative Bettisworth expressed his opinion on the veto action and concluded his comments with the following statement:

"My efforts to affect transfers have just begun and I am not alone in this by any means. I will be working with FRED, user groups, private hatchery operators, aquaculture associations, and other legislators to ensure that the questions and problems are ironed out."

From the foregoing, it is apparent that the subject of salmon aquaculture in Alaska will be discussed during the second session of the thirteenth Alaska Legislature. In anticipation of such discussions, the

following comments have been prepared in an attempt to identify some of the issues that might be addressed. Each issue of course can be reviewed in much greater depth, should that be desired by any member of the Senate.

Issues:

Financial -- The Administration is reported to be concerned about the costs of the State's Salmon Aquaculture Program and the absence of quantifiable benefits to be produced by it. There is a perception that the State is funding two programs (the private non-profit through loans and the public through appropriations to FRED) which overlap and duplicate one another with resultant cost inefficiencies.

Questions have also been raised about the ability of the non-profit regional associations to repay their loans and the overall economic viability of the program.

Benefits -- People in the Administration as well as some fishermen and fish processors are questioning the value of increasing the State's production of salmon at a time when salmon markets worldwide are depressed by high inventories.

Performance -- Criticisms have been directed at both the State and private aquaculture programs in regard to their performance. The State program has been criticized for delays in construction, partial completion of hatcheries which prohibit production at designed capacity, non-producing facilities, lack of motivation in FRED employees to maximize production,

lack of cooperation by FRED with the regional non-profits and the regional planning teams and a lack of ADF&G responsiveness to the needs of the commercial seafood industry. The private non-profit program has been criticized for poor management and planning which has resulted in excessive costs, selling hatchery fish in competition with fishermen caught fish which resulted in a loss of market to fishermen, using hatchery produced fish to attract new markets (processors) in competition to established processors, not producing fish in an equitable manner for all user groups and creating an additional tax on fishermen to support a program producing questionable benefits.

Biological -- Department of Fish and Game personnel are concerned about two problems with biological implications. One problem deals with how they are to manage fishing activities which target on schools of fish composed of both hatchery and wild stocks so as to ensure adequate escapement both to the natural streams and to the hatchery facilities. The other problem deals with the behavior of fish known as "straying" in which hatchery produced fish stray from their hatchery of origin and spawn with wild stocks of salmon thereby contaminating their genetic integrity.

This list of issues is certainly not complete, however it does serve to identify the scope of the subject. It is important to understand that the complexity of these issues in the political environment increases dramatically as the number of concerned and affected parties increases. It can be expected that the list of concerned parties will at least include the following: fishermen, seafood processors, private non-profit regional aquaculture associations, private non-profit hatchery operations (mom and

pop operators), ADF&G personnel, Department of Commerce salmon enhancement loan officials, administration officials including Governor Sheffield, legislators, professional biologists and persons interested in profit motivated aquaculture in Alaska.

Thus while the increased escapement should help the user groups negotiate for a better season (i.e., higher harvest), the increased natural spawning is not likely to result in any increased production due to the habitat carrying capacity and may actually result in reduced production than the escapements of the past three years have provided.

Added to this is the failure this year by the Reagan Administration to include an appropriation for the Klamath River Salmon restoration as called for in H.R. 4217. This means that the work aimed at restoring habitat and rebuilding runs will be further delayed unless Congress acts to provide an appropriation. Coupled with all of this is the Bureau of Indian Affairs (BIA) attempt to be the lead agency for the Klamath Fisheries Management Council created by H.R. 4217. There has been a general consensus among the parties involved that the U.S. Fish & Wildlife Service is the appropriate lead agency for the Council.

On Tuesday and Wednesday, 20-21 January, marathon negotiations were held among the affected users of Klamath-origin salmon and the agencies culminating at 9:00 pm on Wednesday evening with a tentative long-term agreement for the sharing of the resource. PCFFA president Nat Bingham is the representative for the California troll fishery, assisted by PCFFA secretary Kevin Collins and Dave Bitts of the Humboldt Fishermen's Marketing Association. Scott Boley is the representative of the Oregon troll fishery. The tentative agreement is being sent back to the various organizations, including PCFFA, for ratification.

* * * * *

WFN ANNUAL MEETING

The annual membership meeting of the Northern California Chapter of the Women's Fisheries Network will be held Saturday, 31 January at the Bay Model Visitors Center, 2100 Bridgeway in Sausalito beginning at 11:00 a.m. (see this issue's insert). This meeting's topic will be crab - from the biology of the Dungeness, to the market, to surimi. For more information, call Stephanie Revesz-Thornton (415) 527-3346 or Nancy Rogers (415) 332-3871.

* * * * *

Dick - Mary - Sheila
23 January 1987

B.C. FISH FARM MORATORIUM LIFTED*

The provincial government of British Columbia has begun issuing permits again for salmon farms in that province. A moratorium was imposed on 31 October shortly after the election of Premier William VanderZalm, as a result of a request by the United Fishermen & Allied Workers Union (UFAWU). The moratorium came as a surprise to the bureaucrats in the Social Credit (Socred) government that has had a long adversarial history with commercial fishermen and has been an active promoter of salmon farming in B.C.

Brian Gillespie, a Kamloops attorney, was appointed to do a one man inquiry into the B.C. fish farming policy. In November the UFAWU, along with other groups, submitted briefs to Gillespie's "B.C. Finfish Aquaculture Inquiry" with a list of objections regarding the "gold rush" mentality surrounding salmon farming and issuance of permits, giving 15 specific recommendations. UFAWU along with other fishing groups, environmentalists and natives had been voicing concern for over two years regarding the issuance of permits, but those objections had fallen on deaf ears in the previous Socred government.

On 12 December, Gillespie released his report with 47 recommendations. Although most of the recommendations have not been implemented and many may not be, the government has begun issuing permits again for those who submitted applications prior to 31 October. Indeed, the UFAWU has stated the only hold-up on the issuance of all the permits that have been requested is the total number of them and the time it takes to process them.

Many of the "farmers" meanwhile are finding that pen rearing salmon is not gold mining. Disease and low production have plagued the B.C. operators. UFAWU and other coastal groups have formed an organization called the "B.C. Coast Guard" that is calling for the implementation of the Gillespie report recommendations before any new permits are granted.

For a copy of the Gillespie report summary and recommendations or the UFAWU brief, contact either the PCFFA office (415) 332-5080 or the UFAWU, 160-111 Victoria Drive, Vancouver, B.C. V5L 4C4. (604) 255-1366.

* * * * *

PCFFA Newsletter

23 Jan '87

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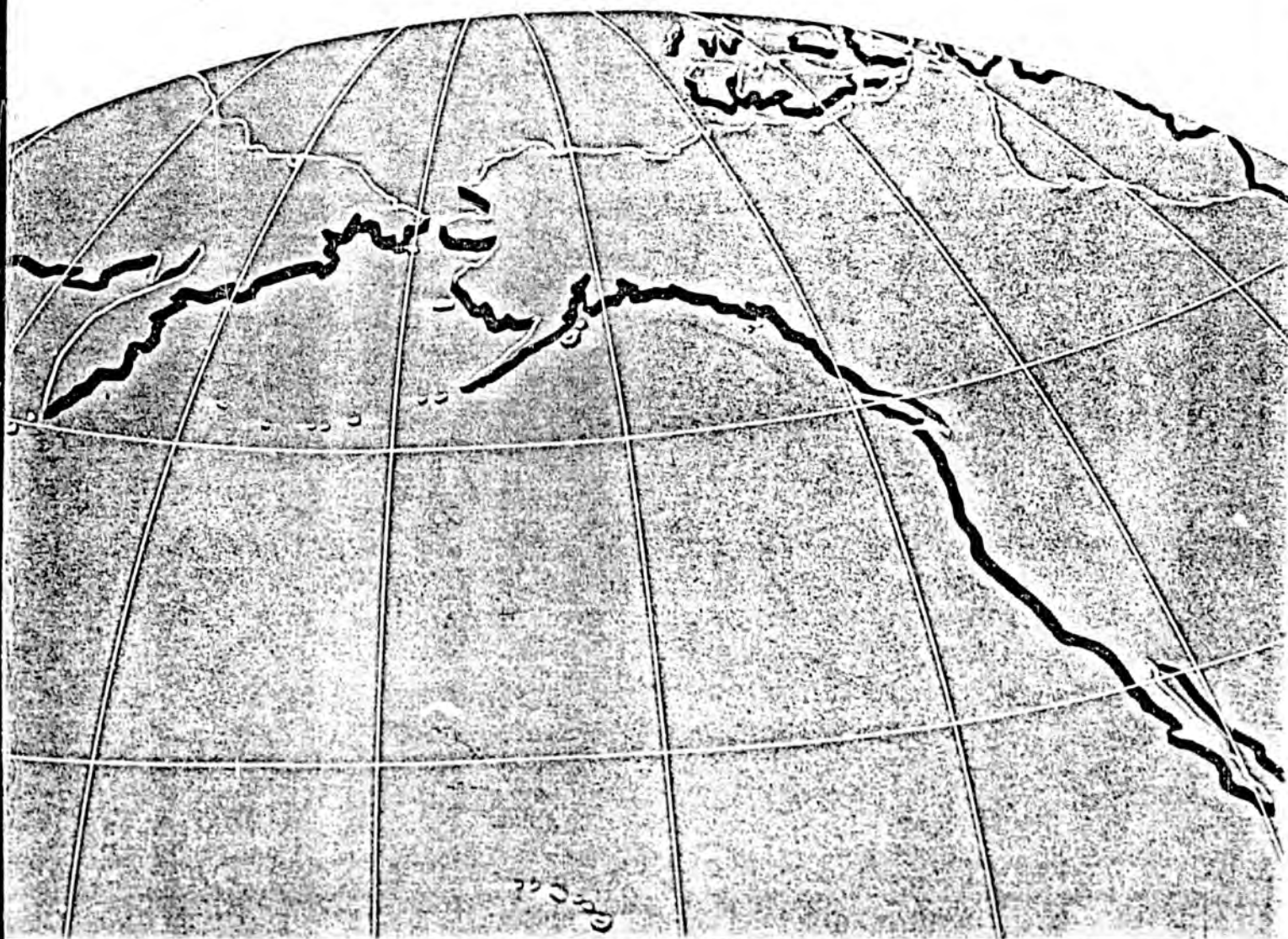
College of Ocean and
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School of
Oceanography

THE ENVIRONMENTAL EFFECTS OF
FLOATING MARICULTURE
IN PUGET SOUND

Donald P. Weston

August 1986



THE ENVIRONMENTAL EFFECTS OF FLOATING MARICULTURE
IN PUGET SOUND

Donald P. Weston, Ph.D.¹

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Prepared for:

Washington Department of Fisheries
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August, 1986

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Jack Rensel - Milner-Rensel Associates, Seattle, Washington
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Dennis Willows - University of Washington, Friday Harbor, Washington
Ron Zebal - Washington Department of Fisheries, Point Whitney, Washington

ABSTRACT

Mariculture, particularly net-pen culture of salmon and suspended culture of shellfish, has grown rapidly in Puget Sound and the potential exists for this growth to continue. This review attempts to assess the probable magnitude of environmental changes that may result from mariculture operations in Puget Sound. The environmental changes which have been addressed can be summarized in four categories. First, there are some adverse changes which are highly probable for most salmon or suspended shellfish culture operations. These would include the accumulation of organic-rich sediments beneath the culture structure, and the consequent effects on the benthic macrofauna community. Secondly, the potential exists for mariculture effects on water circulation, water quality, phytoplankton productivity and the introduction of exotic species. However, the likelihood of these effects and their potential magnitude is highly dependent upon site-specific conditions or the species cultured. Thirdly, there are several issues for which available data are inadequate for a conclusive determination of significance. These include: 1) the environmental effects of antibiotic usage; 2) alteration of the wild gene pool; 3) the capacity for a mariculture operation to serve as a disease reservoir for the infection of wild organisms; and 4) the proliferation of human pathogens in the vicinity of mariculture sites. These potential effects of mariculture have not yet been demonstrated, and the existence of such effects remains largely speculative. Finally, there is little likelihood that mariculture would adversely affect local abundance of fish and megafauna.

Water circulation - A culture structure placed in the marine environment will reduce current velocity in the surrounding area, particularly in the down-current direction. This reduction in current velocity will impair dilution and dispersal of wastes downstream of the culture operation. However, this effect is not likely to be significant except in cases of intensive culturing in an area with very restricted natural circulation.

Water quality - Cultured organisms and culture practices alter the chemistry of the water passing through the culture structure, most notably increasing ammonia concentrations and decreasing dissolved oxygen concentrations. Greater

changes will occur with salmon net-pen culture than with mussel culture, given the relative production capacities of typical Puget Sound facilities.

The concentrations of nutrients and BOD in the water passing through a mariculture structure are generally very dilute compared to most other discharges to the marine environment. Field studies have typically observed little or no changes in water quality outside the culture structure in well-flushed areas. Adverse effects would be anticipated only in areas of extremely limited flushing or very intensive culturing activity.

Phytoplankton - Floating mariculture is unlikely to have a measurable effect on phytoplankton standing stock or productivity in most of Puget Sound. In the Main Basin of Puget Sound nutrients are not limiting to phytoplankton growth. Thus, additional nutrient input attributable to mariculture should have no effect on productivity. Nutrients may be periodically limiting in some vertically stratified area (e.g., Saratoga Passage), however, in many of these areas the dilution of nutrients which would occur prior to their utilization by phytoplankton would probably make any effect on productivity unmeasurable. A localized and measurable effect on productivity would be expected only in highly stratified and poorly flushed areas (e.g., some embayments of the southern Sound) in which the water passing through a culture structure could maintain its integrity with minimal dilution.

Sedimentation - Floating mariculture generates large amounts of solid wastes in the form of feces and unutilized feed (salmon culture) or feces, pseudofeces and shell debris (shellfish culture). These materials are generally deposited in the immediate vicinity of the culture structure. This deposition results in physical and chemical changes to the natural sediments including decreased redox potential, increased sediment oxygen consumption and increased concentrations of total volatile solids, total organic carbon, sulfides, nitrogenous compounds, and phosphates. While there are profound effects on sediment chemistry, and consequently the sediment biota, these effects are very localized. Visible accumulation of solids and the alteration of sediment chemistry typically extends no more than 30 m from the culture structure.

Accumulation of organic-rich sediments occurred around most culture facilities reviewed. The depth of this accumulation depends for the most part upon water depth and current velocity. In general, accumulation of sediments can be

expected beneath any culture facility when less than 15 m exists between the bottom of the structure and the sea floor. Sediment accumulation is possible at even greater depths, but little data are available since few culture operations have been sited in deeper waters.

Benthic macroinvertebrates - The accumulation of organic-rich sediments beneath culture facilities and the consequent depletion of oxygen in the pore waters results in changes in the infaunal invertebrate community. Loss of species intolerant of organic enrichment (typically echinoderms, crustaceans and molluscs) often occurs. A few opportunistic species, most frequently polychaetes, attain numerical dominance in the community. In cases of extreme organic enrichment, there may be a total absence of benthic macroinvertebrates. Benthic community changes have been typically observed to be limited to an area within about 30 m of the culture structure. These changes can be expected to persist for the duration of culture activities and for at least several years following their cessation.

Fish and megafauna - Accumulation of organic material in the vicinity of a mariculture operation may result in the loss of nonmotile megafauna (e.g., geoducks) living in intimate contact with the sediments. However, fish and motile megafauna (e.g., crabs) living on or above the sediment surface are typically found in higher densities around floating mariculture structures than in the surrounding area. The attraction of fish and megafauna to the culture area is probably due to increased availability of food in the form of feed unutilized by the cultured fish, the high abundances of opportunistic macroinvertebrates, and epifaunal organisms living on the culture structure or which fall to the bottom.

Introduction of exotic species - If culture operations require the importation of live material into the state, the potential introduction of exotic species probably represents the greatest environmental threat posed by mariculture. Introduced species may establish self-sustaining wild populations, potentially becoming pests or eliminating native species. While there appears to be little risk of this occurring for those species currently being deliberately introduced for culture in Puget Sound, requests for future introductions should be carefully evaluated in this regard.

Accidental introduction of pests, parasites and diseases associated with imported organisms may also occur. Because of this risk the state has placed many restrictions on the type of organisms which may be imported and the steps which must be taken before live material destined for aquaculture may be placed in state waters. The adequacy of these regulations is currently being evaluated.

Diseases - Some concern has been expressed that the culture environment may serve as a reservoir for those diseases which are present in an environment but demonstrating no clinical symptoms in wild fish. There is a fear that the disease organism may proliferate among the cultured fish, become more virulent, and reinfect the wild stocks. However, there is no evidence to indicate that this scenario has ever occurred. The outbreak of a disease is often associated with some form of stress. In the culture environment, fish may be stressed by overcrowding, undernourishment, poor water quality and physical damage associated with handling and confinement. Thus, while fish held in culture are likely to show more frequent appearance of disease than wild fish, disease does not appear to be transmitted to the wild populations.

The bacterial diseases of salmonids in mariculture are not transmissible to humans. However, some investigators have questioned whether the organic enrichment of bottom sediments caused by mariculture could promote the growth of those species pathogenic to humans. Consumption of shellfish collected in the vicinity could then serve as a route for human infection. This is an issue where available scientific evidence is very meager, but experience to date has failed to show cause for concern. Increased bacterial abundance in sediments beneath a mariculture facility is quite probable, but it has not been demonstrated that this increased abundance is of any significance in terms of human health.

Genetic effects - The issue of the genetic effects of mariculture is largely speculative. Cultured organisms may be at a competitive disadvantage with respect to wild individuals. Thus, if escapes and interbreeding with the wild population occur, there may be some temporary loss of reproductive capacity in the wild population resulting from the production of less fit genotypes. The potential magnitude of this effect is dependent upon the proportion of the breeding population comprised of escaped animals.

The potential consequences of the interbreeding of escaped and wild organisms, if any at all, are unclear. However, for salmonids at least, the potential magnitude of the problem would seem minimal. For decades fisheries management agencies have routinely been transferring hatchery-reared salmonids between river systems to improve commercial and recreational fisheries. The number of fish which might escape from mariculture is negligible in comparison.

Toxicants - Salmon net-pen culture in Puget Sound requires the occasional usage of antibiotics, most frequently oxytetracycline. The potential environmental effects of this usage are minimized by the high water solubility of the compound, rapid dilution with the surrounding water and the infrequency of its use. Although, there is very little information available, the use of oxytetracycline does not appear to be a major problem at the present level of mariculture development in Puget Sound.

Modeling of Environmental Effects

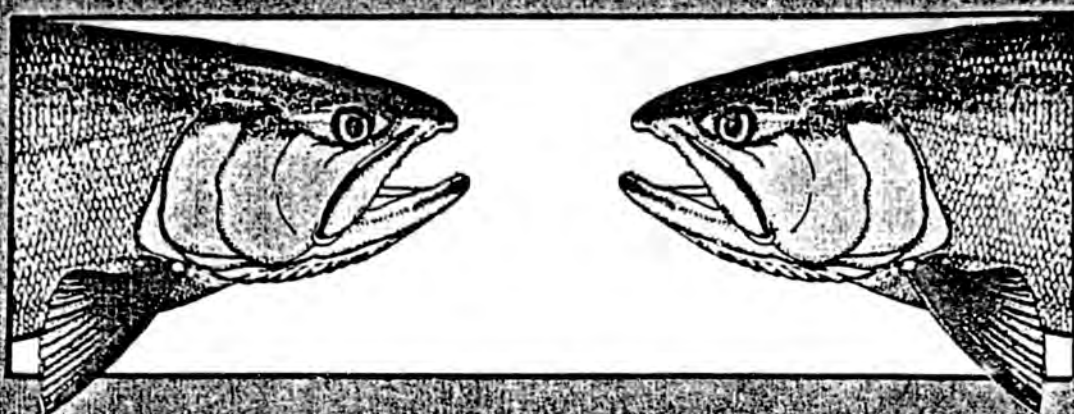
Mathematical models are not yet available which provide reliable a priori estimates of the effect of mariculture on the receiving water body. As a short-term solution, a model is proposed to predict the changes in dissolved oxygen or metabolite concentration only in that parcel of water which passes directly through a culture structure. Since the model neglects the role of dilution by the surrounding water mass, it does not provide a definitive solution to modeling water quality. However, the model may have applications to site evaluation or the determination of maximum allowable culture intensity in a given area.

Sedimentation models would be valuable in predicting the depth and spatial extent of the accumulation of organic-rich sediments around a culture structure. Analytical models which predict this accumulation based entirely on properties of the settling particles and the moving fluid are beyond the current state-of-the-art. Empirical models are limited by site-specificity, but they represent the only modeling approach of immediate utility. A simple empirical model originally developed for net-pen culture of yellowtail in Japan is described. Given field measurements of particle settling velocity and current regime, the model is able to predict the depth of sediment accumulation as a function of distance from the culture structure.

Environmental Regulation of Mariculture

A review of environmental regulations pertaining to mariculture indicates that the policies of Washington State are generally comparable to those of many of the other states and countries surveyed. In general, the potential environmental consequences of mariculture are assessed on a site-specific and case-by-case basis. Applications for mariculture permits are usually subject to a review process which includes an opportunity for the responsible government agencies to evaluate potential environmental effects. There are typically few, if any, formalized criteria with regards to siting and operation.

Importation of eggs or live animals typically requires a permit from the responsible government agency. The permit will carry with it certain conditions which, depending on the particular state or country, may include restrictions on the country of origin, visual and/or pathological inspections, periods of quarantine, or disinfection requirements. Policies governing importation are tending to become more restrictive, and in several countries there is a total ban on the importation of eggs and/or live animals.



**THE MARKETING RELATIONSHIP
BETWEEN
PACIFIC AND PEN-RAISED SALMON:
A SURVEY OF
U.S. SEAFOOD WHOLESALERS**

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INTRODUCTION

The Pacific salmon industry has become increasingly concerned about U.S. imports of fresh Atlantic salmon (Atlantics) from Norway: a product that has built a very strong niche in U.S. salmon markets. Industry members and policy makers are uncertain about how these imports will affect wild Pacific salmon markets.

The worldwide trend in pen-raised Atlantic salmon production is one of rapid increase. Table 1 shows the Norwegian production of Atlantics in the last five years and their projected production in 1990.

Table 1. Norwegian production of pen-raised Atlantic salmon (mt)

<u>Year</u>	<u>Production</u>
1981	8,422 ¹
1982	10,266 ¹
1983	17,016 ¹
1984	22,300 ²
1985	28,650 ²
1990 (projected)	80,000

¹ U.S. Department of Commerce, NMFS (1983)

² Michael Gordon, 1986 personal communication.

The fish are produced primarily for export, and the United States is the largest importer. Figure 1 shows imports of Norwegian pen-raised Atlantics into the U.S. from 1982 through 1985. The graph shows a substantial increase in imports for each of the last four years.¹ Note the annual upward shift during the late summer and early fall. This is when Pacific salmon reach the markets and when the potential for substitution between the pen-raised Atlantics and the Pacifics is the greatest.

Future production estimates indicate that we can expect continued increases in imports of both pen-raised Atlantic and Pacific salmon. In all, 21,742 mt of pen-raised Norwegian Atlantics were exported in 1985, 6,460 mt of which were sent to the U.S.² The Norwegian Fresh Fish Marketing Association predicts that by 1990 their total annual exports will reach 60,000 mt. If the ratio of U.S. imports to total exports remains constant, we can expect approximately 20,000 mt (44 million lbs) of pen-raised Atlantics imported into the U.S. in 1990. In addition, British Columbian salmon

¹ Norwegian Export Committee for Fresh Fish. 1982-1985. Statistikk: Markeder Eksport av Fersk Fish og Skalldyr.

² Ibid. 1985

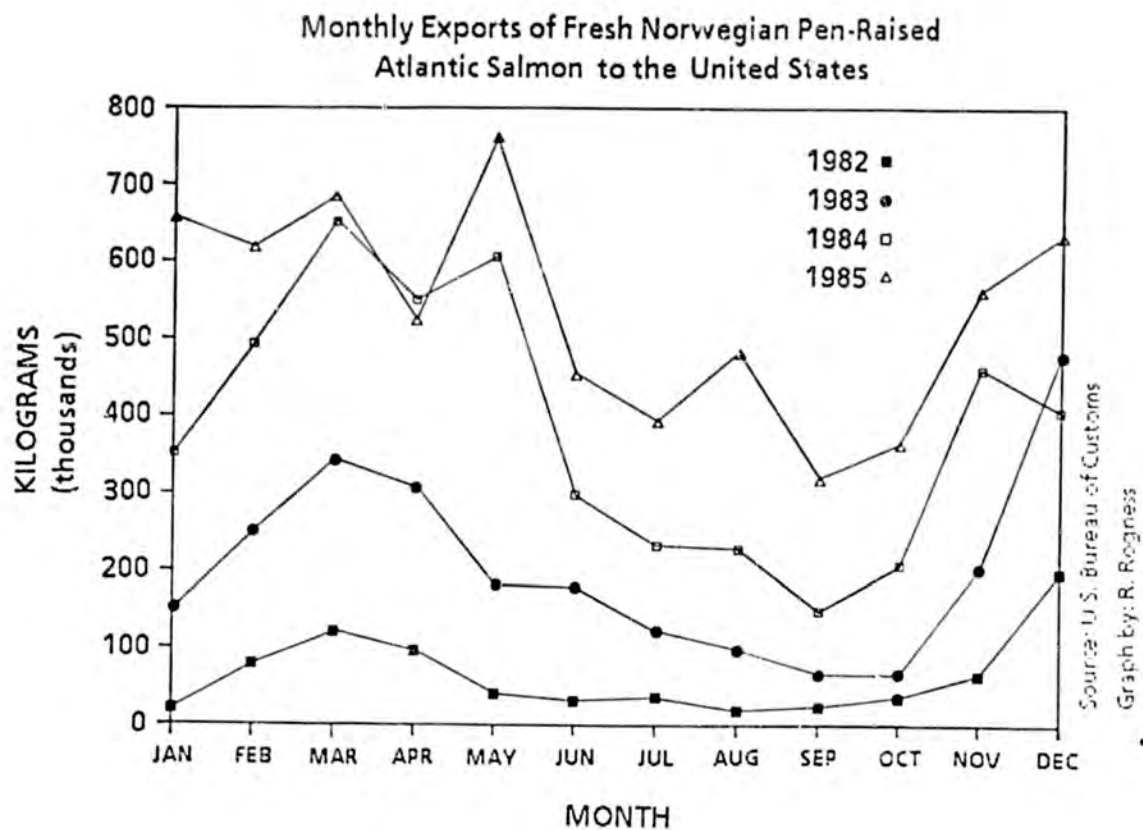


Figure 1.

farmers project they will export 22 million lbs (Atlantics and Pacifics) into the U.S. in 1990.³ Chile, Scotland and New Zealand are also anticipating major increases in their exports of pen-raised salmon to the U.S. as well. The total imports of pen-raised salmon into the U.S. will still fall substantially below the total wild Alaskan Pacific salmon harvest (729 million lbs in 1985). But these imports exceed recent Alaskan harvests of chinook and coho salmon (19 million lbs in 1985), thought to be the species most affected by increased imports of pen-raised Atlantics.⁴ These projected increases in imports highlight the importance of understanding how the fresh salmon market operates.

This report summarizes the results of a mail survey about marketing pen-raised salmon in the U.S. By conducting this survey we hoped to:

- * Obtain the seafood marketers' opinions on the substitutability between pen-raised and wild salmon in the U.S.
- * Understand the factors promoting pen-raised salmon marketing in the U.S.
- * Obtain the seafood marketers' assessments of the future marketing development of pen-raised salmon in the U.S.

This survey is part of an ongoing Alaska Sea Grant project, "Economic Impact of Farmed Salmon Upon the Alaskan Commercial Fishing Industry." In addition to this survey, an econometric analysis is being performed to estimate the cross-price elasticity between pen-raised Atlantic salmon and wild Pacific salmon, and other demand elasticities in the U.S. and European markets. Monthly data on salmon exports from the U.S., Canada and Norway from 1982 to 1985 are used in a market share approach. The econometric analysis should be completed in 1986. Because worldwide marketing of pen-raised Atlantic salmon is recent, the survey approach and the econometric study will produce complimentary results.

This survey was conducted jointly by the Alaska Sea Grant College Program and the School of Management at the University of Alaska, Fairbanks. On July 31, 1985 the Alaska Sea Grant College Program sent questionnaires to 925 seafood wholesalers and distributors listed in the Yellow Pages for Boston, New York, Chicago, Los Angeles, San Francisco and Seattle. It was impossible to determine from

³ Michael Gordon, March 3, 1986 personal communication

⁴ Alaska Department of Fish and Game. 1985. Preliminary 1985 harvest, by region, by species: 1985 ADF&G Salmon Season Summary.

the listings whether or not the individual firm had handled pen-raised salmon, so two different questionnaires (see Appendix) were sent out to each firm. One questionnaire was for firms that handled or handle pen-raised salmon. The other was for those firms that had not ever handled pen-raised salmon.

Of the 925 firms, 127 returned their questionnaires, about 24 percent. Seven of these returned questionnaires were not used. Of those seven, five were returned blank, and two firms answered both questionnaires. Among the usable questionnaires, 63 were from firms that have handled pen-raised salmon, and 57 from firms that have not. Even though the return rate of 24 percent is less than expected, the budget did not allow for follow-up letters.

This report has two sections. In the first, survey results are reported for firms that have handled pen-raised salmon. In the second section are the results from firms that do not handle pen-raised salmon. For discussion, each question is restated (with some format modifications) first, followed by a short numerical summary of the result. Then the question is justified, followed by an interpretation of the results and how they compare with our expectations.

SECTION I SURVEY RESULTS FROM FIRMS THAT HANDLE PEN-RAISED SALMON

QUESTION 1

1. Please designate which type(s) of pen-raised salmon your firm has distributed or currently distributes.

<u>Type</u>	<u>Responses</u>
Norwegian Atlantic	59
Pan-sized coho	30
Scottish Atlantic	20
Domestic Atlantic	13
Other Atlantic	12
New Zealand	3
Chilean	1

This question confirms the sources of supply and their relative importance in terms of the number of distributors. Norwegian Atlantics are the the major supply of pen-raised salmon, by a large margin. Fifty-nine of the 63 respondents indicated that they received at least part of their supply from Norway. The next major supplier of pen-raised salmon are the producers of pan-sized coho. These salmon are raised in the Pacific Northwest of the U.S. and in British Columbia. The other major supplier is Scotland. The Chilean product is pen-raised coho, which is notably larger than the pan-sized coho.

The results conform to expectations. Norway has been and will continue to be the world's leading producer of pen-raised salmon. In 1985, the Norwegians exported over 47 million lbs of pen-raised Atlantics with just over 14 million lbs exported to the United States. It is reasonable that the second major exporter of Atlantics is Scotland, since it was the second country to initiate commercial pen-raising. It is surprising that quite a few respondents have distributed domestically-raised Atlantic salmon. The suppliers would have to be in New England since the West Coast producers of pen-raised Atlantics had not yet marketed their fish when this survey was conducted. The large number of firms handling pan-sized cohos seems reasonable since Dom-Sea and some of the other producers around Chehalis, Washington have been marketing their product since the late 1970s.

QUESTION 2

2. Please indicate the range of values in which your firm's total sales belong.

<u>Range</u>	<u>Responses</u>
Less than \$10 million	39
Greater than \$25 million	12
\$10 million to \$25 million	11

By combining this question with others, we hoped to detect any patterns in distribution linked to the firms' sizes. The results show that the majority of firms are relatively small, with sales less than \$10 million. The remainder are evenly divided between medium-sized firms with sales between \$10 and \$25 million dollars and large firms. These size categories were taken from a survey of seafood distributors and wholesalers done by the West Coast Fisheries Development Foundation.

QUESTION 3

3. If your firm has bought and sold pan-sized coho salmon, do you consider it a legitimate substitute for fresh or frozen wild Pacific salmon?

<u>Product Type</u>	<u>Response</u>		
	<u>Yes</u>	<u>No</u>	<u>No Response</u>
Fresh	5	25	1
Frozen	2	27	

Question 3 is the first of a series of three questions pertaining to substitutability between pen-raised and wild Pacific salmon. The overwhelming majority of them do not feel that the pan-sized cohos are substitutes for either fresh or frozen wild Pacific salmon. The results are consistent with our expectation. In discussions with

industry, the majority opinion has been that pan-sized cohos fill the same market niche as do pond-raised rainbow trout. Neither of these products compete directly, it is felt, with the larger Pacific salmon. Therefore, recent or further development in raising pan-sized cohos should not have any immediate economic affect on the Pacific salmon fishing industry.

Question 4

4. If your firm has bought and sold fresh, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?

<u>Product Types</u>	<u>Responses</u>	
	<u>Yes</u>	<u>No</u>
Fresh	49	13
Frozen	15	42

This was one of the most important questions in the survey. It was to determine if firms that have handled pen-raised Atlantic salmon think fresh pen-raised Atlantics are substitutes for wild fresh or frozen Pacific salmon. We felt that these firms might be substituting the products for one another and, if the substitution occurs at the retail level, that they would be aware of it and would adjust their product line accordingly.

The results indicate that the majority of distributors of pen-raised Atlantic salmon believe that fresh Atlantics can compete with fresh Pacific salmon. If these responses truly represent the situation, the results are significant to Alaskan salmon fishermen. Very little of the Alaskan salmon harvest is marketed fresh. The Alaska Seafood Marketing Institute roughly estimates that 3 percent of the market share is for fresh product. Outside of troll-caught chinook and coho, the only other significant quantity of salmon marketed fresh seem to be the Copper River sockeye catch. This means that 97 percent of the harvest, roughly 707 of the 792 million lbs of salmon harvested in Alaska in 1985, would be more or less unaffected by the sales of pen-raised Atlantics. However, a significant portion of troll-caught chinooks and cohos from Southeastern Alaska is frozen and marketed to white tablecloth restaurants, which are one of the primary markets for fresh pen-raised Atlantic salmon. The 15 votes for substitutability between fresh Atlantic and frozen Pacific salmon should therefore not be discounted as unimportant. Nevertheless, the results seem to suggest that some of the concern about pen-raised salmon imports shown by Alaskan commercial salmon fishermen may be somewhat unwarranted.

Question 5

5. If your firm has bought and sold frozen, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?

<u>Product Type</u>	<u>Responses</u>	
	<u>Yes</u>	<u>No</u>
Fresh	15	24
Frozen	13	24

This question may not be as important as Question 4 since the quantity of frozen pen-raised Atlantic imports does not rival the quantity of fresh Atlantic imports. In 1985, Norway exported just over 130,000 lbs of frozen pen-raised salmon compared to the 47 million lbs of fresh Atlantics. For this reason, fewer firms answered this question although interesting results have emerged from it.

Even though the majority of the respondents felt that frozen pen-raised Atlantics do not substitute for either fresh or frozen wild Pacific salmon, these results are not as conclusive as those of Question 4. There is a possibility of market competition between frozen Atlantic and Pacific salmon implied in the results. Therefore, an increase in imports of frozen Atlantics could affect the price of Pacific salmon.

The combined results of Questions 4 and 5 seem to indicate that distributors of pen-raised Atlantic salmon are conscious of seafood freshness and are impressed with the freshness of the pen-raised Atlantics. This observation is reinforced in Question 13.

Question 6

6. What year did your firm start buying and selling fresh pen-raised Atlantic salmon?

<u>Year</u>	<u>Responses</u>
1974	1
1979	2
1980	9
1981	9
1982	19
1983	8
1984	8
1985	2

This question analyzed the pattern of growth in the number of firms handling pen-raised salmon. The results are quite interesting. One firm started handling pen-raised Atlantic salmon as early as 1974. This date seems early and may be incorrect. The next year any of the respondents started was

1979. Nine started in both 1980 and 1981. In 1982, the largest number of respondents starting selling pen-raised salmon.

After 1982, however, the number of firms starting to buy and sell pen-raised salmon began to decrease. We had anticipated a steady increase, reflecting the increase in imports. U.S. imports of Norwegian pen-raised salmon were 90,076; 335,713; 721,476; and 1,155,752 lbs for 1982, 1983, 1984 and 1985, respectively. If the responses are indicative of the industry, we would expect that those firms already handling the pen-raised product experienced substantial sales increases. This could have resulted from exclusive contracts with producers and importers, or simply from the increases in sales within the existing markets.

Question 7

7. Please estimate your annual percent change (+ for increase and - for decrease) in sales of fresh, pen-raised Atlantic salmon for the following years:

+14.3 percent change from 1982 to 1983
+22.3 percent change from 1983 to 1984
+30.3 percent change from 1984 to 1985

This question was designed to find out the growth or decline in sales of those firms that have handled pen-raised salmon. A growth in sales and an increase in the number of firms mean that the market of pen-raised Atlantics is expanding.

Results of this question confirm that on average these companies experienced substantial growth in their business involving pen-raised Atlantic salmon. The annual rate of growth increased steadily from 1982 through 1985. It was thought that firms of different sizes might have experienced different growth rates. To find out, we divided the responses using the size categories established in Question 2 (Table 2).

Table 2. Increases in sales of fresh, pen-raised Atlantic salmon for firms of various sizes¹

Period of Change	Percent Change		
	Small Firms	Medium Firms	Large Firms
1982 to 1983	11.9	12.9	23.3
1983 to 1984	20.8	21.2	26.5
1984 to 1985	33.6	26.4	23.3

¹ Small firm = less than \$10 million in annual sales
Medium firm = \$10 to \$25 million in annual sales
Large firm = more than \$25 million in annual sales

The smaller firms have grown the fastest only in the last year. Before that, the growth rates were directly related to the firm's size. We cannot determine if they have taken over a larger market share since we only know the percent increase and not the absolute amounts.

Question 8

8. Was your firm's decision to buy and sell fresh, pen-raised Atlantic salmon based on requests to distribute the product from:

<u>Requests Generated By</u>	<u>Responses</u>
Brokers or importers	26
Retailers	24
Yourselves	12
Fishermen (fish farmers)	5
Wholesalers	4
Customers	1
Resort, Country Club, Hotel	1

Question 8 was used to pinpoint who initiated the respondents' handling of pen-raised salmon. If the action was based on demand from customers, it indicates that demand for the product already existed. If the action was based on requests from producers or importers, it indicates that demand for the product was not yet formed.

The results show a fairly even split. From the supply side, 26 started handling pen-raised salmon based on suggestions from brokers or importers and five started upon suggestions from producers of pen-raised salmon. From the demand side, 26 started because of retail demand. This is the sum of the different types of customers mentioned. Also, 12 started handling the product on their own initiative and four started based on suggestions from wholesalers. The wholesalers could be either demand or supply initiated depending on the market level of the respondent.

In order to see how the market has evolved (whether it is supply or demand led), the responses to Question 6 were categorized accordingly. First, the possible responses to Question 11 were combined to make three general categories. Those that selected retailers, resorts, country clubs, hotels, and customers were combined to make the demand-initiated category. Those that selected brokers, importers or fish farmers were combined to make the supply-initiated category. The 12 who started handling pen-raised salmon on their own comprised the last category. The four respondents who started handling it because of requests from other wholesalers and retailers were left out because we could not determine whether they were supply- or demand-initiated.

Table 3. Comparison of years when companies began selling Atlantics and who requested the fish

Year	Demand initiated	Supply initiated	Self
1974	0	0	1
1979	1	1	1
1980	3	5	3
1981	3	7	2
1982	9	10	3
1983	5	5	2
1984	2	3	0
1985	2	0	0

We hypothesized that the producers, importers and brokers would need to promote a new product to the wholesalers, retailers and consumers. Once consumers were introduced to the product, then their requests would drive production and entry of new companies into the market. Although not conclusive, Table 3 shows that until 1982, more wholesalers started to handle pen-raised Atlantics because of broker and producer requests than because of consumer and retailer requests. After 1982 however, the market matured somewhat and more wholesalers entered the market because of requests from consumers and retailers.

Question 9

9. Which of the following best describes your firm's purchases of fresh, pen-raised Atlantic salmon?

<u>When Purchased</u>	<u>Responses</u>
Independent of the availability of fresh Pacific salmon	25
When fresh Pacific salmon is not available	18
In place of Pacific salmon for all markets	4
In place of Pacific salmon for the following markets:	5
Restaurants	4
Retail	4
Seafood Markets	4
Other wholesalers	4

This question attempts to verify whether the respondents actually substitute pen-raised salmon for wild Pacific salmon in any or all markets. It allows us to rank firms' degree of belief in the substitutability of these two

species of salmon, while the Question 4 solicited a firm's general opinion regarding substitutability.

Eighteen respondents purchase Atlantic salmon only when fresh Pacific salmon is not available and these firms seem to have a strong commitment to or preference for Pacific salmon. Because 49 of the 62 firms from Question 4 believe that fresh Atlantic salmon are substitutes for fresh Pacific salmon, some of these 18 firms believe that these two species are competing for consumers' dollars to some extent. These firms generally increase the availability of fresh salmon by offering fresh Atlantics when fresh Pacific salmon is not available. If this marketing practice is continued, the fresh Atlantic salmon will contribute toward consumers' demand for all fresh salmon by increasing their exposure to fresh salmon. When this is the case, pen-raised Atlantics can be regarded as a complement of Pacific wild salmon.

Twenty-five firms have purchased fresh Atlantic and Pacific salmon simultaneously, apparently in order to increase their line of products. These firms are more likely to substitute Atlantic for Pacific salmon than those in the first group, since they are willing to place the products on the market at the same time.

Five firms have substituted Atlantic salmon for Pacific salmon in certain markets. Four of them do so in their dealings with restaurants, retail seafood market and other wholesalers, respectively. These five firms, together with the next group of firms, are strong advocates of Atlantic salmon. The next group contains five respondents who have completely substituted Atlantic salmon for Pacific salmon.

In summary, 18 firms are committed to marketing Pacific salmon and 5 of them believe that the two salmon are substitutes; 25 firms not only believe in substitutability between these two salmon, but also market both salmon simultaneously; 9 firms strongly believe that Atlantic salmon are superior to Pacific salmon, at least in certain markets.

Question 10

10. Please estimate the average composition of your annual sales of fresh, pen-raised Atlantic salmon by category of retailers as a percent of the total.

<u>Market</u>	<u>Percent of Total Annual Sales¹</u>
Restaurants	42.3
Other wholesalers	28.8
Retail seafood markets	19.1
Supermarkets	5.5
Others	4.7

¹ Percentages for the "average" respondent

Here we intend to verify the contention that the restaurant trade, particularly the white tablecloth segment, is the primary market for pen-raised Atlantic salmon. As the responses show, the average respondent sells 42.3 percent of his/her Atlantic salmon product to restaurants. The average distributor sells a large percentage of the product to other wholesalers. This would indicate that some of the respondents are brokers rather than wholesalers. Thus, this percentage is high not because many firms sold both to other wholesalers and retailers, but because a few firms sold only to wholesalers. The other major type of market was retail seafood. Many of these shops specialize in fresh seafood, and thus are naturally well-suited for the fresh Atlantic product. Although supermarkets do not currently account for a large portion of the total harvest sold, they are a market with potential that we expect will be targeted for expansion soon.

Question 11

11. Please estimate the average composition of your total annual sales of fresh, pen-raised Atlantic salmon by seasonal percent of total.

<u>Season</u>	<u>Percentage of Total</u>
Winter (Dec.-Feb.)	43.7
Summer (June-Aug.)	10.1
Spring (March-May)	23.1
Fall (Sept.-Nov.)	23.0

This question is designed to determine the seasonal variation of imports into the U.S. by requesting the percent composition by season. The response is consistent with the general pattern of Norwegian exports to the U.S. Mean responses confirm that the largest quantity is sold in the winter. The sales of pen-raised salmon dropped sharply to about 20 percent in the spring and then dropped out at about 9 percent in the summer, when Pacific salmon begins to reach market. In the fall, the sales of pen-raised Atlantic salmon moved back up to their spring level.

Because Norwegian salmon imports have increased substantially and will likely continue this trend, the seasonal pattern in the supply of Norwegian Atlantics may vary. If distributors sense possible consumer resistance to high price and large volume in a particular season, they may alter their distribution pattern. In any event, we do not expect a big push in the sales of Atlantics during the Pacific salmon season. Fresh Atlantic salmon commands a high price mainly because of its quality advantage when the Pacific salmon season is closed. In order to confirm this, we asked a follow-up question.

Question 12

12. Does your firm plan to increase its distribution of fresh, pen-raised Atlantic salmon?

Yes	45
No	9

If yes, does your firm plan to?

Maintain current seasonal distribution pattern?	30
Concentrate more distribution during winter and spring?	12
Concentrate more distribution during summer and fall?	3

This question solicits distributors' opinion on the market condition for pen-raised Atlantics. Because the supply of pen-raised Atlantics will be increased, distributors will make their business decision based upon the strength of demand in each season. According to the results, 45 firms are optimistic about the market for Atlantic salmon and plan to increase their distribution. Nine firms do not plan to increase their distribution of Atlantic salmon. These firms are not necessarily pessimistic about the market for Atlantic salmon, they may have other difficulties (such as capital and capacity constraints) in increasing their distribution. In short, the market for Atlantic salmon will continue to grow.

It is interesting to note the direction of growth in terms of seasonal marketing pattern. Of the 45 firms that plan to increase their future distribution, 30 plan to maintain current seasonal marketing pattern. In economic terms, these 30 firms indicate an equilibrium in marketing pattern; that is, the demand price elasticity is roughly the same across the four seasons. In this case we would expect heavier competition between Atlantic and Pacific salmon. Twelve firms plan to increase the proportion of their sales during winter and spring. These firms believe that it is not worthwhile to compete directly with fresh Pacific salmon for the consumer's dollar. Again, in economic terms, these firms believe that the demand for Atlantic salmon in the summer and fall is more price elastic than in the winter and spring. In other words, the same proportional increase in all seasons will depress price more during summer and fall than in the spring and winter.

Only three firms plan to increase the proportion of their sales during summer and fall. These firms are either greatly impressed with the marketability of Atlantic salmon or they do not perceive a direct competition between the two species.

Questions 13 and 14

13. What advantages does the fresh, pen-raised Atlantic salmon have over the fresh, wild Pacific salmon?

<u>Advantage</u>	<u>Responses</u>
Year-round availability	28
Freshness	26
Consistency	19
Size	12
Price	11
Longer shelf life	5
None	4

14. What advantages does the fresh, wild Pacific salmon have over the fresh, pen-raised Atlantic salmon?

<u>Advantage</u>	<u>Responses</u>
Price	24
Flesh characteristics (color, firmness, less fat)	19
No advantage	8
Large fish	5
Volume	2
Ease of ordering	1
Never had any fresh Pacific salmon	1

The survey concluded with these two open-ended questions regarding the relative advantages of these two species of salmon. Question 13 solicits the distributors' opinions on the advantages enjoyed by the Atlantics. The advantages most often mentioned were the year-round availability and freshness or quality. Consistency also scored highly with 19 votes. It is not apparent whether they meant consistency of product availability or consistency in quality. Twelve firms enjoyed the ability to order fish of uniform size rather than just taking what they could get. Therefore, a better grading system may improve U.S. processors' business.

As mentioned, Atlantic salmon enjoys a price premium over its Pacific counterpart. Therefore, we were surprised, and do not know how to interpret, that 11 firms indicate a price advantage for Atlantic salmon. Five respondents mentioned the longer shelf-life of Atlantics. This is due to its rapid shipment (often within 24 hours) from producers to retailers. Finally, four respondents did not recognize any superiority of the Atlantic salmon over the Pacific salmon.

Question 14 asked what advantages fresh Pacific salmon possesses over the pen-raised Atlantics. Twenty-seven firms indicate that Pacific salmon has a price advantage. Seventeen firms out of this group listed price as the only advantage. The next most-mentioned advantage was flesh characteristics, including color, firmness and lower fat

content. As U.S. consumers become more health conscious, the Pacific salmon industry may want to use this advantage in sales promotion. Eight respondents did not recognize any advantage enjoyed by the Pacific salmon. Five felt that the ability to obtain large fish (greater than 12 lbs) was an advantage of Pacific salmon. Two felt that the ability to obtain a large volume of wild Pacific salmon was an advantage. One might expect that as worldwide production of pen-raised Atlantic salmon increases, this advantage enjoyed by Pacific salmon will not be sustained.

In summary, the most important point discovered in this survey is that the majority of wholesalers and distributors who handle pen-raised salmon feel that product only competes with fresh, wild Pacifics (Question 4). This may lessen the impact of pen-raised Atlantics on Alaskan fishermen, but may affect the Pacific Northwest and British Columbian salmon fisheries that sell a higher percentage of fish in fresh markets.

It also seems that the number of firms handling pen-raised Atlantics is still increasing but the growth is slowing, with each firm increasing its purchases of Atlantics (Questions 6 and 7). These firms expect to continue increasing these quantities in the near future, but will continue to concentrate at times of the year when wild fresh Pacific salmon is not available (Question 12).

SECTION II:
SURVEY RESULTS FROM FIRMS THAT DO NOT HANDLE PEN-RAISED
SALMON

The second questionnaire was directed to those who do not handle pen-raised salmon. Fifty-seven firms responded to this part of the survey. Because these firms do not actually handle pen-raised salmon, many of these returned questionnaires are not as complete and thus are less informative.

Question 1

1. Does your firm distribute fresh or frozen Pacific salmon?

Yes	27
No	28
No answer	2

This question allows us to separate the respondents according to whether they have engaged in salmon marketing. By asking this question, we hope to detect any differences in answering the Question 2 by these two groups of distributors.

Question 2

2A. Has your firm considered or would it consider substituting fresh, pen-raised Atlantic salmon when both are available?

Yes	11
No	16

2B. What if fresh Pacific salmon were not available?

Yes	18
No	6

These questions are designed to find out distributors' readiness to market fresh pen-raised Atlantic salmon and their opinion regarding the substitutability of Atlantic salmon for Pacific salmon. For our purposes, these questions are meaningless for those who do not distribute Pacific salmon. Therefore, we only analyzed the results from distributors of Pacific salmon. Among those firms that distribute Pacific salmon, 11 would consider substituting Atlantic salmon for Pacific salmon when both are available, while 18 firms would do so when fresh Pacific salmon were not available. Of the same group of respondents, 16 would not substitute Atlantic salmon for Pacific salmon when both are available, while only six would not do so when fresh Pacific salmon were not available.

The results suggest that a substantial number of salmon distributors are considering marketing fresh Atlantic salmon. Therefore, we may expect a continuous growth in the number of distributors of Atlantic salmon in the near future. Since existing distributors of Atlantic salmon have experienced a growth in sales over time, we are likely to see a continuous increase in imports of pen-raised Atlantic salmon. It should be noted, however, that quite a few distributors of Pacific salmon are still committed to marketing their product. This is expected because it takes time for a new product to penetrate a well-established market.

Question 3

3A. Has your firm had requests from retailers to purchase pen-raised fresh Atlantic salmon?

Yes	5
No	42
No answer	8

3B. Has your firm had requests from brokers or importers to purchase their pen-raised fresh Atlantic salmon?

Yes	16
No	33
No answer	8

This set of questions is designed to find out whether the supply side or the demand side is more active in marketing pen-raised Atlantic salmon. Clearly, the suppliers are taking the initiative in marketing pen-raised Atlantic salmon. The results indicate that 21 firms have received and declined requests from either the demand or the supply side for marketing pen-raised salmon. From the previous question, we learn that quite a few firms are almost ready to market Atlantic salmon. Therefore, it is interesting to find out the reasons for not handling pen-raised Atlantic salmon. This is the rationale for asking the next set of questions.

Question 4

4A. If you answered "no" to both 3A and 3B, why has your firm decided not to purchase pen-raised Atlantic salmon?

<u>Reason</u>	<u>Responses</u>
Don't handle salmon	13
No demand	12
Prefer Pacific salmon	3
Handle only frozen salmon	2
Economically tied to Pacifics	2

Question 4 is an open-ended question and responses were summarized into groups. Because 42 firms have not received requests from the demand side, it is understandable that many perceive no demand for Atlantic salmon. Thirteen firms do not handle salmon and have not received requests for marketing salmon, therefore they have good reasons for not handling Atlantic salmon. Five firms either have a strong preference for or commitment to marketing Pacific salmon. Two firms handle frozen salmon only and one firm did not know much about pen-raised Atlantic salmon.

- 4B. If you answered "yes" to either 3A or 3B, why didn't your firm purchase pen-raised fresh Atlantic salmon?

<u>Reasons</u>	<u>Responses</u>
Prefer Pacific salmon	3
Price is too high	3
No request	3
Too busy	1

Of those respondents that had turned down requests to handle pen-raised Atlantic salmon, three did so because the price of Atlantic salmon is too high, and one is too busy to handle it. Three said that they did not handle Atlantic salmon due to no requests. These three respondents should not have answered this question. Because at least 16 firms have received requests for marketing Atlantic salmon and we only received seven reasonable responses, we therefore believe that information collected in this part is incomplete and less useful.

Question 5

5. Under what conditions might your firm consider distributing pen-raised Atlantic salmon?

<u>Condition</u>	<u>Responses</u>
None	8
If receive requests	7
If handle salmon	6
If do not get Pacific salmon	6
If available	3
If consistent supply available	3
If price comes down	1

Question 5 is open-ended and its results were summarized into groups. This question sought to uncover any changes in the market conditions required to induce firms to distribute pen-raised Atlantic salmon.

Eight firms indicate a strong loyalty to Pacific salmon, by stating that they would not handle salmon under any circumstances. The remainder of the firms indicate that if conditions change they would initiate the product in their line, another reason we might expect the number of firms handling pen-raised salmon to increase.

Question 6

6. Please place a check by the range of values in which your firm's total sales belong.

<u>Range</u>	<u>Responses</u>
Less than \$10 million	25
\$10 million to \$25 million	6
Greater than \$25 million	12

This question was also asked of firms that handled pen-raised salmon (Section 1). We posted this question here in order to help determine if the size of firm affects responses. Fourteen firms chose not to answer this question. Of those that did, 25 are classified as small, 12 as medium and 6 as large. Compared with the respondents in Section I, the same percentage of small firms, a higher percentage of medium firms and a lower percentage of large firms participated in this part. Given the small number of respondents, these differences may not be significant.

Although not as informative as the other survey, these results indicate that the main reasons for not distributing pen-raised Atlantics are a lack of requests and a lack of knowledge of the pen-raised product. We might expect that as the production increases and the market matures, these reasons might diminish and we can expect to see continued new entrants in the business of distributing pen-raised Atlantic salmon.

CONCLUSION

In summary, it is likely that both the number of distributors and imports of pen-raised Atlantic salmon will continue to grow in the U.S. Furthermore, a substantial number of firms do not rule out substituting fresh Atlantic salmon for fresh Pacific salmon. Because about 97 percent of the salmon catch in Alaska is marketed frozen, the continuous growth of a fresh pen-raised Atlantic salmon market in the U.S. may immediately impact only a small portion of the Alaskan salmon industry. However, the Alaskan salmon industry should pay close attention to development of the Atlantic salmon market. The marketing relationship between Atlantic and Pacific salmon can change, especially when there is a glut in the supply of pen-raised Atlantic salmon. Therefore, research in this area should continue.

This survey used an indirect method to gain an understanding of future market growth in the pen-reared salmon market. The econometric study conducted in conjunction with this project should provide direct assessment of consumer and retailer attitudes about these salmon product forms. Again, because of the economic importance of salmon resources in Alaska and the rapid developments in producing and marketing pen-raised Atlantic salmon, future economic analysis of the salmon market is warranted.

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Alaska Sea Grant College Program
Survey of Seafood Wholesalers Who Do Not Distribute Pen-Raised Salmon

1. Does your firm distribute fresh or frozen Pacific salmon? ___ yes ___ no
- 2.a. Has your firm considered or would it consider substituting fresh, pen-raised Atlantic salmon for fresh Pacific salmon when both are available? ___ yes ___ no
- b. What if fresh Pacific salmon were not available? ___ yes ___ no
- 3.a. Has your firm had requests from retailers to purchase pen-raised fresh Atlantic salmon? ___ yes ___ no
- b. Has your firm had requests from brokers or importers to purchase their pen-raised fresh Atlantic salmon? ___ yes ___ no
- 4.a. If you answered "no" to both 3(a) and 3(b), why has your firm decided not to purchase pen-raised Atlantic salmon?
- b. If you answered "yes" to either 3(a) or 3(b), why didn't your firm purchase the pen-raised fresh Atlantic salmon?
5. Under what conditions might your firm consider distributing pen-raised Atlantic salmon?
6. Please place a check by the range of values in which your firm's total sales belong.
___ Less than \$10 million ___ \$10 million to \$25 million ___ Greater than \$25 million

Alaska Sea Grant College Program
Survey of Seafood Wholesalers Distributing Pen-Raised Salmon

1. Please designate which type(s) of pen-raised salmon your firm has distributed or currently distributes, by placing a check next to the appropriate product type(s).
- | | | |
|---|--|---|
| ☐ Norwegian Atlantic | ☐ Scottish Atlantic | ☐ Other Atlantic |
| ☐ Domestic Atlantic | ☐ Pan-sized Coho | |
2. Please place a check by the range of values in which your firm's total sales belong.
- ☐ Less than \$10 million ☐ \$10 million to \$25 million ☐ Greater than \$25 million
3. If your firm has bought and sold pan-sized, pen-raised Coho salmon, do you consider it a legitimate substitute for fresh or frozen wild Pacific salmon?
- | | | |
|---------|------------------------------|-----------------------------|
| Fresh: | ☐ yes | ☐ no |
| Frozen: | ☐ yes | ☐ no |
4. If your firm has bought and sold fresh, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?
- | | | |
|---------|------------------------------|-----------------------------|
| Fresh: | ☐ yes | ☐ no |
| Frozen: | ☐ yes | ☐ no |
5. If your firm has bought and sold frozen, pen-raised Atlantic salmon, do you consider it to be a legitimate substitute for fresh or frozen wild Pacific salmon?
- | | | |
|---------|------------------------------|-----------------------------|
| Fresh: | ☐ yes | ☐ no |
| Frozen: | ☐ yes | ☐ no |
6. What year did your firm start buying and selling fresh, pen-raised Atlantic salmon?
- _____
7. Please estimate your annual percent change (using + for increase, - for decrease) in sales of fresh, pen-raised Atlantic salmon for the following years:
- | |
|----------------------------------|
| _____ % Change from 1982 to 1983 |
| _____ % Change from 1983 to 1984 |
| _____ % Change from 1984 to 1985 |
8. Was your firm's decision to buy and sell fresh, pen-raised Atlantic salmon based on requests to distribute the product from:
- ☐ Retailers ☐ Brokers or Importers ☐ Other (specify) _____

9. Which of the following best describes your firm's purchases of fresh, pen-raised Atlantic salmon?

☐ We purchase it only when fresh Pacific salmon is not available.
☐ Our purchases of fresh, pen-raised Atlantic salmon are independent of the availability of fresh Pacific salmon.
☐ We purchase it in place of Pacific salmon for all markets.
☐ We purchase it in place of Pacific salmon for the following markets:
☐ Restaurants ☐ Retail seafood markets ☐ Supermarkets ☐ Other wholesalers

10. Please estimate the average composition of your total annual sales of fresh, pen-raised Atlantic salmon by category of retailers as a percent of the total. The total should equal 100%; please leave categories that do not apply blank.

☐ Restaurants ☐ Other wholesalers ☐ Supermarkets
☐ Retail seafood markets ☐ Other (specify) _____

11. Please estimate the average composition of your total annual sales of fresh, pen-raised Atlantic salmon by seasonal percent of total. Total should equal 100%; please leave seasons that do not apply blank.

☐ Winter (Dec., Jan., Feb.) ☐ Summer (June, July, Aug.)
☐ Spring (March, April, May) ☐ Fall (Sept., Oct., Nov.)

- 12.a. Does your firm plan to increase its distribution of fresh, pen-raised Atlantic salmon?

☐ yes ☐ no

- b. If yes, does your firm plan to (check one):

☐ maintain current seasonal distribution patterns?
☐ concentrate more distribution during winter and spring?
☐ concentrate more distribution during summer and fall?

13. What advantages does the fresh, pen-raised Atlantic salmon have over the fresh, wild Pacific salmon?

14. What advantages does the fresh, wild Pacific salmon have over the fresh, pen-raised Atlantic salmon?

RECOMMENDATIONS ON THE ROLE OF STATE GOVERNMENT
IN REGARD TO THE ALASKA SEAFOOD INDUSTRY

by

A. W. "BILL" HALL

January 20, 1987

PREFACE

The primary subject of this paper is not problems and their solutions. Rather it is a paper about goals, policy, structure, process, benefits, and above all, the need for change. Because it is an argument for change, it will be controversial. Some will perceive it as a threat to their self interest. Some will see it as an opportunity for material gain. And some will see it as a criticism of past behavior. However, all will be apprehensive about its potential impact on their lives.

Hopefully this apprehension will provide the stimulus for a long needed reexamination of past practices, their original purposes and their relevancy to today's problems and needs. The Cowper Administration has the opportunity to create a process of change that will draw on the creative talents of the Alaska people. Such a process has the potential to produce new relationships between government and private industry that can

establish the Alaska seafood industry as a major force in the seafood markets of the world.

In presenting this paper for consideration, I offer the following personal comments. To those who view my interest in change as an excessive preoccupation, I answer that change is the proverbial constant in human affairs. Those who are unable or unwilling to become active participants in its development will become victims of its process. To those who would find fault with this paper on the basis of observed deficiencies in the author, I offer the following quotation from the book, "A Study of History" by the noted historian, Arnold Toynbee.

The Demand for a comprehensive study of human affairs is inspired by several motives. Some of these are permanent and some temporary; some are disinterested, some self-regarding. The strongest and most estimable of these is curiosity. This is one of the distinctive traits of human nature. No human being seems to be altogether without it, though the degree of its strength varies enormously as between different individuals. In the field of human affairs, curiosity prompts us to seek a panoramic view in order to gain a vision of reality that will make it as intelligible as is possible for a human mind. 'History certainly justifies a dictum of Einstein, that no great discovery was ever made in science except by one who lifted his nose above the grindstone of details and ventured on a more comprehensive vision.' A panoramic view will at any rate be a less misleading reflection of reality than a partial view. And, while it is true that in the search for knowledge and understanding, as in all human activities, human achievements are never complete, it is one of Man's virtues that he has the intelligence to be aware of this and has the spirit to go on striving, with undiminished zest, to come as near to his goal as his endowment of ability will carry him.

And finally, with my credentials of curiosity established, and in order to prevent any possible misunderstanding, I claim sole authorship (with the exceptions that are noted) for this paper.

Neither my present nor my past employers are in any way responsible for its contents.

ACKNOWLEDGMENTS

I would like to express my appreciation for the input and contributions of Mr. Greg Fisk and Dr. Neal Gilbertsen in the preparation of this paper.

Dr. Gilbertsen has contributed the sections on Taxation and Resource Allocation both of which I consider to be valuable additions not only to the substance, but also to the spirit of this work. He has also provided me with insight regarding alternative definitions of efficiency, which enabled me to improve the section dealing with that subject.

Mr. Fisk also contributed to my understanding of efficiency, and pointed out the problems of policy fragmentation in the Department of Fish and Game. He also pointed out the danger that another government council, such as the proposed Seafood Industry Roundtable, could become dominated by existing fishery interests who would be a force against change. He recommended that the roundtable be informal, small and conducted in private. I concur with his concerns, but have problems with his solution. Still, I have modified my original text to better address the subject.

INTRODUCTION

This paper has been requested by Mr. David Benton, a special assistant to Governor Cowper. Its subject is the role of the state as it is defined by the fishery programs of government, and the relationships that these programs create with the Alaska seafood industry. The word "role" is used here, as one dictionary defines it, to mean "proper or customary function". I believe that what in the past has been customary has not always been proper, and that the functions of government must be redefined so that they may better serve the best interests of the Alaskan people. I have therefore prefaced my recommendations with a discussion on the goals and objectives of state government as it relates to the use of seafood resources. In this discussion I have made a number of assumptions regarding the goals of the Cowper administration. I sincerely hope that these assumptions are not perceived as being presumptuous or erroneous.

It is assumed that a candidate seeks the office of governor because he desires change. It is also assumed that the voters elect a new governor because they desire a change. It is further assumed that a new governor will seek to implement change by redefining the role or function of government. An important purpose of this paper is therefore to address the subject of change, and the need for change, as it relates to the fishery related programs and activities of state government. For, it is

only through a change in government programs and activities that the state can work in concert with the seafood industry to achieve the new goals of the Cowper Administration.

Change cannot happen without leadership. Governor Cowper has provided that leadership with his campaign commitments to a new economic system in Alaska based on small resource based entrepreneurial businesses, and to increasing the value of Alaska's natural resources in the world market place. Implicit in these two goals is the economic mandate contained in the Alaska Constitution that the natural resources of the state shall be used for the "...maximum benefit of its people." The starting place for change has been identified. This statement of new goals must now become the guiding directive of policy which in turn will define the purpose of programs and thereby the functions of government.

For the purpose of this paper and in the interests of logical organization I will assume that the goal of Alaska Fisheries Policy is to maximize the benefits produced for Alaskans through the utilization of fishery resources. The State Constitution also defines conditional factors that relate to this goal such as the need for "sustained yield" of natural resources, "preferences among beneficial users", "maximum use consistent with the public interest" and the reservation of natural resources "to the people for common use." However all of these conditions serve more to clarify the means by which the

goal should be achieved rather than as goals in themselves. They are constraints that serve to define the purpose of resource management. Therefore, the biological imperative that resources should be managed for maximum sustained yield shall not be considered to be the ultimate goal of fisheries management. Rather it shall be considered to be part of the strategy by which the goal of maximum benefit is achieved.

It is important to note that this concept constitutes a fundamental change in state fisheries policy in that it would replace a fishery policy based on biological goals with one based on economic goals that reflect and address the social needs of Alaska's people. This concept was also proposed in Governor Sheffield's Fisheries Policy Task Force Report of June, 1983. That report contained the observation that "... the biological responsibilities and activities of state government are in fact a prerequisite and an important component of its greater economic and social responsibilities." The report also recommended that the state "...must adopt a State fisheries policy that incorporates biological, social and economic goals, and it must reorganize the structure of state fisheries programs so as to facilitate the efficient realization of those goals."

The Sheffield Administration basically ignored the majority of recommendations contained in that report (which may be one of the contributing reasons why they were replaced with the Cowper Administration). Having served as the Executive Director of the

twenty member task force that produced the report, I believe that the failure of the Sheffield Administration to seriously consider its recommendations caused many of the industry people who served on it to lose confidence in the new administration's commitment to change. This constituted a disillusionment that in some people manifested itself in political activities directed at changing the people who failed to change the system. For example, throughout the report recommendations were made (by unanimous acclamation) that the Department of Fish & Game needed to be reorganized. These recommendations were ignored. I believe that there is still value and relevance in many of those recommendations, and I would commend that report to you for your consideration.

ASSUMPTIONS

This paper is based on the following assumptions.

1. The Cowper Administration is committed to developing a new definition for the role of state government in the state's seafood industry.

2. Governor Cowper is committed to the creation of a comprehensive fishery policy for the state which will require a change in the structure and purpose of Alaska's fishery programs.

3. The goal of that fishery policy as defined by the State Constitution, and as reaffirmed by Governor Cowper, is to maximize the benefits produced for Alaskans through the utilization of fishery resources.

4. The means by which this goal is to be achieved is by (a.) creating a new economic system in Alaska based on small resource based entrepreneurial (seafood) businesses, and (b.) increasing the value of Alaska's natural resources (seafood) in the world marketplace.

5. Governor Cowper is committed to the creation of a Fisheries Advisory Group (FAG?) to assist him in the development of policy.

6. Governor Cowper is committed to the appointment of a Special Assistant on Fisheries in his office.

THE ROLE OF GOVERNMENT

Given a fisheries policy based on the goal of increasing economic benefits to Alaskans from the utilization of fishery resources, it is necessary to define the fisheries role of government not only in terms of its responsibility to the resource, but also in terms of its responsibility to the Alaskan people. Within this last context, it is necessary to analyze resource development in terms of the relationship between

government and private industry. Alaska is like a third world country. We have natural resources that have no intrinsic economic value. They only acquire such value after they have been converted into products for which there are markets, and have been made available to those markets. This requires an access to the capital necessary to finance the harvesting, processing and marketing of the seafood products as well as an access to the markets that give the products value. Because neither of these exist within Alaska, they must be obtained from out of state.

Out of state interests are therefore a necessary and desirable part of the Alaska seafood industry. However it is important that the manner in which they conduct their business activities not only serves their legitimate profit interests, but also the ownership interests of the Alaska people. Determining what constitutes a legitimate profit or ownership interest is of course a task that requires the resolution of conflicting needs and goals. Businesses attempt to maximize profit by keeping costs low; while the state, as the owner of the resource, seeks to maximize the return to its residents by keeping resource income high. The nature of the relationship between government and private industry is therefore critical to the manner in which benefits generated by resource utilization are allocated.

In the past, Alaskans were limited in their ability to participate in the fishery allocation process, and to share in the benefits produced by their utilization. They were victims of abuses by the federal government that permitted the exploitation of salmon resources to the point of extinction. The profits generated by that exploitation were not equitably shared with the Alaskan people. This history is important because it serves to illustrate that in the absence of governmental action to promote equity, private industry will seek to maximize its interest at the expense of the public interest. The Alaska seafood industry is largely owned by out of state investors, and it's managers' responsibilities is to maximize profits to those investors. To the extent that the state of Alaska chooses to adopt a role that serves only to complement and support the interests of this industry, it will continue to abrogate its economic and social responsibilities to the people of the state.

There is another reason that the state should take a leadership role in relationship to the seafood industry. That reason is the fragmented and adversarial nature of the industry including both private sector fishing and processing businesses as well as certain government agencies. Because of this fragmentation the industry unnecessarily wastes its resources on disputes and disagreements over resource allocations and government regulation. This problem was most recently described in the December issue of The Fish Boat magazine which quoted a study by the General Accounting Office of Congress as follows.

"The GAO report says better marketing will require two things traditionally missing in an industry as fragmented and independent as fishing: strong leadership and cooperation among fishermen, processors and retailers." The GAO report was describing a national problem that is particularly acute in Alaska. Leadership is needed, but who can provide it? In Alaska, I believe that only state government has the ability to create a cooperative working relationship among the various industry segments for the purpose of addressing the important issues facing the Alaska seafood industry.

In conclusion I would like to summarize the foregoing arguments by saying that the role of state government in relationship to the Alaska seafood industry has three purposes. They are: 1.) biological management of the seafood resources, 2.) advocacy of the resource ownership interests of the Alaskan people, and 3.) industry leadership to promote cooperation and efficiency in the utilization of resources to ensure that maximum benefits are produced and distributed in an equitable manner.

There is another dimension to the subject of resource allocation which addresses problems inherent in the governmental regulatory process as it is manifest in the actions of the Board of Fish and the Department of Fish & Game. I am indebted to Dr. Neal Gilbertsen for his contribution of the following section which deals with that subject.

Allocation Policy:

The state is experiencing a crises regarding its fisheries allocation policies (or lack thereof) and the management activities of the Board of Fish and the Department of Fish and Game. Since statehood, board members have been selected on the basis of their knowledge and participation in the fisheries. In short, we have appointed prominent members of particular interest lobbies, and placed them in a position where they are called upon to make disinterested allocating decisions. This is not only unrealistic, but it perpetuates the political struggles between various fisheries groups. For example, seiners benefit at the expense of gillnetters in SE or sportsmen at the expense of set netters in Cook Inlet, while disadvantaged groups try to reverse the procedure through the political or legal process.

The ultimate result of this zero-sum process is a highly fragmented and contentious harvesting sector. This is ironic, for it is the one area of the fisheries economy in which Alaskan residents are in a majority and have the most to gain. While the nonresident interests speak with a relatively unified voice through the out of state processors, Alaskan harvesters spend their political capital in disputes over resource allocation.

Many of these allocation struggles can be avoided, and a spirit of unity introduced into the fisheries if the Governor's Office provides the leadership necessary for the adoption of a set of allocation criteria that would provide a definition of resource rights. The need for this is particularly acute because of conflicts between state and federal statutes and between the implied property rights principle of limited entry and the allocation practices of the Board of Fish and the Department of Fish & Game.

The purpose of Limited Entry was primarily social and economic. The legislative intent is contained in the statute itself where the numbers of permits are established as being the number which will lead to "a reasonable rate of return to the fishermen considering necessary investments in vessels and gear and considering time fished". In short, the intent seems to be based on curtailing participation in the various fisheries in such a way that those participating can reasonably expect to earn a living from the fisheries. In this respect, limited entry was Benthamite in origin, attempting to provide "the greatest good to the greatest number".

Where groups predicate their existence upon a shared resource, this implies that each group will harvest a fixed percentage of that resource over time. As the resource increases, all groups will benefit. As it declines, all will suffer...but the percentage of total harvest taken by each group will remain constant.

This has not been the case. In point of fact, through the board process, and through the de facto allocation decisions made by the department, one group often benefits at the expense of another. All groups therefore, approach the board process as a means of gaining an increase in their percentage of the total harvest at the expense of other groups.

Again, the Governor's Office can provide leadership in establishing criteria for allocation decisions: one of which must be fair fixed percentages in the case of shared resources managed under the limited entry system.

In the case of many non-salmon stocks, the possibility of quotas should be explored. Again, limited entry implies some vestment in property rights to the resource, but because these property rights are not clearly spelled out, fisheries remain a highly competitive and political industry. This in turn results in a fragmentation which is easily exploited by non-Alaskan interests.

In conclusion, Alaska requires a fisheries policy that will establish a process of resource allocation that serves to minimize conflict and dispute. Such a system should also provide an equitable process for resolution of allocation disputes when they do occur. This will require innovative and courageous leadership, but will result in the unification of the Alaskan

segment of the seafood industry. If this can be accomplished, then these unified interests will serve as a powerful lever in implementing policies designed to capture and to integrate the other sectors of the fisheries industry into an "Alaskanized" economy.

THE MARKETPLACE

A recurring theme in Gubernatorial Candidate Cowper's campaign addressed the need to increase the value of Alaska resources in the marketplace and the need for a new resource based economy of small entrepreneurial businesses. These appear to be desirable goals, but what are the opportunities for and the implications of their application to the seafood industry? Because the satisfaction of these needs are dependent on the requirements of international and national seafood markets, it is important to identify what some of those requirements are.

Elsewhere in this paper I quoted material from a GAO study on the U.S. Seafood Industry. That material was contained in the December 1986 issue of the Fish Boat magazine in a section entitled "The Marketplace". Because of its relevance to the future of Alaska's seafood industry and the requirements of the market place, the news article is quoted in its entirety below.

The U.S. Seafood Industry could do a better job promoting its products by taking some hints from chicken and beef producers, according to a study by the General Accounting Office, the investigative arm of Congress. The GAO report says better marketing will require two things traditionally missing in an industry as fragmented and independent as fishing: strong leadership and cooperation among fishermen, processors and retailers. The study says the industry also

must improve seafood quality and boost consumers' confidence in American-caught fish.

This quote identifies two key requirements for a strong and competitive seafood industry, and by implication hints at a third. These are: 1.) leadership, 2.) quality, and 3.) efficiency. It does not address the need for a consistency of supply which I believe is a fourth requirement. I have already addressed the need for leadership, so I will now confine my remarks to the three remaining subjects.

Quality.

Contrary to the claims of the National Fisheries Institute and the Pacific Seafood Processors Assn., American-caught fish do not have a reputation for quality. The Alaska portion of the U.S. catch is no exception, and in some cases is significantly worse. However all attempts by either the state or federal governments to institute quality control requirements have been met with industry resistance in the form of both political opposition and delaying tactics in the form of compromise programs intended to promote the appearance of quality without the reality. The marketplace has not been deceived, and will continue to place a value on our products based largely on its perception of their quality. We cannot expect to increase the value of our resources, if we continue to permit their transformation into products that the marketplace considers to be of inferior quality and therefore value.

All other major seafood producing nations of the world have had to address the problem of quality. All of the successful solutions have involved the applications of government mandated quality standards, quality programs and quality inspections. Voluntary standards and programs do not work. If Alaska is serious about increasing the value of its fishery resources, then government must work with private industry to develop a program of seafood quality assurance that is mandatory, enforceable, and affordable to the industry.

Efficiency.

In addition to quality, Alaska seafood products must be attractively priced if they are to enjoy a competitive advantage with the consumer. Because the price of a product includes the cost of producing it, the efficiency of Alaska fishing and fish processing businesses must be promoted.

Both Dr. Gilbertsen and Mr. Fisk have reminded me that different economists define efficiency in different ways. To Milton Friedman, labor is a cost to be eliminated. While economists such as Bentham and John Stuart Mill write about maximum employment at reasonable income levels. Obviously, the goal of maximizing benefits for Alaskans will require that efficiency be promoted in a manner that includes "reasonable" returns to labor as well as to capital.

Government can make a substantial contribution to this need in two ways. One is by conducting a thorough and comprehensive evaluation of its own regulations and laws that serve to institutionalize inefficiencies for possible elimination. Such an evaluation will reveal many government regulations and laws that are based on the principal of regulated inefficiency as a requirement of biological management. Some examples of this are:

1. Area registration requirements for fishermen and fishing vessels.
2. Prohibition against drum seining.
3. Limitations on vessel length in salmon purse seining and Bristol Bay gillnetting.
4. Some provisions in limited entry law that restrict the freedom of a permit holder to use his (sometimes considerable) permit investment to his best advantage such as the prohibitions against leasing and the encumbrance of permits.
5. Management of fishing seasons that does not take into consideration the processing capacity of the industry.
6. Failure to operate state owned fish hatcheries at designed capacity.
7. Prohibition against the use of monofilament gillnet.
8. Exclusive fishing areas that prohibit the option of moving fishermen to the fish rather than managing other fishermen for the purpose of moving the fish to the fishermen as a means of achieving management goals.

There are reasons why all of the above examples exist, and there may be reasons why some should continue to exist. Many of them are manifestations of an attempt by government to protect the interests of resident Alaskans against the competitive forces of nonresident fishermen and processors, and in some case they may still be desirable. However, to the extent that this protection insulates the Alaska seafood industry from the effects of competition, it will prevent Alaskans from developing the capacity to respond to the demands of the marketplace. Fences not only keep people out, they also keep people in. We would be better served by working to enhance the competitive skills of Alaskans through education, research and the application of technology. We cannot expect to increase the benefits produced by the Alaska seafood industry, if we do not have the courage to accept the change required by the world market place. Alaskans must be informed, competitive and productive participants in that market place.

The other way in which government can contribute to the efficiency of the Alaska seafood industry is by working to ensure that government regulations and requirements are implemented in a manner that serves to minimize the cost of compliance to private industry. Examples of this are: 1. Permit requirements for seafood processing by both small boat catcher-processors and larger floating and shore based companies that require involvement with at least four state agencies, 2.

Commercial fishing and enhancement loan programs containing restrictions that do not adequately address the needs of borrowers, and restrict their ability to respond to problems that develop in the conduct of their businesses, and 3. reporting requirements that do not take into consideration the needs or the capability of industry.

Consistency of Supply.

Consistency of supply is a need that markets place on their suppliers in all businesses. However in the seafood business it poses unique problems because of the seasonality of many fishery resources. To some degree this problem has been solved through substitution, but this does not always address either the needs or the opportunities of the market place. Other seafood producing nations of the world are now investigating the potential of aquaculture to solve this problem. Iceland, for instance has recently initiated a major salmon pen rearing program that is designed to produce 5,000 tons of Atlantic salmon each year. Benefits anticipated from this project include increased diversification and stability for an economy largely based on fish

There are two areas in which government can work with private industry to address the need for consistency of supply. One is in the management of fishing seasons and the other is in the application of aquaculture technology.

There are biological limitations and requirements in the management of fish that limit the ability to manage for the market. However, such a concept should be introduced to fishery biologists as at least one desirable objective of their activities.

The potential value of aquaculture and particularly pen rearing of salmon is controversial at best. This is partly because the issue of aquaculture is most often expressed in terms of its threat to the status quo. However as a result of the remarkably successful salmon pen rearing programs of other countries, aquaculture like robotics and computers in other industries, is a technology that will have an impact on the Alaska seafood industry even if we choose to ignore it. In the past Alaska was the OPEC of salmon, and the markets reacted to its production. Today producers of Alaska salmon products find that the markets have changed and now they are forced to react to a market that is driven by new forces. Still, Alaska continues as a major producer of salmon products for the world market from both wild stock resources and aquaculture, and we cannot ignore the potential impacts or opportunities presented by aquaculture activities throughout the world.

The only important issue that Alaskans should consider about aquaculture is how can we use it to strengthen and benefit our seafood industry and the people of the state without creating unacceptable consequences.

The resolution of this issue will require cooperation among fishermen, seafood processors, potential aquaculturists and government officials. This will not happen without leadership from the administration. In the absence of a reasoned consideration of the subject, within the context of a state fishery policy, it will become an issue within the legislative process the outcome of which will be a product of political compromise that may very well not serve the best interests of the state.

STRUCTURE

The structure of all state fishery related programs should reflect and incorporate the purpose of the state's fishery policy. Therefore a change in policy, will necessarily require a change both in program content and in the manner that one program relates to another. Some old activities may be eliminated. Some new activities may be created. While it is beyond the abilities of this writer to identify all of the changes that might be required, there are certain capabilities that appear to be essential to the management of any system of government responsible for resource management and development. The remaining portions of this section will discuss some of these capabilities and suggest some structural relationships that might be suitable to their implementation. It will also identify tasks essential to the implementation of a new policy and suggest some structural relationships that might be suitable to their implementation.

Information.

In the area of resource management the importance of information can not be overestimated. In the pursuit of social and economic goals it is essential. In the past, the information gathering system of the Department of Fish & Game was designed to provide biological information for resource managers. As that system evolved it was modified to include some data of an economic nature, but its primary purpose remained biological. Unfortunately, the managers of the ADF&G have never attached a high priority to their Computer Services Section or the economic data it was capable of producing. This problem was addressed in the Sheffield Fisheries Policy Task Force Report with the following statement and recommendations.

Fisheries-related data is currently either non-existent or located in various and sundry places, rendering it virtually unusable to both the public and the Administration. This dirth (sic) of coordinated, cohesive information has impeded the development and stabilization of the fishing industry. Data needs range from biological information on the status of the resource through economic and social impact information with respect to the fishing industry. ... A comprehensive data bank program should be designed Such a program can be developed utilizing the knowledge and expertise of staff from the Alaska Department of Fish & Game, the Commercial Fisheries Entry Commission, and the Alaska Seafood Marketing Institute in conjunction with a team of representatives from industry, National Marine Fisheries and the University of Alaska.

Unfortunately with the recent and contemplated budget cuts much of the aforementioned capability, as limited as it was, has been seriously eroded. The CFEC computer was eliminated and

their data processing needs assigned to the Department of Administration. There is also the expectation that charge backs from that department for data processing services will further erode their capabilities as well as those of Computer Services Section in ADF&G. Now with the need to cut budgets even further, this program is facing the possibility that it will not even be capable of maintaining its present data base.

Again Sheffield's Fisheries Task Force Report states, "... in order to quantify the benefits flowing to the State of Alaska from fishing activities, it is necessary to examine the structure of the industry in terms of employment, investment and income." But the report continues, "... it is not presently possible to identify those fisheries-produced benefits that remain in the State, ..." It concludes that, "... it is impossible to define, implement, or monitor a state fisheries policy aimed at maximizing benefits to the State when a condition of such fundamental economic ignorance exists." Unfortunately, this situation is getting worse and left uncorrected it will leave the Cowper Administration without the information that is necessary for the achievement of its goals.

It is important to point out that a good information system requires two ingredients. One is the collection of timely and accurate data, and the other is a system for storing, organizing and analyzing that data. In both of these areas the state has taken action to curtail activities. For example, in some of the

salmon fisheries the amount of escapement and stream productivity data collected has been significantly decreased or eliminated. It has also been reported that computer services will stop entering price information from fish tickets into their data base and that they will also stop processing annual seafood processor reports. If these trends continue, Cowper Administration officials responsible for resource utilization will be left "flying blind" in the conduct of their responsibilities.

Education.

An industry delivers benefits to people through the creation of investment opportunities and jobs. Alaskans can be given a competitive edge in obtaining the best paying jobs both within an existing and a developing seafood industry through an educational program specifically directed at delivering the technical and academic skills required by that industry. Both the University of Alaska and our secondary schools have (with minor exceptions) failed to serve this need.

Government should work with private industry in developing a comprehensive compilation of job skills that the seafood industry requires as well as on going educational needs. This information should then be used in the development of a cooperative program between the University of Alaska (including the Community Colleges, the Fisheries Industrial Technology

Center in Kodiak, and the Marine Technology Center in Juneau), and the Alaska Vocational Technical Education Center in Seward that serves those needs. There is also need for a survey course that could be made available to the secondary schools around the state that would teach Alaskans about the seafood industry as an international activity of which the Alaska industry is a part. Fishing is seafood, and seafood is business, and business is industry. It is time that we trained our people to be seafood industrialists with the ability to profitably market Alaskan products.

Finance & Taxation.

As previously stated in this paper, natural resources require capital to finance their conversion into marketable products. Also, benefits from the utilization of natural resources are created in the form of wages for labor and return on investments. If Alaskans are to receive their fair share of profits from their industry, they must be given the opportunity to share in the ownership of the means of production. In other words, they must be given investment opportunities.

It is therefore important for state government to develop an investment strategy that will both attract needed capital into the state and create investment opportunities for Alaskans. Such a strategy should be developed in cooperation with Alaska banks including The Alaska Commercial Fishing & Agriculture Bank with

input from other banking and investment institutions both in the U.S. and foreign nations such as Canada, Japan and Norway.

As stated in the preface, I am indebted to Dr. Neal Gilbertsen for the following section on Tax Policy.

Tax Policy.

When Alaska achieved statehood, it was heavily dependent upon fisheries, both as a source of employment and as a source of revenue. As a result, the processors were in a position to influence tax legislation in such a way as to receive favorable treatment. After the Kenai and Prudhoe Bay oil developments, fisheries were largely overlooked. the tax policies which remain in force, are largely a relic of the territorial era; and Alaska remains a fisheries resource colony.

A new tax policy should be adopted, wherein residence is rewarded and nonresidence is discouraged. Such a policy should be designed to capture a larger share of the processing, distributional and support industries associated with fisheries development. Moreover, it should be designed to retain a higher percentage of ex-vessel earnings within the economy of the state.

The tax policy should be engineered to tax the raw resource at a relatively high rate, but to reduce tax liability as fish pass through the value added and distributional phases within the state. Current tax policy in the case of salmon is the reverse of this. In the case of underdeveloped species, it promotes development and exploitation by non-Alaskan interests. In point of fact, the interests of the state would be better served by leaving the fisheries undeveloped (with the resource intact and in the bank) than by encouraging a system of absentee exploitation.

Finally, a tax policy which encourages Alaska based harvesting, processing, distributional and support industries (and penalizes out of state control of these functions) would go a long way towards ending the "WE-They" dichotomy. By locating the value added segments of the seafood industry in Alaska, the adversarial roles of outsiders versus Alaskans would be altered to a situation wherein all segments of the Alaska based fisheries economy could be balanced in such a way as to serve the self interests of private industry (resident and nonresident alike) and the equitable interests of the Alaska people.

Management.

There are three important management tasks in state fisheries that have at one time or another manifest themselves in positions of responsibility and authority. They are: 1.)

management of the Department of Fish & Game, 2.) international and interstate negotiations regarding allocation of fisheries resources, and 3.) fisheries development.

In the early years of statehood under the Egan Administrations there was one position responsible for all of these activities, the Commissioner of Fish & Game. The last Egan Administration created the new position of Director of International Fisheries (Harold Hansen was the first Director) in the Governor's Office. This position was continued in the Hammond Administration (with Chuck Meachum), and discontinued in the Sheffield Administration. (Hickel is remembered as the first Governor who attempted to institute limited entry. However his attempt was deemed unconstitutional by the courts.) The Hammond Administration also created the Office of Bottomfish Development Coordinator (Jim Edenso originally held this position) which eventually became the Office of Commercial Fisheries Development (to which former Senator Kay Poland was appointed Director to be followed by Greg Baker and Paul Peyton under Sheffield). In addition to this office Hammond also had the Special Projects Office (directed by former Senator Bob Palmer) which was very involved in the development of the state's salmon aquaculture program. This brief history has been included here to illustrate the fact that the fisheries activities and responsibilities of state government have grown since statehood. And, given the goals of the Cowper Administration, I assume that most of these activities will continue, albeit with new purpose.

Past experience and discussions with knowledgeable people have caused me to conclude that the tasks involved in managing the Department of Fish & Game constitute a full time job that requires all of the time available to any one individual. This is apart from any time spent on international activities. And likewise, the tasks involved in international negotiations including the allocation activities of the North Pacific Management Council appear to constitute a full time job for any one individual. The responsibilities associated with fisheries development as they have been defined in the past have also required the attention of one individual. And, given the Cowper Administration's emphasis on resource value in the market place, I would assume that fisheries development will take on a new meaning with even greater responsibilities.

I therefore recommend that the Cowper Administration create a new position equivalent to the former Director of International Fisheries so that the Commissioner of Fish & Game can redirect his activities to the management of his department. I believe that this is extremely critical at a time when major changes in the programs and structure of the department are being mandated by reduced state revenues. I also recommend that the fishery development responsibilities of state government be transferred to the Department of Fish & Game to be administered by one of two or three deputy commissioners (ie. Deputy Commissioner for Commercial Fish, Deputy Commissioner for

Fisheries Utilization, and Deputy Commissioner for Sport Fish and Game) on an equal footing with the biological responsibilities of that department. This would be permitted by AS 16.05.020(2) which defines the Commissioner of Fish and Game's responsibilities to include "...the interest of the economy and general well-being of the state;". It would also constitute the beginning of a program realignment that would serve to implement the new social and economic goals of the Cowper Administration. Two organizational benefits would be produced by this restructuring. One would be the permanent elevation of fisheries development responsibilities to a deputy commissioner status. The second benefit would be a function of increased cooperation and understanding between the biological managers and the fisheries developers. Such a realignment is necessary to ensure that the fisheries activities of state government become driven by (or are responsive to) economic rather than by biological goals.

Mr. Fisk has expressed his disagreement with these recommendations on the basis that they contribute to policy fragmentation. He proposes a Department of Commercial Fisheries. I also believe in this concept. But, I do not believe that it is politically achievable. I would therefore rather see a consolidation of fisheries related programs into the existing department, than a continuation of the status quo. A Director of International Fisheries could be retained within the department except for the need of the position to possess the

appearance of policy making authority. This cannot be achieved by demoting the position within the department. It can be achieved by giving it cabinet level status.

Special Advisor on Fisheries.

There is one additional task that is essential to the success of the Cowper Administration's fishery initiatives. It is the task of managing the change that will constitute the Cowper Reformation of Alaska Fishery Policy. This task should be assigned to the Special Advisor in Fisheries working in concert with the Fisheries Advisory Group (FAG again?) whose principal purpose should be the development of strategies for the implementation of the new policy. Rational and constructive change cannot occur without the power of the Governor and his office being brought to bear on the situation. Again, other fishery officials simply do not have the time. They are too involved with the on going activities of government to be concerned about changing the system in which they operate. This task will require a person knowledgeable in fisheries, and skilled in working with people. The position must have sufficient governmental status and authority to overcome the natural resistance that all people (bureaucrats, fishermen and seafood processors included) have to change.

Fisheries Advisory Group.

The Fisheries Advisory Group as a concept means different things to different people. To some it represents the opportunity for industry to have direct access to the Governor, and serves somewhat of an ombudsman function. In this manifestation it would constitute another forum in which industry would use government to arbitrate their disputes. Sheffield's Fishery Policy Task Force called the group a Fisheries Policy Council and described its purpose as follows.

It is ... imperative that a Fisheries Policy Advisory council be created to provide a forum for government-industry interaction and cooperation with the responsibility for providing a source of feedback on program performance and for assisting in the formulation and evaluation on fisheries policy. It is important to understand that the activities of the Fisheries Policy Advisory Council are intended to complement, not duplicate, the activities of the Board of Fish. In fact, the Board's activities are focused on short-term problems of allocation, with no time left to analyze or consider long-term impacts. It is expected that the Council could assist the Board and the Department, in some cases, by identifying problems with long-term ramifications and recommending policies that can produce satisfactory solutions. The Council should be appointed to advise the Governor and to assist him in the development of a state fisheries policy.

I believe that there is merit in many of the ideas expressed above, but that they all fail to capture the true purpose and potential of such a group. We do not need another government group whose purpose it is to review, revise or reverse the actions or decisions of other government groups. We do not need a court of last resort that is responsible for prolonging the disputes of a contentious and adversarial industry. We can not

afford to increase the demands on a system that is already overburdened.

The purpose of the Fisheries Advisory Group (FAG) should be a reevaluation of the system itself in terms of the new goals of the Cowper Administration. On completion of the reevaluation, and with the institution by the administration of recommended changes, the group's purpose would shift to an implementation oversight function. This responsibility would include the government-industry interaction necessary to facilitate change and to ensure program realignment and compliance with the new goals.

If these recommendations are adopted, the success of the FAG (Doesn't Seafood Industry Roundtable (SIR) sound better?) will be determined by the experience and qualifications of its members, and the composition and size of the group. I recommend a group of no more than seven members composed of persons who have demonstrated the following qualities and abilities: 1.) knowledge of the composition and dynamics of the international seafood industry, 2.) knowledge of the composition and dynamics of the Alaska seafood industry and its relationship within the international scene, 3.) long term vision, 4.) objectivity, 5.) creative ability, 6.) commitment to public goals, and 7.) sensitivity to the needs and problems of private industry. This list probably does not included all attributes that are appropriate to the purposes of SIR, however they do serve to

describe the type of person that would have the most to offer. I also believe that some of these people should not be state residents. By way of further definition I would add that the type of person who would not serve the purposes of this group is a special interest advocate whose past activities have been to preserve the status quo or a facsimile thereof, and whose principal focus has been one of resource allocation.

Both Mr. Fisk and Dr. Gilbertsen have expressed the fear that the Seafood Industry Roundtable could become a force against change. This is certainly a serious possibility that can only be avoided by a careful definition of the group's responsibilities and by an extremely judicious choice of appointees by the Governor.

PACIFIC SEAFOOD PROCESSORS ASSOCIATION

P.O. BOX 1625 • JUNEAU, ALASKA 99802 • (907) 586-6366

February 1, 1987

Mr. W. A. "Bill" Hall
Commercial Fisheries and
Agriculture Bank
6726 Marguerite
Juneau, Alaska

Dear Bill:

"Alaska requires a fishery policy that will establish a process of resource allocation that serves to minimize conflict and dispute...an equitable process for resolution of allocation disputes...this will require innovative and courageous leadership." Bullshit! Absolute Bullshit! If the Governor even starts to read your "Recommendations on the Role of State Government in Regard to the Alaska Seafood Industry", he will soon find out that you make that declaration without a recommended solution. You give only a preamble while leaving others with the impossible task of giving it a constitution.

I had hopes of more from you.

When you do get into other areas you do make some observations with recommendations for change but often the recommendations are vague. When they are specific the credit (or blame) for the suggestion is often given to others. I don't know if you do that to give the ideas more credibility or to escape blame.

A couple of things really touched my button. One is Marketplace and the other Quality. In both of these subjects you start out with a Federal study of the United States seafood industry. Not a study of the Alaskan seafood industry. The GAO study actually recommends to the nation much of what Alaska is already doing. We are years ahead of other states in both market promotion and quality. The Alaska Seafood Marketing Institute was used as the model when congress created a national institute to promote American seafood. Only a fool would assert perfection but only the grossly uninformed would not admit that Alaska leads the nation in promotion of its seafood.

Alaska also leads the nation in the quality of it's seafood. That's why your "cheap shot" about quality is so irritating. I realize that you said, "...reputation for quality" and that is a difficult standard to define or refute. However, the fact is that our seafood is not only of good quality but most of it is "premium" quality. It sells at the highest prices, which is the ultimate test of

quality. The standards of the U.S. Food and Drug are far higher than our neighbor and competitor, Canada. It is a fact that when a product is marginal for sale in the U.S. it is shipped to Canada because their standards are lower. Is Canada one of the "mandatory inspection" nations that you cite as an example for Alaska to follow? The quality of Alaskan product, as regulated by the Alaska Department of Environmental Conservation, has made giant strides in recent years - Bill you know that. Then why didn't you recommend that we put more money in ASMI so that the uninformed will know about our high quality seafood.

Your paper doesn't say what should be done, just that, "...all successful solutions have involved the application of government mandated quality standards". Do you want mandatory grade and classification? Do you want continuous inspection? Do you want this done by the State of Alaska or should it be done by the Federal Government? Should we grade for the U.S. market or should we grade for Japan, the EEC? They all want something different.

Since you do not define "quality" maybe I have jumped the gun on you and that is not what you are talking about. Maybe it is wholesomeness that you are concerned about. I thought that everybody that knows anything about the Alaskan industry had put that issue to rest. That is almost a non-issue today, at least when the product leaves the processor.

Maybe I have really missed the mark and you are talking about low quality (grade) product created by current ADF&G management practices. That might be something to take a look at. In a fairly recent study to establish standards for Premium Quality Seal product ASMI found that 90% of the canned salmon would merit a Premium Quality Seal. Of the remaining 10% of the product almost all of it failed to meet the premium standard due to water marking, something the fisherman and processor have absolutely no control over. In that test none of the product failed because of decomposition and almost none of it had man made defects.

I would suggest to you that if there is a remaining question of the quality of Alaskan product it is due to "reputation" perpetuated by irresponsible statements similar to those made by you. Everything can be improved and our product is no exception. There are, in fact, small areas where we need to concentrate some effort but we do not deserve a blanket condemnation such as you have given this industry, its fishermen and the product that reaches the market.

Maybe I should not be so quick to judge you. For years I had heard of the "reputation" for quality of Japanese product. They may still have that reputation with the uninformed but they don't have it with any of us that have ever

seen one of there plants in operation. I have a strong stomach but a Japanese surimi plant is enough to test that of an autopsy surgeon. The "government mandated" quality standards of Japan are so much lower than the voluntary standards supported by regulation of DEC and Food and Drug that it leaves no question which is the better system. It does, however, give the Japanese a competitive advantage over the Alaskan produced product. Adding additional controls that will increase the cost without an increase in price in the world market would only add another impediment to the expansion of our industry.

If you want to give us a hand why don't you join those of us that want the foreign processors to be required to live upto the same standards with which Alaskan processors must comply. Their product is often packed under conditions that would give an Alaskan DEC inspector a heart attack. Yet they can ship that product to the U.S. in direct competition to our product packed under higher standards. I haven't even mentioned the difference in standards and practice aboard foreign fishing vessels - those will really raise your hair.

Let's talk a little bit about your statements on tax policy. You indicated that at statehood the "processors were in a position to influence tax legislation in such a way as to receive favorable treatment". If they were they sure screwed up. Canned salmon, for many years, paid an effective rate of 6% on raw product purchased. In addition they paid a corporate income tax and often provided the only tax base for local government. (by the way, how in the hell did you ever think up a statement like, "...largely a relic of the territorial era; and Alaska remains a fisheries resource colony?)

I hope you will allow me to decline your well intentioned effort to help by suggesting a "relatively high rate" of tax on raw product with a reduction in tax liability for value added and distribution phases. In the first place, we are already paying a "relatively high rate" thanks to the efforts of Clem Tillion, et al. I would assume that canned salmon could expect a substantial reduction since almost all of the value added is done in Alaska - fat chance. Troll caught salmon I would expect could have the benefit of an increase since it is usually marketed only cleaned and frozen. Halibut could expect a similar jump in tax liability. Your neat little idea does only one thing. It increases the likelihood that the legislature will consider an tax increase. Thanks buddy! You are not going to get any more Alaskan participation out of your plan because if you make the tax so high as to force much of the value added to be done in Alaska the legislation will not pass the test to the U.S. Constitution. If you don't make it that high all you will have succeeded in doing is to reduce the price the

processors can pay to the fishermen. You know and I know that an increase in taxes is shared by the fisherman. I guess I can't blame you for the original idea of this tax policy change, Neal Gilbertsen, was the originator but I can blame you for giving it wider distribution. Gilbertsen doesn't know any better but you should.

Bill, just one little correction. I don't think the first Director of International Fisheries was Harold Hansen. I really don't know if Stan Patty was the first one but he is the first one I remember. Stan was appointed by Hickel. He was followed, after a year or so by Chuck Meacham who was also appointed by Hickel. I can't remember who followed Chuck (that would have been during Keith Millers administration) and then Harold Zane Hansen was appointed by Egan. (I was in Harold's room in the Imperial Hotel in Tokyo when Clem Tillion called him to tell him he was fired. That was a couple of days after Hammond was elected.) Meacham was then reappointed by Hammond.

Some of the things you mentioned in your recommendations probably have merit but, in my mind, they will be suspect because of the errors contained in much of the rest of the paper. However, it is not worthless. I suggest you save it and submit it piece by piece to "letters to the editor" of some weekly newspaper, I have often read similar material in such places.

Sincerely,



Richard B. Lauber
Vice President and
Alaska Manager

6726 Marguerite St.
Juneau, Alaska 99801
February 3, 1987

Mr. Richard B. Lauber, Vice President and Alaska Manager
Pacific Seafood Processors Association
P.O. Box 1625
Juneau, Alaska 99802

Dear Rick:

I received your letter of February 1 in which you provided me with the benefit of your opinions regarding my paper on fisheries recommendations to Governor Cowper. I do appreciate the obvious time and effort that you devoted to the subject, and I believe that I understand your message.

I apologize for any deleterious impact that my recommendations may have had on your health, and I hope that our newly discovered differences of opinion will not prevent our continued association in the future.

Sincerely yours,

A. W. "Bill" Hall

Alaska State Legislature

Advisory Council Members
Senator Bennett, Chairman
Senator Abood
Senator Kerttula
Senator Sackell



PO. Box V
State Capitol
Juneau, Alaska 99811
Phone: (907) 465-3114

Senate Advisory Council

MEMORANDUM

TO: Senators Eliason, Zharoff, Kerttula and Sturgulewski
Alaska State Legislature

FROM: Bill Hall, *WH*
Senior Advisor

DATE: April 18, 1986

RE: Budget considerations in regard to the State's fishery related programs.

I am writing this memo to each of you because I know of your interest in the State's Commercial Fishing industry. At this time of reduced State oil revenues many people are looking for alternative sources of funding as well as potential sources of savings through reductions in State spending. I understand that each of you must make difficult decisions relating to both of these needs, so I am writing you this memo to offer some ideas and suggestions that you might wish to consider in your deliberations.

SUGGESTIONS FOR INCREASING REVENUE

We have the opportunity to significantly increase the economic benefits that Alaska receives from the utilization of its fishery resources if we are willing to consider a new approach to fisheries management. In the past we have managed fisheries for the purpose of making more fish available for harvest, a biological activity. In recent years we have begun some programs the purpose of which were to increase the value of the resource, an economic activity. Now with the need to cut budgets we must make a choice as to how we will manage for the future. Will we go back to biological management, and eliminate programs in fisheries development and marketing? Or, will we continue to pursue opportunities for increasing the value of our fisheries products in the world market place. The market demand for new forms of seafood products has never been greater. The opportunity for Alaska to become a leader in the production of high quality seafood products has never been greater. However, if we continue to manage fish for fish and not for profit and benefits, then the entrepreneurs from Seattle, Tokyo and Norway will continue to be the leaders and primary beneficiaries of the world's expanding seafood markets. These markets are the target of national strategies working in concert with foreign owned business for the purpose of control and profit. Alaskan businessmen are not even players in this high stakes game because we have allowed our

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fisheries resources to be marketed by foreign (meaning non-Alaskan) businessmen.

If you find any merit in this argument for change, then I offer the following suggestions for your consideration.

Consider consolidation of programs and activities as an alternative to total elimination. The Alaska Seafood Marketing Institute (ASMI), the Office of Commercial Fisheries Development (OCFD), and the Fisheries Industrial Technology Center (FITC) are all involved in activities that serve to increase the value of Alaska's fishery products. The advertising activities of ASMI have proven to be effective at increasing the demand for Alaska seafood products. The pink salmon utilization at OCFD has particular merit in its attempt to develop and demonstrate the potential for new product forms for pink salmon. The existing and planned programs of the FITC in seafood processing technology are essential in the development of new fishery product forms and improvements in the quality of existing seafood products. If these activities are continued, they will produce increases in future revenues for the State.

The performance of ASMI has generally been praised, and it deserves praise for what it has done. But, it also deserves criticism for what it has not done. The focus of ASMI has been too narrow. It has not functioned as a marketing institute as marketing is defined by the business profession. It has functioned as a funding source for advertising the products produced by companies generally owned by non-Alaskans. While this may be a legitimate function, it should not be the only function. ASMI should take a much more active role in market research for the purpose of evaluating opportunities for new product development as well as new marketing opportunities for existing products. ASMI should take a much more active role in providing Alaskan businessmen with market information. ASMI should be encouraging the major food companies of the world to consider investments in modern seafood processing and distribution facilities within the State as a means to create new markets for fishermen, new investment opportunities for all Alaskans, and new jobs.

The performance of the FITC cannot be adequately evaluated at this time because the program is still in a developmental stage. However, its purpose is consistent with the need to increase the value of our fishery resources, and it is a program that is essential and complementary to the purposes of both OCFD and ASMI. Unfortunately, the university has not treated the FITC as a priority program in the past, and in a time of tight budgets I would assume that its value and importance will not be recognized.

There has been legitimate criticism regarding the success of some OCFD activities. However, poor performance by an agency should be considered as a failure of execution, and not as a failure of purpose. The potential increases in State revenues from the development of new fishing opportunities and new fishery products cannot be ignored as a part of the solution to the State's revenue problems.

To summarize the foregoing, I repeat my earlier suggestion that combining the activities of the Alaska Seafood Marketing Institute, the Office of Commercial Fisheries Development and the Fisheries Industrial Technology Center is a preferable alternative to their elimination. Also, by consolidating the programs, efficiencies of coordination and administration might be achieved that would result in a more effective use of the State's resources.

TAX CONSIDERATIONS

At the present time the raw fish tax paid by seafood buyers is based on the ex-vessel value of salmon. This gives the buyers an incentive to keep the price paid to fishermen for their catch low. The tax on salmon is also greater for processed fish than for unprocessed fish. There is therefore an incentive for fish buyers not to process fish in the State. Mr. Neal Gilbertsen, a long time Alaskan fisherman, has suggested that it might be in the best interests of the State to consider a more progressive tax structure that would provide an incentive to process the fish in State. Such a tax, he suggests, should not be tied to the ex-vessel price, but should be structured so as to reduce the tax liability as fish move through the value added stages in the Alaskan economy. This concept has considerable merit both as an incentive to attract investment in new seafood processing facilities, and as a means to increase the earnings of fishermen. (There are many more Alaskans with investments in fishing than in processing.)

It is also important to recognize the drain on the Alaskan economy from the many non-resident fishermen who operate within the State. For salmon alone the Commercial Fisheries Entry Commission estimates that non-resident fishermen harvested \$102,960,458 worth of the State's resources in 1982. This amounted to 34.1% of the total value of that year's salmon harvest. No tax was paid to the State on the income those fishermen earned from their harvests from these States resources.

THE IMPORTANCE OF INFORMATION

If increasing the returns from the utilization of the State's fishery resources is a desirable goal, then access to information on the dynamics of the seafood harvesting and processing industry is essential to informed decision making. This type of information is currently provided by the Commercial Fisheries Entry Commission (CFEC) and the Computer Services Section of the Alaska Department of Fish and Game. These two agencies have developed programs of data collection and analysis that cannot be diminished without a definite loss in decision making capabilities. As a time when decisions have vital economic significance such a loss would be self defeating.

I have been informed that CFEC has been facing the possible loss of their computer, and that ADF&G Computer Services is threatened with the loss of some key personnel. Such proposed actions would result in a decrease or loss of our research and analytical capabilities as well as the data base of processor related information. We cannot afford a reduction

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in the services that these two agencies provide. I strongly recommend that these programs be maintained at present levels. If some reduction in costs is unavoidable, then consolidation of the two programs should be considered before elimination or serious reduction of activities. Also, additional revenues could be generated by the Computer Services Section by giving them program receipt authority so that they can charge for the information that they provide to the public.

SUGGESTIONS FOR DECREASING COSTS

Across the board cuts in fishery related programs, particularly those of the Department of Fish and Game and Commerce & Economic Development should be made only after the relative importance of the many programs are evaluated in terms of their contribution to the needs of the State. In this regard I offer for your consideration the suggestion that we must maintain our ability to fulfill our resource management responsibilities, and to promote the most beneficial utilization of those resources. We need to continue to manage for biological goals as well as economic goals. However, one area of activity that could provide opportunities for budget reductions is the State hatchery program.

Significant reductions in State expenditures could be achieved through the transfer of production hatchery facilities to Qualified Regional Aquaculture Associations the operations of which are largely funded by the commercial fishing industry. The programs would continue to provide benefits to the State with no attendant costs of operation.

In conclusion, I realize that these suggestions may be coming to you too late in this legislative session to be of great value to you. However, I am certain that we will be faced with similar problems during the next legislative session, and I trust that they be of interest to you then. If I can be of any assistance to you, please do not hesitate to call me.

AWH:er

Alaska State Legislature

Advisory Council Members
Senator Bennett, Chairman
Senator Kerttula
Senator Abood
Senator Sackett



Pouch V
State Capitol
Juneau, Alaska 99811
Phone: (907) 465-3114

SENATE ADVISORY COUNCIL

MEMORANDUM

TO: Senator Sturgulewski

FROM: Bill Hall *WH*
Senior Advisor

DATE: February 6, 1985

RE: Proposal from Mr. Kellus Sewell of Nordic Alaska Regarding Meeting with Swedish Engineers and Aquacultrist to Discuss Salmon Farming in Alaska

Mr. Sewell has proposed that you meet with two gentlemen from Sweden to discuss the potential for salmon farming in Alaska, and he has submitted for your information a form letter that he has written entitled, "The Need to Evaluate Impact of World Trends on Alaskan Salmon Industry and Benefits to Alaskans From Salmon Farming". Your aide, McKai Campbell, has requested that I review Mr. Sewell's proposals for your benefit.

Mr. Sewell's letters contain two important assertions. One is that the production of salmon by the aquaculture industries of foreign nations is increasing dramatically and will surely have an impact on the traditional markets for Alaskan salmon. The other assertion is that salmon farming offers Alaska the opportunity to develop a new industry that could serve to stabilize the economies of coastal Alaskan communities.

Both assertions are valid and additional efforts should be expended to analyze them more fully within the context of the Alaska salmon industry as it exists today.

If it is decided that salmon farming shall not be permitted to develop as an industry in Alaska, then the important questions that should be answered are those that relate to the impacts of the production of salmon produced by the aquaculture industries of foreign nations. These impacts could not only result in a lower price for Alaskan salmon, they could also produce a change in consumer preferences as they relate to quality, product form, and availability.

Senator Sturgulewski
February 6, 1985
Page 2

If it is decided that salmon farming should be permitted to develop as an industry in Alaska, then both the positive and negative impacts should be considered in regard to the biological factors, the economic viability of such an industry in Alaska, the economic consequences of such an industry on the existing salmon industry, and the sociological consequences of the new industry on the rural communities and cultures of the State.

I agree with Mr. Sewell's statement that, "We in Alaska cannot afford to ignore the potential impacts that this new, European aquaculture industry will have on the salmon dependent economies of rural Alaska. And we most certainly would be negligent not to consider the potential benefits Alaskans could receive from a profit salmon farming industry of our own". However, we should move cautiously so as to avoid damage to the existing Alaska salmon industry.

It is my impression that State officials within the FRED division of the ADF&G and within the Office of Commercial Fisheries Development at DCED have conducted some background research on the potential of mariculture in Alaska and are prepared to proceed with further feasibility studies. However, because of the fear of opposition from the Alaska seafood industry, they have not been directed or authorized to proceed. Both salmon fishermen and processors who represent the status quo see salmon farming as an instrument of change, and they therefore consider it to be a threat to their best interests.

I have not attempted to evaluate the knowledge or experience offered by Mr. Sewell and his Swedish associates. I do know for a fact that Mr. Sewell has experience in Alaska as a crab fisherman, a salmon troller, and a state employee. He has also spent time in Europe in an effort to develop markets for Alaska seafood products.

I have attached to this memo several items that will give you more information on the issue if you are interested. Please contact me if you have any further questions.

BH;crb
Attachments:

SENATE ADVISORY COUNCIL
POUCH V
JUNEAU, ALASKA 99811
465-3114

TO: Senator Sturgulewski

FROM: Senate Advisory Council Staff

DATE: February 6, 1985

RE: Informational Request # 002380

Thank you for your recent request for assistance. Attached is the material you requested.

This information will remain confidential until we receive your approval for release.

If you approve the release of this information, please sign and return this form.

If we can be of further service, please do not hesitate to contact us.

PJ;lal

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'Fishing' future may

A FEW issues ago we reported that farmed salmon was moving close to cod as the top earning species in the largest fishing nation in Western Europe. It is a development which underlines the significance of the introduction of aquaculture to Norway and reminds us of the remarkable progress which has been made in the farming initially of trout in sea cages and more recently of salmon.

We have been reporting this progress month by month in our associate paper *Fish Farming International* which has also noted other advances in salmon farming in Scotland, the Faroes and Iceland. But the impending challenge to cod as Norway's most valuable fish, plus some astonishing possibilities outlined last month by the Norwegian government information service Norinform, prompt us to look at the farms in a wider fisheries context.

Significantly, perhaps, Norway is one of the few countries to place aquatic farming firmly within the jurisdiction of the Ministry and Directorate of Fisheries. That is where we believe it should be, particularly where the main thrust of development will be in sea farming.

Another feature of Norwegian aquaculture is that it has been helped from the start by substantial research establishments and services. In sea farming as in fish hunting and processing, the Norwegians have been innovative and energetic pace-setters.

Ten years ago, when the pioneering efforts of people such as Thor Mowinkel of Mowi, the researchers at Sundelsora and other stations, and smaller-scale farmers such as the Vik brothers were just beginning to show results, Norway had 138 farms and only 45 of them were raising salmon. Production in 1975 was 1655 tons of trout and 862 tons of salmon.

be in farming

comment

Last year the number of farms had increased to 362, and 301 were raising salmon. The total for trout had increased to 5405 tons; that for salmon had jumped to 17,298 tons.

But this is only the beginning. Licences to farm salmonids have now been issued to more than 580 applicants. Although some of these may have fallen out, we may expect between 550 and 600 farms to be operating within the next three or so years. And after a certain period a farm is allowed to increase from a minimum to a higher capacity rating. This, together with an informed estimate of smolt supplies from the hatcheries, indicates that more than 40,000 tons of salmon will be produced by about 1987.

By 1990 the harvest may reach and perhaps even exceed 80,000 tons. Add to this expected harvests from the other salmon farming countries fringing the North Atlan-

tic and we will have farm output more than 12 times the amount of Atlantic salmon presently taken by hunting.

This must profoundly influence the market for salmon. In Norway it is also beginning to have another impact. Fish farming could in 20 years become more important to the economy of the country than fishing.

By the year 2000, the Norwegian aquaculture industry might be producing "goods" worth the equivalent of over 3000 million US dollars in fish, feeds, vaccines and other medicines, equipment, training and research services. It would employ some 50,000 people in relatively well-paid jobs in actual farming and the total aquaculture-based workforce might amount to 100,000.

In comparison, the Norwegian fishing industry presently earns about 484 million dollars and employs 25,000 people.

reasoned, useful testimony unless the issues it plans to discuss are accurately and fully presented to the public.

Time and again fishermen, especially those involved in the groundfish fisheries, have shown that they can come up with their own solutions and voluntary agreements, if given a chance. Last minute shifts in direction by the Council don't give the fleets a chance to find them.

More than one fisherman left the December Council meeting saying, "There's a leadership vacuum."

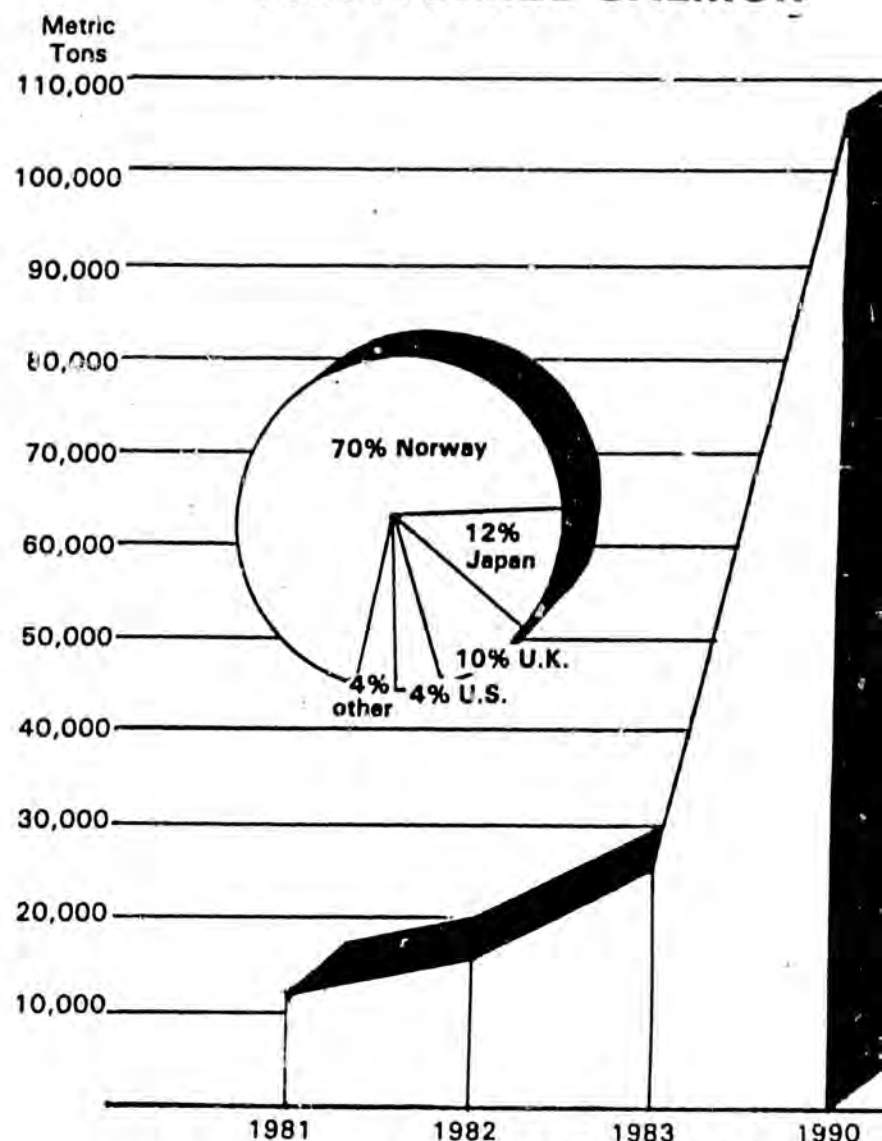
There is a leadership vacuum and an unwillingness to spend the time

needed to solve problems. The Council manages far more fish than the State Board of Fisheries manages. That Board will spend about 100 days meeting this year.

If the fishermen harvesting Alaska's fish learned in December that they must provide their own leadership and work together to find their own consensus rather than appealing to the Council, the December meeting served a positive purpose.

If the Council learned it is facing issues which can't be conquered in a four-day meeting without extensive prior work, the December meeting served a positive purpose.

WORLD PRODUCTION OF PEN-FARMED SALMON



Source: Branch of Foreign Fisheries Analysis, N.M.F.S., NOAA, U.S. Dept. of Com.

Dramatic Growth Projected for Pen-raised Salmon

Norway is the world's most important farmed salmon producing country. The Norwegian production of Atlantic salmon in ocean cages has increased dramatically during the past decade, from only 170 t in 1973 to 17,000 t in 1983. During January-May 1984, Norwegian fish farmers produced almost 10,000 t of salmon, or 44 percent more than during the same period in 1983. If production continues to increase at the same rate, Norway will produce an estimated 24,500 t of farmed salmon in 1984. Future production is also projected to increase to an estimated 50,000 t in 1986 and 80,000 t in 1990. Norwegian production, however, will depend on several factors including the supply of smolts and competition from other countries which produce farmed salmon. Ironically, Norwegian companies have assisted many of these countries in establishing salmon farms because Norwegian government regulations limit the size of salmon farms. Since the regulations do not allow the companies to expand operations in their own country, several Norwegian companies have exported their salmon farming technology to other countries where favorable environmental conditions or potential markets exist.

III

MEMORANDUM RECEIVED State of Alaska

TO: Dick Lyon, Commissioner OCT 5 1984 DATE: October 5, 1984
Department of Commerce and
Economic Development

GOVERNOR'S

FILE NO:

Richard A. Neve, Commissioner TELEPHONE NO: 465-4100
Department of Environmental

FROM:

Conservation

SUBJECT: Mariculture

Don W. Collinsworth *WJC*
Commissioner
Department of Fish and Game

I believe it would be timely for us to discuss the state's responsibility and role in the potential development of fish farming in Alaska and particularly pen rearing. I think the Mini-Cabinet is the appropriate forum to chart a course of action. Much discussion on pen rearing has recently been generated by contact with out-of-state promoters and by people within our agencies. The legislature is interested and has requested information on the regulatory/administrative structure for fish farming. Fishermen's groups are reacting to either a perception of opportunity or threat.

I think we need to address some specific questions:

1. How do we insure that Alaska and Alaskans receive the primary benefits should such an industry develop?
 - a. What guidelines are utilized in other states -nations?
 - b. Is some form of limited entry appropriate?
 - c. Should the size of individual operations be limited?
 - d. Should an individual be able to acquire only a certain number of sites?
2. What type of legislation/regulations would be needed to implement the desired program?
 - a. What current statutes and regulations govern fish farming?
 - b. What new legislation would be required to implement a program if desired?

October 5, 1984

- c. How should fish farming legislation/regulations relate to existing hatchery - aquaculture programs such as PNP?
3. What roles should the various agencies plan in a coordinated state program?
 - a. Would Commerce have a special loan program for such endeavors?
 - b. Should Fish and Game be funded to do developmental research - regulate disease, genetic problems?
 - c. How would DEC/DNR relate to problems with tidelands discharge?
4. How can we best work with fishermen and the industry to develop a state plan to deal with fish farming?

I have asked that this issue be on our next Mini-Cabinet agenda.

cc: Pennoyer
Baker
Hutton
Boston

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LEGIBLY BECAUSE OF THE POOR QUALITY OF THE
ORIGINAL

MEMORANDUM

State of Alaska

TO: Fisheries Mini-Cabinet

DATE: November 5, 1984

FILE NO:

TELEPHONE NO: 465-4160

FROM: S. A. Moberly
Director
FRED Division
Department of Fish and Game

SUBJECT: Mariculture

In response to Commissioner Collinsworth's memo of October 5, 1984, concerning mariculture, I would like to offer some pertinent observations; they are not intended to be comprehensive, and, accordingly, they should not be construed as anything other than the thoughts of one individual who has an interest in the subject matter. My definition of mariculture, as it is discussed here, includes the cultivation of all marine and freshwater plants and animals; ranching and farming are only terms to help describe the tactics of this cultivation.

First, I believe that our (Alaskan) freshwater and marine resources are the most valuable renewable resources in the state and that this asset should be managed to maximize the economic and social benefits to Alaskans. I believe that Alaska will eventually take action to maximize the positive aspects of this asset; i.e., a renewable resource industry that includes not only the harvesting of plants and animals that occur naturally but also the deliberate and aggressive cultivation of those plants and animals.

The world demand for good quality aquatic products is increasing; already, the world mariculture output is about 10% of the total harvest of fishery products. The time is right for some positive movement by government to assist in the initial planning phase for expansion of mariculture development. How fast we will proceed to commercial realization and eventual maturity, I could only guess. One thing I feel certain about, however, is that if the mariculture industry is to survive, it must have a solid, industrial base; moreover, it must be vertically integrated and have a well-developed infrastructure. In Alaska, we have the skeleton of all of this in place, and, if government and our existing industry recognize the great productive potential, we can initiate the policies and programs to stimulate, support, and guide this emerging industry. A climate of self-perpetuating confidence and security will be created for entrepreneurs and the industry. Mariculture will result in increased employment opportunities and better utilization of our current production and processing capability. The state and its citizens will benefit by exploiting this new valuable renewable asset, and, with proper management, the sea can be farmed forever.

Alaskans are already familiar with some aspects of mariculture; e.g., notably state and PNP hatcheries. Further development in this field, therefore, could be perceived as simply an extension of the current developmental status of the fishing industry as a whole. I do wish to clarify that there is a difference between mariculture and the salmon enhancement efforts that the state is now engaged in; a fully developed mariculture industry will be

decidedly different than our present hatchery program. The development of mariculture in Alaska should proceed solely as a private endeavor; the government's role would be confined to research and development; enforcement, land and water leasing, extension work, pathological and genetic services, etc.

Mariculture may be one of the few renewable natural resource activities that has potential for interior and western Alaska, as well as the Aleutian Chain. For example, Unalaska, with its large natural geothermal potential and the natural geography of that area; i.e., its protective bays and estuaries, it is not difficult to imagine farming the sea there.

While I certainly do not have a vision of a grand plan, I have identified potential constraints, and many of these can be removed by governmental action. Probably the largest constraint is the lack of clearly defined policies that accept mariculture as an independent and important food-producing sector of the economy. Along with these policies, enabling legislation should be passed, which will send clear signals to the private sector as to the government's intent. This legislation should clarify the many overlapping jurisdictions and help to eliminate jurisdictional confusion, as well as provide positive, effective coordination. There is and will be a lot of apprehension on the fisherman's part, because traditional fisheries are dominant, and the problems and preoccupation with these fisheries will make it difficult to devote much attention to mariculture possibilities, except, perhaps, to oppose them.

The "state-of-the-art" on mariculture is adequate for our present needs. What is being done in the rest of the world is a sufficient model for us. While we are adapting this knowledge to Alaska, we will need a mariculture research center and adequate pilot scale testing and demonstration facilities. Following research and pilot scale work, government needs to provide incentives to private entrepreneurs to implement mariculture on a larger scale. Government should also provide extension-type assistance. This extension work should include practical technical training and business management. Currently, we are teaching the "East Fish Cultural Practices Workshop," which alternates annually with a "Hatchery Managers' Workshop." This workshop type of approach could be expanded to teach and provide continuing education to private entrepreneurs in the mariculture business.

Mariculture activities will provide new products and new markets. Government, working through an organization like Alaska Seafood Marketing Institute (ASMI) and the industry, can continue to develop new markets and encourage new product form. The processing sector will benefit, because they will have products available for marketing and processing in other seasons. This will create extended employment opportunities and/or new opportunities in fisheries. These types of activities will encourage dollars to stay in Alaska. With the seasonality and short duration of the wild fisheries, there is a strong incentive to live elsewhere and, thus, the dollars leak from the state; a longer employment season will discourage this leakage.

November 5, 1984

Another function of government is the development and maintenance of a comprehensive data base. If we expect an orderly development of a mariculture industry, we need rigorous statistical analysis on performance, and this information must be available on a real-time basis to the industry and to those involved in planning.

I hope that these thoughts will aid in the discussion of the subject. The mini-cabinet can easily provide the nucleus of a mariculture policy group, and I would, of course, suggest Fish and Game, FRED Division as the lead agency, coordinating closely with the office of Commercial Fisheries Development and our counterparts in DEC, DNR, the university, and the federal agencies, like the National Marine Fisheries Service.

Fisheries Mini-Cabinet

R. Neve
D. Collinsworth
R. Lyon
W. Hudson
J. Katz
B. Twomley
L. Boston

Enclosure

cc: M. Hutton
G. Baker
C. Shelley

ECONOMIC IMPACT OF FARMED SALMON UPON THE
ALASKAN COMMERCIAL SALMON FISHING INDUSTRY

Principal Investigator: Bing-Hwan Lin

Units: Department of Economics
School of Management
University of Alaska, Fairbanks

Bing-Hwan Lin
Bing-Hwan Lin
Principal Investigator

Michael L. Rice
Michael L. Rice, Dean
School of Management

This study has only been partially funded. ~~but~~
AHL

Title: Economic Impact of Farmed Salmon Upon the Alaskan Commercial Fishing Industry

Principal Investigator: B.H. Lin

Units: Department of Economics
School of Management
University of Alaska, Fairbanks

BACKGROUND AND NEED

The domestication of wild sheep, boars and cattle was a very important step in making civilization, as we know it, possible. By genetically selecting prime stock over the years, the quality of beef and pork has continually improved into the products now seen marketed at the retail level. The ability of ranchers to control the breeding, rationing and harvesting of domesticated livestock has made all this progress possible. No one can argue with the success achieved in agriculture over the years, but what about the transfer of this technology to products from the sea?

Salmon aquaculture (farming) started in Norway as long ago as 1912. The early attempts failed because fish "farmers" were unable to keep their stocks in their pens. These failures resulted in a period of dormancy in the industry for about 40 years. In the late 1950s and early 1960s, this problem was resolved for large rainbow trout from L. R. Donaldson's genetic efforts at the University of Washington. However, protectionism in foreign countries and confusion among consumers about quality differences between these fish and the lower quality, freshwater-raised rainbows proved to be too large of marketing difficulties to overcome.

Norwegians then turned to the farming of Atlantic salmon in the late 1960s and in ten years the production of these farmed salmon had increased by tenfold... Norwegian-raised Atlantic salmon now are served in restaurants in most major metropolitan areas, including Seattle, traditionally the territory of the troll-caught Alaskan wild salmon. A primary reason for this rapid increase in production is the extremely high quality of the product. Twenty-four hours after the fish was alive it can be served in a restaurant in Europe or on the eastern seaboard of the United States. Its size range of 5-15 pounds makes it perfect for marketing as fresh baked or steaked salmon. As has been demonstrated for livestock, food ration programs and genetic engineering can be utilized to arrive at a high quality product. Norway's production has also been helped by the environmental conditions of their ocean currents. The temperature and oxygen contents of the water is considered ideal for farming salmon.

It should be noted, however, that there are large risks in fish farming. It is not an inexpensive method of food production and initial fixed investment is especially costly. Uncertain markets do not add to the peace of mind of fish farmers either. The Norwegians have enjoyed financing by their government which has resulted in a technological head start toward making their salmon farming ventures profitable. This success is shown by the tremendous increase in exports to the United States. The amount of Norwegian farmed salmon sent to the U.S. in the first quarter of 1984 equaled the amount sent in all of 1983.

The successful development of Norwegian salmon farming has received worldwide attention. Major salmon-producing countries such as Japan, Scotland, Russia, Canada and the United States have already attempted to duplicate the same practice. Therefore, it is expected that the world production of farmed salmon may increase at a phenomenal rate in the near future. This trend will likely have a tremendous impact upon the well being of commercial fishermen and processors in the U.S., especially in Alaska.

A key question is whether the farmed salmon are complements or substitutes with the wild salmon (see, e.g., Lent, Whittaker, Johnston, 1979). Because Norwegian salmon farming has not yet reached its capacity and the marketing of Norwegian salmon is directed by the Norwegian Fish Farmers' Sales Association, the Norwegian farmed salmon have been harvested deliberately in the winter and spring to avoid direct competition with fresh wild Pacific salmon. For this reason, some have believed that farmed salmon should be regarded as a complement of wild salmon. That is, the availability of farmed salmon in the spring and winter may help to develop consumers' preferences for fresh salmon in the summer. However, others argue that wild and farmed salmon are in direct competition, at least in the European markets. In any event, the predicted increases in the production of farmed salmon will likely intensify the substitution relationship between these two types of salmon. Therefore, it is important to investigate the likely impacts on the commercial salmon industry when world production of farmed salmon is increased. To do this, regression analysis can be employed to assess the effects of increased production on the prices of salmon at different market levels. Certainly, a demand-supply analysis can also provide useful information in addressing related issues such as the evaluation of public salmon enhancement programs.

If, in fact, there is a substitution between the two types of salmon, it may be possible to understand how Pacific farmed salmon will compete with wild Pacific salmon by an investigation into what has happened with the two types in the European market. This is important because Norwegian farmed salmon may compete directly with frozen and smoked salmon from the U.S. and Canada. It is realized here that Norwegian salmon may have a location advantage in the European market while the U.S. wild salmon may have the location advantage in the U.S. markets.

One of the major reasons for the importance of an investigation into the European market is the lack of information concerning the U.S. salmon farming industry. The reason for the lack of information is that the industry is in its initial stage of development. But because of the expected high growth rate, it is very important to monitor and document the industry as it develops. One only has to look at the breakthroughs

in the last few months in raising 7-10 pound chinook in pens to see the importance of this documentation. These chinooks are much more marketable than the 10-12 inch cohos raised previously and will compete with wild salmon in the restaurant markets.

The current status of the commercial fishing and salmon ranching industries may themselves promote interest in salmon farming. Since the salmon ranching industry has been successful in rearing smolts but has not been able to solve the problem of low return rates, it is very likely that salmon farming may become a superior method of producing salmon while ranching enterprises could supply the smolts which the farms will need. Furthermore, the ongoing debates on river and ocean carrying capacity, the allocation problems between commercial fishermen, sportfishermen, and native subsistence users, and the U.S. - Canada negotiations may further promote salmon farming. These are additional reasons why it is very important to do the monitoring and documenting mentioned previously. Another important factor is the institutional environment (e.g., the state and federal regulations dealing with salmon farming). For example, Washington allows farming and not ranching while Alaska allows ranching but not farming (P. Redmayne, Seafood Leader, Winter 1983). An understanding of the constraints imposed by institutional arrangements and others is important for predicting future growth of the industry.

A large increase in salmon farming, worldwide, appears to be imminent. However, current and proposed legislation may seek to restrict the growth of salmon farming in order to give the commercial fishing industry time to adjust to the new industry. If these regulations are continued, what will happen to the role of Alaskan salmon in domestic and international markets in the future? Obviously, this remains to be seen. If restrictions were lifted, as in Washington, what role should the state take in regulating salmon farming? We can expect several management issues will emerge. For example: what are the criteria that the state governments should employ in deciding how many farming rights should be issued? How should these rights be distributed? And, who should be granted these rights? It may not be too early to address these issues. Again, this shows the importance of documenting the regulations imposed by different states.

It is also very important to show which groups within Alaska will be affected by this proposed research. At this stage, the following affected groups have been identified, along with the reasons why:

1. Fishermen - Alaskan fishermen need to know whether or not their products will be affected by salmon farming. If so, they must understand the potential impact upon their incomes and, thus, their livelihood. The uncertainty over this impact has manifested itself in hostility toward the aquaculturists and inaction in investment decisions.
2. Processors - They perceive farmed salmon as both a threat to the status quo of their operations and as a potential investment for the future. Adjusting to the potential growth of the farmed salmon industry will be critical to them.
3. State of Alaska - Currently the State of Alaska is undergoing review of the return on investment it is receiving for its salmon

enhancement dollars. By providing a quantitative estimate of the impact of farmed salmon upon certain segments of its fishing industry, the State will have current information to incorporate into its ongoing evaluation of salmon enhancement programs. Also, given Alaska's current exploration into the feasibility of salmon farming in Alaska, research pertaining to farmed salmon markets will be valuable to any future decisions concerning further study of salmon farming in Alaska.

4. Federal Government - If substitutibility of farmed salmon for wild salmon is significant and the U.S. fisheries are drastically affected, the government needs up-to-date information to adjust policy making to take this new industry and its impact into consideration, especially where foreign competition is concerned.
5. Native Corporations - They need investments in renewable resources which will provide sustained income and employment for their shareholders. If the potential is great, salmon farming may warrant investigation as an investment alternative.

OBJECTIVES

The overall objective of this proposed study is to document the development of salmon farming in the U.S. and the rest of the world and investigate the impacts of increased farmed salmon on the well being of the Alaskan salmon industry. To be specific, the objectives of this project are fivefold.

Grant Year
1985

- (1) Summarize the impact that Norwegian farmed salmon has had on the European market.
- (2) Determine the substitutibility of farmed salmon for wild salmon.
- (3) Analyze the development of the U.S. salmon farming industry and the effects of current and potential state regulations on the industry.
- (4) By applying regression techniques, estimate the demand and supply relationship for wild and farmed salmon products in both domestic and international markets.
- (5) Relate the new market developments to specific populations within Alaska.

APPROACH

As an initial state of this research project, a comprehensive literature review will be performed. It will serve to acquaint the researcher with approaches utilized up to this point. A critique of other analyses (both descriptive and quantitative) will enable this research to identify accepted modeling techniques and improve upon them wherever possible. By performing this review, an economic profile of the newly formed Pacific northwest salmon farming industry will be obtained. This profile will

take note of recent accomplishments of this industry as well as limits to growth which still exist.

Once the literature review is completed, an analysis of the current conditions of the farmed salmon market and its potential growth will be done. It would be naive to assume that the farmed salmon will be in direct competition with all product forms that wild salmon presently take. The salmon farmers must, of course, utilize what comparative advantages they have by virtue of their methods of production. Because of both the high quality of, and high costs of production for farmed salmon, it is anticipated that the farmed product will not be in competition with the lower quality and lower priced canned salmon. One hypothesis is that the wild salmon most affected will be the high quality troll caught chinook and coho salmon. This hypothesis will be tested by examining the relationship between the price of troll caught salmon and the production and exports of Norwegian farmed salmon. In addition, the costs of producing Norwegian farmed salmon will be collected from published data and the costs of raising chinooks and cohos in the Pacific Northwest will be obtained through personal interviews. These data can then be used to shed light on how price competitive can Pacific salmon farming be.

The factors affecting the price and quantity sold of farmed salmon must also be studied. Consumers' income, their tastes and preferences, and the price of farmed (wild) salmon as well as the prices of closely related goods are hypothesized to have an impact upon consumer demand for farmed (wild) salmon. If it is found that farmed and wild salmon are perceived by consumers to be close substitutes. The effect of increases in the supply of farmed salmon would be similar to the effect of large catches of wild salmon. The increases in quantity supplied of wild or farmed salmon would depress the market price of wild salmon and hence reduce the income of salmon fishermen in Alaska and elsewhere. Quantitative estimates of this loss of income industry-wide would be of use to decision makers in both private and public sectors.

In analyzing the supply and demand effects we note research (e.g. Devoretz, 1982) previously conducted to investigate the demand for and supply of salmon products. Most of previous research employed single equation econometric frameworks which are limited in several respects when modeling salmon markets:

1. The allocation of salmon landings among different product forms has never been modeled. The lack of supply shifters in the estimation of demand for salmon may have caused bias in the empirical results.
2. Domestic and foreign demands have not been separated in previous studies. Because salmon products are traded heavily in the international market, the aggregation of two different types of demands may have also caused the empirical results to be biased.

In this study, we will develop a simultaneous equation model to quantify the important factors affecting the demand for and price of salmon products, especially fresh and frozen salmon. Since the wild salmon season peaks in the summer, we will try to use the data on a marketing year basis (June to June) to avoid the problem of lacking inventory data. Production data for fresh and frozen salmon in the U.S. are not available and have to be separated first. Nonetheless, the Canadian data are available for regression analysis. The empirical results may shed light on the U.S. market.

The investigation into the European market for the farmed-wild relationship will be accomplished by collecting and summarizing the trade statistics and regulations pertaining to fresh and frozen salmon products in Europe. The data collected by the Office of International Affairs/Fishery of NMFS will be obtained and analyzed. The Eurostat office in Washington, D.C. and researchers in Norway and Scotland will be contacted to obtain further information. The Institute of International Fisheries Economics and Trade (IIFET) network of salmon researchers will be utilized. Also, efforts will be made to extend the nearly completed research undertaken by the Office of Policy and Planning of NMFS.

In the documentation of the domestic industry, we will solicit information from the reporting done in fishing and trade magazines as well as from government agencies and industry members. This will take the form of a descriptive report with emphasis on the economic impact of recent developments. Dr James Anderson at URI is proposing a feasibility study of salmon farming in Maine. Interactions with Dr. Anderson have been established. A successful coordination of these projects will offer a comprehensive picture of the future of salmon farming in the U.S.

To study the potential issues in state management, we intend to work with the state Delphi research that is currently being conducted. This section will also be descriptive in nature with emphasis on application to current analysis dealing with the effects of fishery regulation.

PRODUCTS

There will be three basis products of this research, some of which will incorporate more than one of the needs mentioned. They are:

- (1) An economic analysis of the role of Norwegian farmed salmon in the European market. This will investigate a market where both farmed salmon and wild salmon products are present. This will allow the researchers to gain an understanding of the existing European market channels for farmed salmon and how they might develop in the U.S. market in the very near future. This will also assist in showing whether the consumption relationship between wild and farmed salmon is one of complement or competition.
- (2) A report on the development of U.S. salmon farming industry and regulations imposed by different states. This documentation will provide a comprehensive analysis of the current state of the domestic salmon farming industry. It will investigate the growth potential as seen by industry and government agencies. This will also relate salmon farming to current state and federal regulations and show how the growth of this new industry may be affected by some future regulations.
- (3) A report on the empirical demand-supply analysis. This will be a simultaneous equation model in showing the effects of increased production of farmed salmon on the prices of wild salmon at different market levels. The basic model will also assist in other areas such as government analysis of the future of enhancement programs in Alaska.

INTERACTIONS

State Agencies: Commercial Fisheries Entry Commission

Federal Agencies: National Marine Fisheries Service
Office of Policy and Planning
Office of International Affairs/Fishery
North Pacific Fishery Management Council

Researchers:

United States

Dick Johnston, Oregon State University
James Anderson, University of Rhode Island
Abby Gorham, University of Alaska, Sea Grant
Doug Larson, North Pacific Fishery Management Council,
University of Alaska, Sea Grant

Canada

Peter Leitz, Department of Oceans and Fisheries
Don Devoretz, Simon Frazer University

Scotland

Susan Shaw, Stirling University

France

Bernard Gilly, I.F.R.E. Mer, Centre de Nantes

MILESTONES

Grant Year
1985

1. March 1985 - Complete collection of data for objectives 1 and 2.
2. June 1985 - Complete investigation into Washington salmon farming operations (objective 3)
3. August 1985 - Specify model and complete data collection for objective 4.
4. October 1985 - Impacts specified from objective 5.
5. December 1985 - Final preparation of report for publication.

OVERALL PROJECT OBJECTIVES

1. Increase the awareness of policy makers and industry participants of the salmon farming industry in Norway and the U.S. by documentation of industry progress in recent years.
2. Through economic modeling, show current and potential economic impacts of increased salmon farming activity in Norway and the U.S. upon the Alaskan salmon fishing industry.

ANTICIPATED BENEFITS TO WHOM AND WHAT

1. Commercial Fishermen - This study will reduce the uncertainty that fishermen have concerning the potential impact that salmon farming may have on their incomes.
2. Processors - This research will provide the processing sector with an up-to-date analysis of the salmon farming industry so they may consider the impact of farmed salmon in their decision-making.
3. State of Alaska - A report on the potential impact of salmon farming upon the Alaskan salmon fishing industry will allow the state policy makers to incorporate this with their review of return on investment of salmon enhancement dollars. Also, this project's industry analysis of salmon farming will provide information for those in government researching the feasibility of salmon farming in Alaska.
4. Federal Government - This analysis will allow the government to consider the impact of Norwegian farmed salmon on U.S. salmon fisheries. This information may then be utilized in enacting legislation to allow the commercial fishing industry to adjust to the salmon farming industry.
5. Native Corporations - This research will provide valuable information to those corporations which perceive salmon farming as a potential investment.

Alaska Legislature Research Agency, Apr 84, Salmon Farming, E. Laschever
This Request from Rep. Ringstad for a description of salmon farming in other states and countries and to identify legal and biological impediments to such operations in Alaska.

Memo on Research Request number 84-74 did cover certain areas and provided pertinent reference material on the subject.

Fish Farming International, Sep 77, Ocean Ranching, C.E. Nash
This paper (notice the date) describes the already successful Japanese methods of sea-ranching and some of the more far reaching ramifications of it. In the previous year (1976) the Japanese had a return of 15 million fish...!!!!!!!

AK Dept of Commerce, Office of Comm. Fish. Development, Jul 1984,
Aquaculture Overview, by Patrick Stenkamp
Contains headings on aquaculture trends and production figures in various countries worldwide.

US Dept of Commerce, Foreign Fisheries Analysis Branch, Norwegian Salmon and Trout farming

20 to 30 percent of Norwegian aquaculture license holders are former fishermen who inhabit the isolated communities along the fjords of the western coast. The Norwegian Government encourages fish farming for both strategic and social reasons. They regard salmon farming as one of the most lucrative commercial activities available to the local residents and actively assist small operators by guaranteeing loans through two Development Funds.

The Norwegian Government have restricted investment in salmon farms by large companies and have imposed size restrictions on salmon farms in an effort to limit the industry primarily to small, owner operated farms (startup size is a net cage capacity of 5000 cubic meters). Farms that have operated continuously for three years may apply for permission to increase their size to a maximum of 8000 cubic meters. An 8000 cubic meter farm can produce about 60 tons of salmon annually.

Two species are extensively cultured; rainbow trout and atlantic salmon with the salmon coming to dominance in recent years. The weight of pen reared salmon is a fairly uniform 4 kg, whereas the weight of wild stock fluctuates from 1 to 9 kg. The high quality, uniform size and weight, and year-round availability of cultured salmon accounts for much of its marketing appeal.

The success of their salmon exports is due to a number of factors. The salmon is of very high quality and is shipped fresh on SAS Airline. Because the fish are farmed and not caught wild, fresh shipments are guaranteed at any time of the year, and are especially valuable when the catch of wild salmon is down (winter, etc). The high quality and year round availability makes it particularly valuable to such specialized customers as restaurants, hotels, gourmet stores, etc.

The Norwegian salmon is of the Atlantic variety, *Salmo Salar*, which is more highly valued by many consumers than the US-landed Pacific salmon species. Thus, they are able to compete very effectively with the USA for the "top-of-the-line" salmon. This species export potential is best evidenced by the fact that it has recently been sold in Seattle, one of the centers of the US salmon industry.

The Norwegian Government is also attempting to encourage fish farmers to begin working with other, equally cost-beneficial species such as cod. The decline of the cod fishery in recent years has led many scientists to experiment with cod farming in the hope that a new industry can be developed to supplement the existing farmed species.

PERIODICALS

111 Fishing News International, Aug 84

The Japanese report that for the preceeding year, marine aquaculture produced 1,052,000 tons and freshwater aquaculture produced 94,000. This was in addition to their high seas catch of 11,988,000 tons.

The Faroe Islands will export over 400 tons of soaked and frozen salmon in 1985. The fish (average weight 4.5 kg) will be supplied by the Islands new aquaculture industry.

An article mentions the sale of thousands of fish feeders to the USSR.

111 The Daily Sentinel, Sitka, AK, 19Jul84 ----Fish Farms: Time Ripe? -Greg Baker, Fisherman and Director of Alaska Office of Commercial Fisheries, gave a spiel to Sitka Chamber of Commerce on the pros and cons of fish farming. In general, his info was correct and he drew a few obvious conclusions from his text. He says the Governor asked state officials(?) to study fish farming to determine whether the state should continue to invest in hatchery programs.

111 Aquaculture Magazine, May/Jun 84

Jon Lindbergh, Six ways to lose money in Aquaculture

1. Pinning hopes on not-yet-developed technology.

Research is costly and the time it may take is open ended. It is advisable to select only those species that have already been raised in captivity and for which management techniques are established.

2. Failure to realize that aquaculture is a farming business.

Scientists are often inexperienced managers. The technical skills to maintain a hatchery can be acquired in far less time than can the managerial skills which often take many years for research oriented staff to acquire.

3. Undercapitalization.

It often takes twice as long to get the first cash crop than the scientists may have optimistically projected.

4. Aiming at the wrong market.

There is generally two major types of farming: A) to produce large volumes of low priced food for large masses of people, B) to produce relatively high priced food items for the luxury market. Almost all successful aquaculture projects are of the second type, raising high quality table items.

5. Failure to realize the product is a live animal.

Livestock farmers must keep their chickens/pigs/cows comfortable and protected or they will lose money, but even the best of aquaculture farms often provide spectacles of overcrowding, rough and unnecessary handling, unsuitable water temperature, lack of shelter, all of which can result in poor growth rates and other undesirable damages.

6. Lack of business experience.

Owners and managers, even the most idealistic and hardworking, simply may not be competent to meet the normal day to day problems encountered in the management of a business.

111 Pacific Fishing

--- Sep 84

---Strike shuts B.C. Salmon Industry.. strike on Jul 11 over fish prices and technological change. Fishermen wanted C\$1.03/lb up from C\$.89/lb last year. Shoreworkers protest the use of new fish washing machines the processors hope to install which would cost the the shoreworkers jobs.

Washington will vote on Initiative 456 which will block State enforcement of the Boldt Decision. Backers argue that treaties between USA and Indians are void since Indians became citizens in 1924. Washington Politicos denounce the Initiative, etc.

The new head of PWSAC, Brian Allee, was former head of aquaculture research for Meyerhaeuser. PWSAC is building a new hatchery on Ester Island at

a cost of \$9 million. Construction starts May 85.

----Foreign Salmon Market, an Update - Processors expect a larger percentage of Bristol Bay run to be frozen since canned demand is weak; Japanese demand for frozen salmon is reportedly good, if the price is "reasonable"; Japanese will continue trend of making smaller, more frequent purchases, forcing producers to carry more inventory.

Hatcheries on Hokkaido and the Japanese mainland produced 33.3 million chum in 1983 and are expected to top that this year. Royal Alaska Seafoods spokesman does not expect these large runs to "reduce sales volume" but they could "hold prices down".

[Note] There is increasing evidence that the Japanese are selling off their Alaskan processing properties and are beginning to pull out of the state.

The US dollars strengthening will hurt European sales; Troll caught Chinook are probably already too high priced for Europe says one processor.

Norwegian fish farms are a potent force in the world salmon market. While Alaska trollers are limited in time of production, a fish farm can supply fish year round. The Norwegian fish is more expensive than the Alaskan Troll Kings at first glance: in 1984 they were priced 10% higher but the higher wholesale price was more than offset by reduced handling costs. For example, a French smoker can buy a weeks supply of fish on 60-90 days' credit instead of paying cash for a container load from Alaska and incurring storage, interest and shipping cost. There is also beginning to be great concern that increased production will lead to increased efficiency and lower prices for the Norwegian product. This will eventually force US prices down if they are to compete.

!!! Alaska Fishermans Journal

--- Nov 83

----Norwegian imports spur salmon farming experiment - Against a background of European pen farmed salmon imports into the USA, FRED Division (Moberly) of ADF&G feels Alaska needs to take some steps to make sure it is not completely left out. FRED interest is strictly on the technical aspects of pen reared fish. NMFS (Bill Heard) is also interested in the subject and plan to study the subject of pen-rearing with FRED. Heard doubted that the political climate would allow the importing of Atlantic salmon for the project to raise.

Kellus Sewell, a former Juneau seafood supplier, said one German seafood broker in Hamburg told him to forget about quoting Alaska prices because he (the broker) could now pick up his phone and get salmon delivered fresh within four days.

Both Heard and Moberly stress they are not advocates of farm raised salmon; but because of the impact fish-farming has had, they just want to do a modest amount of research on the subject. In the meantime, the Alaska state and US governments have salmon farming locked up: no pens can be put in salt water without a Corps of Engineers permit, and no fish can be put into the pens without a FRED permit. Moberly is quoted as saying "if someone were to ask for a permit to pen rear fish they would be told that it is not allowed in Alaska". He also says this situation will not change until the legislature develops an official policy for farmed fish.

The Alaska Trollers Assoc Executive Director, Ed Wojcek, is interested in getting fishermen into this business, a la Norway and Sweden. Some members of the organization say they would like to get into the business right now, others see it as just a first step for Meyerhauser to move in.

---- Threats of war: analysis of a treaty dispute - article discusses the problems inherent in the current USA / Canada salmon treaty which has still to be ratified.

---Dec 83

Salmon farming on the fjords of Norway: describes a former fishermen

salmon farm as well as a general description of a Norwegian fish farm and its operation. Also discusses the interaction of Norse Fisheries Research and the fishing industry, i.e., Research is supposed to be as near to self supporting as possible with Industry paying for research projects applicable to fishing. For instance, feeding experiments show salmon fed a straight diet of squid grow almost one-third faster but that capelin is almost as good and is more readily available to the farmers. Some fishermen turned farmer also use their seiners to provide feed for their co-ops as an extra income side line.

Contains a description of the process from harvest to consumer in 72 hours via SAS. SAS has worked out the shipping problems and has developed a fool proof container for shipping the fresh salmon product.

European salmon markets report light demand for USA frozen. Fresh Norway salmon is selling in France at \$3/lb. USA imports of Norway salmon thru Apr 84 have already exceeded 1983 total import of 3 million lbs. Sockeye price drops in Seattle due to huge run forecast in Bristol Bay and Chignik.

---Jul 84

European salmon markets (May 30) found light demand for USA frozen. Prices for chum ranged from \$1.15-1.50; pinks \$1.15-1.20.

Norwegian fresh salmon were selling in France for \$3.00/lb depending on size. Norway Trade Commission reports that thru April 1984 they had exported more fish to USA than they did in all of 1983... over 3 million lbs.

---Sep 84

Salmon Deficit - Salmon import/export statistics for the first five months of 1984: USA paid more for Norwegian salmon imports than they received for salmon sold to Japan. Net deficit was \$912,285.

Fire Destroys Hydaburg Cannery - this leaves the local fishermen with no place to sell their catch for at least a year. The cannery was built in 1948 after a fire destroyed the previous cannery.

---Jan 85

Norway is the world's most important salmon farming nation. They are expected to produce 80,000 tons by 1990 and 100,000 tons by year 2000.

!!! Fish Farming International

--- May 84

Norwegian fish farms for trout/salmon to increase from 474 to 562 (83 new locations). Farmed salmon production figures are: 1983; 17,000 tons, 1984; 24,000 tons, projected for 1985; 45/50,000 tons.

Canadian east coast fishermen are beginning to get into aquaculture in a small way (almost as a hobby) according to Canadian officials.

--- Jun 84

---Salmon Farms take off in Faroe Islands - Farmers are on schedule to produce 600 tons this year with 3000 tons forecast for 1986 and could be harvesting 15,000 tons by 1990. The 1985 harvest forecast is for 1400 tons. Current restraints consist of inadequate smolt supplies.

From four trout/salmon farms a few years ago the industry has grown to six smolt rearing stations and 30 cage-rearing sites. The country's fjords are well suited to cage-rearing salmon. They are deep, well sheltered, winter water temperature stays above freezing, summer temperature is cool, and there is very little tide. Other advantages are that surface runoff reduces the salinity enough that it inhibits sea-lice infestation, water quality is good, and the cages do not foul as quickly.

Ocean ranching is also being developed and there are many good sites for release and reception construction. Released smolt are able to take advantage of rich feeding grounds nearby which considerably reduces mortality. Returns have already been achieved.

----Company to sell Island salmon - A new company has been formed to market

salmon raised on the islands of Harris and Lewis. These islands are located off the west coast of Scotland. The company is 51% Norwegian owned.

----Computer controls automatic feeders - One of the advantages of the new system is that the farmer can start with one control unit and expand gradually to fully computerized feeding. The pause, feed, pause cycle can be set for each feeder or for all feeders. Each night, just before midnight, the computer adds up the total amount of feed dispensed by each unit over the preceding 24 hours. This is then added to the total feed released by each unit since startup. These figures are available for printout.

----Where to study aquaculture in Britain - Contains a list of schools and their addresses.

--- Aug 84

----Island Smolt Shuttle - Small-scale salmon farming in the Western Isles of Scotland (Lewis and Harris) has taken another step forward with the successful transfer of 10,000 smolts from the big McConnell hatchery on South Uist to the cages of a small operator recently established on the same island.

The encouragement of local independent salmon farmers is an important part of the Integrated Development Programme (IDP) backing fish farming in the Western Isles. The IDP now helps the independents get started with both training and finance.

----Canadians welcome new Salmon Hatchery - A Norwegian Corp has decided to become a major participant in the new aquaculture industry of Atlantic Canada. The company plans to construct a salmon smolt hatchery near St George on the Bay of Fundy coastline.

Due to a shortage of smolt from the federal hatcheries, news of the hatchery was welcomed by industry spokesmen. Fishermen groups were also pleased that the company plans to encourage 40-50 commercial fishermen into the sea cage rearing business. The general view is that anything that will improve the fishermen's income has got to be good.

----Fish Farming takes off in the Faroe Islands - article describes salmon rearing and some other species as money crops. They have also recently completed a salmon smolt raising facility to supply raw materials to the sea pen operation. A leading grower has recently added shellfish to his successful salmon operation.

----Cage projects develop in warmer water - One company started off in 1982 with 13,000 fish and is now rearing 41,000 Atlantic salmon and trout in their cages. They plan to increase from 9 cages to 20 cages by 1986 and produce about 150 tonnes/year. This will be aided by the recent startup of a fish feed and oil business in the islands. These fish have already found good markets in Europe.

----Russians buy 5000 feeders - This leads to the conclusion that they are going to increase salmon production thru aquaculture. This is further suggested by their recent order from Vladivostok to a Swedish firm for thirty 2400-liter tanks for transporting live fish over long distances. They are also showing strong interest in an integrated floating installation for raising fish on an industrial scale... similar to the installation which has been operating in Finland for some time.

---Sep84

---Money for farms - Projects under the Integrated Development Programme for the Western Isles of Scotland multiplied so rapidly in the first two years that discretionary aid may have to be applied more selectively over the three years remaining. Spending on fish farming was allocated 1.2 million pounds for the five years of the programme actually reached 2.3 million in its first 18 months.

---Hatcheries in Scotland ship Smolts - The Norwegian firm Sea Farm A/S, which is developing the farming of Atlantic Salmon in Canada has asked to be shipped half a million eggs.

---Norway's salmon forecast - Fish farming is increasing by 4 %/year and

represents a doubling in 17-18 years. The Norwegians have also reportedly mastered the technique of cloning female fish from roe with a 70% yield. This means that from a female fish 7000 identical copies can be produced by spawning. As to the value of salmon farming; first hand sales of cod in 1983 realized US\$134 million, while farmers earned US\$95 million for salmon and trout. In 1986 fish farming should top the sales figures with a turnover of US\$ 150 million. Existing capacity is 50,000/60,000 tons/year but projects already in the works will increase this to 80,000 tons/year by 1990.

!!! Aquaculture Digest ---Jan 84

9.1.2 An Oregon commercial salmon troller, Lee Myers, says poor catch can be tied to a government/aquaculture plot to drive independent fishermen out of business. He sees the Indians rights as next to go and then the sportsmen's shortly thereafter. He states that biologists don't know what they are talking about when they refer to salmon feeding in cold water ... he claims warm water feeding makes salmon bigger, not smaller, as the biologists claim.

Salmon Trout Steelheader magazine says anyone with an IQ over 50 knows the best economic return on State/Federal salmon dollars comes from ocean sport caught salmon. Therefore, it is not only dumb but outright negligent to allow commercial trollers to take 80% of the fish while forcing recreational fishermen to stay away. They say Sport fishermen will spend \$100 to catch one fish whereas some troll caught coho sold for less than \$1/each last year.

OreAqua spokesman says salmon ranching probably contributes 25% of the world's total harvest.

9.1.4 A group of Portland investors paid \$150,000 for bankrupt Burnt Hill Salmon Ranch. The Operation cost about \$5,000,000 to build.

9.1.21 New England Fish Farming Enterprises, Inc operates a hatchery for Atlantic Salmon in Bristol NH where it raises smolts. It's growing facility is on Plum Island, Mass, where salmon are raised in rubber lined ponds.

Mary Lawson

10 Indian Rock Road

Nashua NH 03063

1-603-889-0837

9.1.22 Ocean Products Inc has 20 net-pens holding 20,000 salmon that will be ready for harvest in the fall of 83. They will weigh about 9 lbs/each.

Art MacKay

Estes Head

Eastport ME 04631

1-207-853-6081

!!!!!!Note!!!! The Canadian operation has since gone bankrupt !!!!!

9.1.24 Some of the OreAqua coho releases went upstream instead of down. Ed Cummings (ODFW) says studies show 90% of the smolt wrong-ways were released after Aug 20 which will not be done this year.

9.1.27 SSRAA Inc Article... contains production statistics.

9.1.64 Aquaculture statistics for USA. Total production estimated to be 400 million lbs/year or about 11% of total edible production. The industry includes about: 1100 catfish; 400 crawfish; 25 salmon; 500 oyster; 30 clam, mussel, abalone; 15 shrimp; and 20 freshwater prawn farms.

9.1.65 Description and objectives of:

National Wildlife Federation

Rudolph Rosen

1412 16th St, NW

Washington DC 20036

1-202-797-6800

9.1.68 A study on USA seafood consumption with the following results:

39% ; buy better fish at specialty markets

44% ; buy fish because it is nutritious

20% ; frozen tastes as good as fresh

47% ; easy to prepare good tasting fish dishes

42% ; buy fish with no small bones

41% ; fish is more economical than beef

78% ; don't like seafood with a strong odor

9.1.74 Oregon Dept of Fish & Wildlife reconsidered its position and reserved 500,000 salmon eggs from OreAqua.. just in case. Eggs are to be used in the Yaquina River project above OreAqua hatchery at Newport OR, and in some inland lakes.

--- Mar 84

9.3.1 OreAqua has its own mail-order business as well as supplying stock for the Walter Cribbens Co. specialty advertising catalog.

9.3.4 Net-pen farming creates serious pollution problems after a few years operation. The accumulation of organic matter under the pens is the cause of the problem. Fish behavior changes and growth rates slow. A majority of farmers who have been in business for several years know the problem.

9.3.13 Anadromous, Inc plans to build a \$3 million facility near Stayton OR for rearing Coho and Chinook smolts. They plan to release 10 million/year from the facility.

9.3.14 OreAqua sold its Coos Bay facility to Anadromous Inc for \$2 million. Sale was prompted by each companies fish continually mixing with the other. OreAqua retains its other sites.

9.3.15 Anadromous Inc had disastrous results with Coos Bay operation in which only 1500 adults AND jacks returned on a release of 1.5 million smolt (0.1%).

9.3.27 Lopez Sound Salmon received permits from Skagit County for a net pen salmon farm south of Anacortes. The product will be Atlantic Salmon from smolt to market size. The pen unit cost \$125,000 and employs 4 people. However, four influential people got a vocal group together and scuttled the project.... unsightly, lowering land values, etc. Lopez Sound has since relocated the operation "north" of Anacortes and away from expensive homes.

Alexander Bill

Lopez Sound Salmon

Route 1, Box 1426

Lopez WA 98261

9.3.33 Up to 25% of Oregon Coho caught by ocean fishermen come from hatchery fish releases.

9.3.38 Swecker's Salmon farm raises about 100,000 lbs/yr of coho salmon. Boned and gutted, with heads and tails on, his fish weigh 7-11 oz. Restaurants serve the smaller size with steak or other seafood, while the larger is served as the main course. He can deliver to San Francisco for \$1.60/1.80 per portion, compared to \$2.40/2.50 for ocean caught salmon. He is experimenting with Atlantic Salmon which he believes can be grown to 5/8 lbs in fresh water.

Swecker's Salmon Farms

Route 2, Box 12AA

Rochester WA 98579

9.3.58 Jon Lindbergh, VP of Dowsea Farms Inc from 1970 to 1983 when he resigned to become an independent consultant. He looks to future of brood stock development of different species despite opposition of commercial fishermen and food processors who don't want any kind of change. He pushes hardest the breeding of fish in their proper environment. He draws corollary to domesticating animals which subsequently caused the human race to move out of caves.

9.3.62 A coalition of disgruntled sports fishermen and charter boat operators will try to put a measure on Nov 84, Oregon ballot to revamp salmon and steelhead production. One purpose of the measure will be to restrict salmon ranching.

9.3.63 On Dec 12, 1983, a petition prohibiting off-season releases of Coho and chinook salmon from private ranches was filed with the Oregon Secretary of State. This would prevent ranchers from releasing fish in the off season and from genetically altering the salmon's life cycle in such a manner as to bring

them back at a different time than natural runs.

--- Apr 84

9.4.2 A complete status report on Silverking Oceanic Farms (California) for the period 1980 thru mid-1983 is contained in this issue.

9.4.12 Oregon Fish and Wildlife Commission has decided NOT to buy salmon eggs from OreAqua based upon ODFW report. Dave Schlip, salmon fisherman and member of the governors task force on salmon, said the report was "an indictment against using their eggs. They are hybrids. The things don't survive very well and they don't grow". [Note] ODFW has since reserved 500,000 OreAqua eggs.

9.4.24 North American Salmon Research Center in New Brunswick, Canada have been studying Atlantic Salmon since 1974 as a sea-ranched pen-reared species.

9.4.26 Fears are growing in the Canadian maritime provinces that the rich Scandinavians are getting ready to buy out the region's dozen fish-farms.

9.4.27 Reports on induced spawning in Atlantic Salmon.

9.4.32 A paper on changing a trout hatchery into an Atlantic salmon hatchery. Notes on stress, self-feeding equipment and its effect on the critters.

V.J. Segarich

US Fish and Wildlife Service

Nashua National Fish Hatchery

Nashua NH 03063

9.4.34 Oregon Dept of Fish/Wildlife report on the effects of two types of food on chinook salmon production.

9.4.54 Jim Youngren spent appx \$250,000 setting up a salmon hatchery in Washington state which can produce 1 million smolts and 3-4 million eggs/yr. He is also working on legislation to legalize "non-profit" salmon ranching in the state.

9.4.55 The collapse of Oregon salmon stocks has led officials to consider looking to private ranches for help. Lee Woodward, a charter fishing operator who has long opposed salmon ranching, is in favor of this.

9.4.57 An Oregon Fish/wildlife report on the straying of ranch bred salmon.

9.4.59 An Oregon Troll fisherman cooperative has initiated a proposal to turn private ocean ranching over to the state. OreAqua says that if this law were to pass it would put them out of business; Anadromous Inc says the concept is "outlandish" and neither they nor the public/legislature will go for it.

9.4.60 State of Washington (Dept Natl Res) wants input from the aquaculture industry on whether they would be interested in reserved areas where they could be guaranteed access to water and/or space.

--- Jun 84

9.6.8 The Norwegian salmon farming industry expanded because of cheap food and little labor. Atlantic salmon in Norway grow to 10-12 lbs in 18 months without early maturation problems.

9.6.9 The Norwegians are selling farmed Atlantic salmon in the USA.

9.6.10 Farmed Atlantic salmon imports to the USA have increased 28 fold thru Sep 82. Fresh fish accounted for most of the 611,000 lbs worth \$2.2 million.

9.6.12 Notes on how Norwegians produce big fish in a hurry.

9.6.24 Notes on Ocean Products Inc operation in Maine and New Brunswick.

9.6.25 Scan-Am Fish farms is starting a salmon fish-farm in Port Townsend WA.

Alf Saetra

Scan-Am Fish Farms

1511 Irondale Road

Hadlock WA 98339

1-206-385-3803

9.6.26 Sea Farm of Norway has received a permit to operate an Atlantic salmon net-pen farm near Port Angeles WA. Jon Lindbergh is consultant. Article has costs on net-pen rearing as well as general info.

9.6.29 SSRAA Inc has money problems. Management tried to increase fisherman assessment from 3% to 6% but the fishermen voted it down.

9.6.51 Salmon ranchers in Oregon may be able to sell smolt to State gov't and

commercial fishermen seem to be in favor of it. Article contains statements on the subject from several influential people, pro and con.

--- Sep 84

9.9.3 Salmon Ranching--Alaska Style Ladd Macaulay(9.4.31), manager of DIPAC gives a slide presentation and spiel on his two operations.

9.9.4 Kraft Inc--getting out of Aquaculture The Sea Farm Group(Norwegian) has bought Shearwater Fish Farming from Kraft. Sea Farm has investments in Scotland, Canada (N. Brunswick), and in the Seattle area (9.6.26). Sea Farm plans to market commercially farmed Atlantic Salmon on the USA west coast in late 1985. Shearwater will act as marketing arm. Sea Farm (France) SNC, a new company, will handle sales of fish farm equipment and know-how.

9.9.12 Doosea Farms Inc, produces more pen reared salmon than any other company in the USA. They expect to harvest 2 million lbs in 1984 and will increase production by another 50% in 1986. They sell to restaurants, markets and supermarkets on the west coast and Atlantic states.

9.9.15 Lopez Sound Salmon has a new site for its net pen farm; Deepwater Bay off Cypress Is., Washington. The farm is capable of 500,000 lbs/yr of salmon.

9.9.20 Oregon-Pacific Salmon Ranch Inc is the new name of the Burnt Hill Salmon Ranch (9.1.14) which went out of business in the summer of 1983. The new operation will release 215,000 smolts in 1984.

9.9.22 Scan-A Fish Farms (9.6.25) plans to raise Atlantic Salmon in Puget Sound. They figure each pen will produce 50 tons/yr for an annual gross of roughly \$1Mil/yr. Alf Saetre, principal, will eventually produce his own feed. He says Puget Sound could produce as much salmon as Norway or about 25,000 metric tons.

9.9.25 Swecker Salmon Farm Inc (9.3.38) is for sale-- or will take partners and either expand or become a fingerling production unit. Historically, it has produced and marketed pan size coho, smoked salmon and salmon smolts. In the northwest, large contracts are being let for Atlantic salmon fingerlings of which nearly 50% will go to this company in 1984.

+++Dan or Debby Swecker, 10420 173rd Ave SW, Rochester, WA 98579
(1-206-273-5890)

9.9.54 NMFS in Manchester, WA, has been culturing Atlantic salmon for six years. They are going to produce 5 Mil eggs/yr for restocking northeast USA rivers.

9.9.55 Article gives some wholesale import prices(includes cost of insurance & freight) for farmed Atlantic salmon in France, Germany, and the U.K.

9.12.4 72 Japanese hatcheries are putting out 1.5 billion salmon fry into the ocean each year with an economic return estimated to be \$400 million. The Russians release 2 billion fry/year now and plan 5 billion by year 2000. The whole west coast of USA and Canada put out 350 million.

9.12.5 Fundacion Chile purchased Doosea Farms salmon operation in that country. They ranch Chinook and Coho and are going into net-pen farming.

9.12.10 Anadromous Inc had bad returns in 1984 and won't get enough fish to replace brood stock this year.

9.12.25 Ore-aqua will take over the Doosea Farms operation at Florence, OR.

9.12.27 Puget Sound Aquaculture has applied for Corps of Engineers permit for fish pens off Vashon Island.

9.12.65 In Oregon, a proposal has been introduced to allow commercial salmon fishermen to target catches of hatchery reared fish, including those from private ranches.

9.12.66 The beauty of raising Atlantic Salmon to maturity in pens is that it might take pressure off the high seas netting of salmon, thus eventually allowing more salmon to return to streams for spawning and providing a better sport fishery.

9.12.67 *Offshore commercially caught salmon landed in Oregon totaled \$2.3 million for 390,000 fish. Each fish caught by a sportsman yielded approx 20 times its commercial market value to the economy of the state. This puts down the Commercial fisherman fallacy that his type of fishing means jobs, and that sport fishing does not. Commercial fishing is not an economic factor in the

state of Oregon." A letter to the Sunday Oregonian.

ADSTATES

***State of California

(916) 355-7095: Steve Taylor; contacted Fish & Game 6/22/84

Per Steve Taylor - There is only one private salmon hatchery authorized by law within the state:

Silver King Oceanic Farms
(408) 438-7721; Roger Haas

This operation is considered experimental by the legislature and will remain so until 1986 at which time the whole subject will come up for re-evaluation. This is a Ranching operation. It handles smolt to mature critters and can sell excess production for profit. The whole concept of sea-ranching is violently opposed by most of the industry, the Trollers in particular. They see it as a very thinly disguised way of eliminating them entirely from their traditional occupations; as another instance of direct competition from State Agencies; or as the state taking unfair advantage of private industry. There is now a move afoot to declare a moratorium on State run hatchery construction because of this competitive edge.

Industry might have a different view of the ranching concept if someone was making money at it. So far, no one is making a profit. (It is not clear how anyone else could make a profit when only one hatchery can legally operate in the state. It is also unclear why the Trollers should object to ranching when they have access to the fish before the hatchery does).

The commercial salmon fishery (trolling) is primarily for Coho with a few Chinook. The industry is currently in bad shape due to El Nino as well as a general decline of the native wild stocks. Aquaculture in California consists mainly in raising fish other than salmon for the market; Oysters, trout, catfish are the big items.

He is sending regulations/statutes and his annual report to us. The Report is made up by the state from info supplied by the private hatchery.

*** Per Curt Kerns; This operation has been moved about over the state from creek to creek at least four times and whoever is bankrolling it must have... This has never been an effective operation during all the years in existence. The operators have spent a lot of money and a lot of motion and have produced almost nothing.

*** ...are Digest, Apr 84, 9.4.2 Contains the complete status report for Silver King Oceanic Farms for the period of 1980 thru mid-83. Report consists of Introduction, History, Operations, Planting, Returns, Tagging, Conc. Lions and Recommendations.

###State of Maine

Fish and Game (207) 289-3651; Dave Lock; State Hatcheries, Contact 6/18/84
There are two operations in the state at present:

Sea Run, Inc

RFD 2, Box 1052

Kennebunkport ME 04046

(207) 967-4026; Dr Evelyn Sawyer and Phillip Sawyer, owners

Per Dave Lock; She is doing a pilot study on introduction of Pacific stocks into eastern waters (setting up brood stocks from eggs obtained from Pacific sources). Brood stocks are Pink & Chum; less competitive with Atlantic salmon etc, which are almost extinct in Maine waters.

Per Ladd McCauley; she bought eggs from Sheldon Jackson college in Sitka two years in a row and could not buy from him because of objections of FRED Div of ADF&G. She had a Pink return but fish returned to the wrong place.

#Note# this not unusual for Pinks... they stray all over when they return.

Per Aquaculture Digest, Jun 84, 9.6.27 Sea Run Inc received a National Science foundation award of \$28,647 for experimental Pink & Chum ranch in the state. This operation will transplant stocks from Hokkaido, Japan, and USSR areas which are similar to the Maine coast, as well as eastern Pacific stocks (Alaska, Washington, Oregon, etc). The overall objective is to compare returns of western Pacific and eastern Pacific (control) salmon stocks in the western Atlantic. Comparison is based upon western Pacific stocks which move eastward into the Pacific before maturing and eastern Pacific stocks which move westward into the Pacific before maturing. Phase I objectives are to locate, evaluate, and obtain eggs from eastern Pacific sources.

Ocean Products

(207) 853-6081; Peter Pierce

Per Dave Lock; this is the same company as the New Brunswick, Canada company; they raise Atlantic salmon using pen-rearing operation.

#Note# as of Aug 84, the Canadian side of this operation is bankrupt and all assets have been turned over to Dept of Fisheries. Problem was caused by seals getting into the fish cages for a huge loss. Don MacKay is out and Pierce is the CEO and Chmn/Board. MacKay is trying to buy up assets from Gov't for reasons of his own. He used to own the whole company when it was Research.

###State of Oregon

(503) 229-5551; Ed Cummings, Fish Biologist, contact 6/21/84

He will send Rules/Regs.. they have been changed but will send us old and new when available.

Oregon patterned its operation after Calif, then Calif re-did its program after Oregon got its program going. Oregon still considers Aquaculture as an experimental program which has a long way to go before it is proven.

Aquaculture, in general, is not very well received by those involved in the industry. That is, the fishermen view it two ways: as an answer to low stocks and short seasons, or as replacing them altogether. They see the advent of big corporations as another step in the elimination of the small operator from the fishing industry. This emotional reaction coincides with the bad conditions in the commercial fishing industry as a whole.

The present conditions (El Nino, etc) and its effect on the salmon fishing industry are disastrous. sub-tropical fish are showing up off the coasts of Oregon, Calif and Wash. Feed fish have virtually disappeared from offshore and consequently all salmon stocks are at disaster levels.

The conditions, combined with Alaska and BC interception of Oregon Coho and Chinook stocks, have almost wiped out the fishing industry in the state. These are the only two species in their salmon fishery.

Note a small, tagged Chinook caught locally by G. Doss was brood stock of 1980, 27 inches, 12 lbs, from Bonneville, Oregon, hatchery.

Per Fishing News International, Jun 84

the 1983 session. Its activities will be funded by a percentage of every pound of salmon sold.

Per Aquaculture Digest, Jan 84

A list of private salmon ranches, their locations, and species raised are shown in 9.1.60.

State of Washington

(206) 753-1873; Bill James; Aquaculture, contact 6/19/84

He is sending info on the states position and regulation of the industry as well as literature from some of the companies engaged in the business. He is the only person in the state government concerned with aquaculture. He keeps in touch with the industry more so than he regulates it.

His comments: The USA is currently importing fish from Chile, Japan, Scotland, Norway to name a few countries. These countries, Norway in particular, are producing a very high quality product, year round, and in large quantities. Norway has the winter and gourmet market completely to itself on the east coast.

They ship large quantities of salmon by air freight to the eastern USA year round. The companies get their order and ship within 24 hours. They do not pre-package the fish and wait for the order; they receive the order before the fish is removed from the water. Their Atlantic salmon sells in New York for \$00/lb during the winter months.

Salmon hatcheries and fish farming has really taken hold in the state the last five years. There will not be much of a fly-by-night operation in the industry due to the long lead time and the large investment required to produce anything of consequence in this type of industry. The state does not have a great deal of policing to do with the farmers themselves because of their own independent associations. The Associations police themselves and are very quick to call attention to anything that is not exactly right. They are very sensitive to public opinion and product confidence and do not want any problems such as happened in Alaska with the canned Pinks.

The Boldt Decision essentially killed the commercial salmon fishing industry in the state. Current investment in commercial fishing gear by residents is nonexistent. Fishery stocks are not very high right now and not likely to get better in the near future. This is partly due to lack of public interest, i.e., since the Indians are entitled to take half of everything, and since their attempts at their half has in effect eliminated those who would normally take the other half, there is little public interest in building hatcheries solely for the Indians with public money.

The demise of the commercial fishing industry paved the way for fish farming to come into being. This has in turn generated a great deal of outside investment in this particular industry within the state. The Norwegians have a new operation starting up at Port Angeles, for example.

Quality of product is the single greatest selling point used by the foreigners in their USA marketing efforts. They are dealing only with a fresh ocean product at point of sale.

Certain Indian tribes have started their own hatcheries and are moving into the business on their own whether in fish-farming or sea-ranching remains to be seen. The Indians are not bound by the same laws as the public where sea ranching is concerned and they may eventually move into this area as well. **Note** in the State of Washington it is against the law to profit from sea ranching... etc

Per Seafood Leader Magazine, Spring 84, Atlantic Salmon in the Pacific
Scan-Am Fish Farms has an operation in Hadlock WA and are now setting up another operation in Port Angeles. They are Norwegian company who pen-rear Atlantic Salmon.

Dorsea Farms, a subsidiary of Campbell Soups, has been pen-rearing pan size coho for the last ten years in Puget Sound. In the winter of 83/84, they announced the introduction of pan-size coho in four supermarket chains across New York state. While the small salmon have always had a strong following in gourmet restaurants, supermarket chains are a new and promising market for the company. Brisk sales were reported at \$5.69/lb compared to Norwegian salmon steaks just down the aisle at \$8.99/lb.

There are currently six independent fish-farm operations in the State of Washington primarily located in the Chehalis/Rochester area. Each of these is typically a one family farm on 20 acres, with a total of 10 ponds with a containment of about 500,000 gallons. The water flow year round is about 2000 gal/min of 50 degree clear spring water in which Coho are raised. The advantage of raising Coho in fresh water is they are less susceptible to disease; the disadvantage is the water has to be at just the right temperature to do it. This reduces the possibility of developing a very large industry. The main reason the farms are located in this area is the water table and temperature are perfect.

These companies harvest fish only when there is an order. Orders come mostly from upscale restaurants all over the country via Dory Seafoods, which acts as their marketing organization. From order to product delivery requires 24 hours.

***Salmon/Trout Advisory Service, Jan 85

Richard E. Noble, President

PO Box 6232

Olympia WA 98502

(206) 943-4676

Has been successfully associated with aquaculture since 1952. Has very impressive credentials in the field; introduced Pacific Salmon into Chile; introduced Coho and Chinook into Michigan; Consultant to Washington Indian tribes and developed their hatchery programs; Consultant to Canadian Gov't and is developing two major hatcheries/enhancement programs; Authored / initiated Washington State Admin Code(Regulatory Law) for Fisheries; Faculty member of Univ of Washington for Fisheries and Salmon culture curriculum.

Europe & Japan

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***NORWAY

The Norwegians got into commercial salmon farming when they found they had a very large, over capitalized, fishing fleet at the same time they had a great number of fishermen out of work. Fish farming was started as a local measure to alleviate economic hardship and unemployment in the fishing towns along the coast. The success of this programme is the most significant event in the history of European aquaculture and has been the industry's most visible commercial success.

The success of saltwater salmon aquaculture has attracted many former fishermen who are disillusioned with declining fishery catches to apply for licenses for salmon or trout farms. It is estimated that 20 to 30 percent of the current license holders are former fishermen, many of whom live in isolated communities along the western coast of Norway. The Norwegian Government encourages aquaculture in these sparsely populated regions for both social and economic reasons and view salmon farming as one of the best commercial activities available to the residents of these coastal communities.

Their fish farming programme began in the mid to late 1960's and applied technology developed for raising trout to the raising of Atlantic Salmon. These modern methods have enabled the aquaculturists to get into the business with relatively small investments and then to gradually expand their operation as they become more experienced. The Government assists the small operators with guaranteed loans and training in the operation of their fish-farms. In fact, the Government has restricted salmon investments by large companies and has also imposed a size restriction on the individual farms themselves. This was done to limit the industry primarily to small, owner operated farms. As of 1984, there are 562 of these small farms along the coast with the northernmost being above the Arctic Circle at Finnmark.

Since 1973, Norwegian law restricts the maximum size of a salmon farm to a floating net pen capacity of 8000 cubic meters. It is estimated that a farm of this size will produce about 60 metric tonnes (approximately 133,000 pounds) of salmon annually. However, beginning farmers are not allowed this large an operation, instead they must start with a size of 5000 cubic meters and operate these successfully for at least three years before they will be allowed to apply for permission to increase their capacity to 8000 cubic meters.

Pen rearing or fish farming is the undoubted way of the future. It is cost effective, the problems are recognizable and already defined, a vast body of information has been gathered by both scientists and growers, and there is already a brisk demand for the product. It is the accepted method of rearing salmon in Norway and from it is produced some of the highest quality fish available anywhere. Due to it's high quality and year round availability, the Norwegians have the gourmet and off season salmon market almost completely to themselves in the east coast cities of the United States.

Norway ships large quantities of fresh salmon by Scandinavian Airlines System air freight to the eastern United States year round and are targeting the existing market with a much larger export volume in the future. The success of these exports is due to a number of factors. The salmon is of very high quality; because the fish are farmed and not caught in the wild, fresh shipments can be guaranteed at any time of the year; and they are especially valued at those times when the catch of wild salmon is down. The high quality and year round availability of the product makes it especially valuable to such specialized customers as upscale restaurants, hotels, and gourmet stores.

The United States exports much more salmon than Norway and supplies most of the salmon for the it's domestic market but it faces strong competition

from the Norwegians for the "top-of-the-line" salmon. Since the USA produced Pacific salmon is caught only in the summer, it is available fresh for only a short time, and therefore most USA salmon is sold in frozen or canned form. The Norwegian product can be shipped fresh year-round and is exported to the USA primarily in the winter and spring. The Norwegian product is also the Atlantic variety which many consumers prefer to the stronger flavored Pacific variety. The export potential of this product is evidenced by the fact that it is currently being sold in Seattle, Washington, one of the centers of the USA salmon industry.

###Scotland

More than one third of the Atlantic Salmon marketed in the world comes from pen-farm operations. Most of this comes from Norway but Scottish production has increased to significant proportions over the past few years. There are now a number of small farms and one large operation located on the west coast of Scotland. McConnell Salmon is a large salmon farming operation which also supplies smolts to other fish-farmers in the Western Islands and the mainland.

Recently a company was formed to market salmon raised on the Islands of Lewis and Harris. These islands are located off the west coast of Scotland and are part of a previously large fishing community. The new company is 51% Norwegian owned and will specifically deal in locally pen-raised Atlantic Salmon. The company's encouragement of local farmers is an important part of their Integrated Development Programme (IDP) backing fish farming in the Western Isles. The IDP helps the small independent salmon farmer get started with training and finance.

Since 1980 salmon farming in Scotland has increased significantly. In 1983 there were 41 freshwater and 62 seawater salmon growing sites in Scotland. These sites produced yearly Atlantic salmon totals of 598 tonnes in 1980, 1133 tonnes in 1981, 2152 tonnes in 1982, and 2536 tonnes in 1983. Their projection is for 4000 tonnes in 1984 and 7000 tonnes in 1985. These farms will market their fish thru the existing Norwegian network of dealers in Europe and the USA.

###Iceland

During the eleven centuries that people have lived in Iceland, fish have been the basis of their survival and of their economy. This has led them to the development of a farsighted, successful system for the management of the islands stocks of salmon and trout. During the past century, while catches of Atlantic salmon were steadily declining in western Europe and North America, they have been increasing in Iceland.

The Atlantic salmon is particularly suited to ocean ranching due to its precise homing to its place of release and for its growth statistics: from 1 to 6 lbs in one year and to 13 lbs in two. Where return rates of smolt are high, salmon can be ranched profitably. The first smolts from a government owned hatchery were released in 1963 into marginal streams where the return of two year smolts had exceeded 8% by 1966. This was the foundation of salmon ranching in Iceland.

Over the years, it has become increasingly clear that Icelandic salmon stocks enjoy a much higher rate of return than in any other Atlantic country. Oceanic survival to one year has been determined as 20% in a salmon stream and 10-15% in those that were hatchery reared. The three factors responsible for this are: 1) prohibition on commercial fishing for salmon at sea, 2) high proportion of one winter fish (grilse), and 3) a great abundance of food organisms in the waters around Iceland.

little success in Iceland. This is in a large part due to the absence of sheltered sites for the cages. Attempts at cage rearing were made in what appeared to be good sites but severe wind and wave action and near freezing sea temperatures resulted in damage to the cages and death of the fish.

At present, a satisfactory policy of foreign investment with two large firms, Morice and Meyerhauser in particular, show promise in joint venture fish farming operations. These operations and other such arrangements are always on a shareholder basis with Iceland having majority ownership. There is great promise in these ventures; the water quality and quantity is excellent and cheap, electricity is cheap and there is very good fish disease service available.

There is probably no other salmon producing country with such good promise of success as can be found in Iceland. Its thermal springs and reliable supply of uncontaminated ground water may well be unique and the absence of commercial netting in the adjacent seas guarantees the maximum return of ocean ranched salmon. These are strong reasons to view this industry as having a good future in this country.

###Faroe Islands

Fish farmers of the Faroe Islands are on schedule to produce 600 tons of salmon in 1984, 1400 tons in 1985 with 3000 tons forecast for 1986. Their long range plan calls for the harvesting of 15,000 tons by 1990. These fish will weigh approximately 10 pounds each and are the product of the Islands new aquaculture industry. Current production restraints are due to inadequate supplies of smolt to stock the pens.

From four salmon cage-farms a few years ago the industry has grown to six smolt rearing stations and 30 cage rearing sites. The islands fjords are well suited to cage rearing salmon; they are deep, well sheltered, winter water temperature is above freezing, fresh water quality is good, and there is very little tide. Other advantages are that the natural environment inhibits certain types of diseases and parasitic infestation.

One island company started fish farming in 1982 with 13,000 fish and are now rearing 41,000 Atlantic salmon and trout in their cages. They plan to increase from their present 9 cages to 20 cages by 1986 and produce about 150 tons per year. This increase in production will be aided by the recent startup of a fish feed business in the islands. Their fish have already found good market acceptance in Europe.

Ocean ranching is also being developed and there are many good sites for the construction of release and reception sites. Released smolts are able to take advantage of the rich feeding grounds nearby which will promote rapid growth and will considerably reduce mortality. Returns have already been achieved. A smolt rearing facility which will supply raw materials to the sea pen operation has recently been completed but is not yet in full production.

###Japan

Japan obtains salmon from four sources: a coastal trap-net fishery based on returns of hatchery releases, a highseas catch, imports, and cage culture. Salmon usage has more than doubled within the years 1974 to 1983. An increased demand for salmon, a decreased highseas catch, and the desire to reduce imports has caused the Japanese Government to expand their salmon hatchery program. Hatchery produced returns have grown steadily and are now Japan's most important source of salmon. The Japanese Fisheries Agency estimates that hatchery produced salmon accounted for 45% of Japan's salmon supply in 1983.

greatly during the last ten years because of growing demand and a decreasing highseas catch. Before the establishment of the 200 mile fishing zones, Japan averaged 10,000 metric tons annually of imported salmon. Since then Japan has increasingly relied on U.S. imports to fill domestic demand. Their imports were over 96,000 metric tons in 1983, but are expected to be lower in 1984 because of an over-supply of salmon in Japan. Japan's hatchery programs, however, cannot completely replace imports at this time. Chum is the main species in their hatchery program while most of their imported salmon is sockeye.

Japan has a long history of raising salmon fry in hatcheries. Their coastal catch of hatchery produced salmon returning from the high seas increased over 200% during the years 1974 to 1983. The increased returns were especially pronounced during the early 1980s and were the result of a five year salmon culture program sponsored by the Japanese government. This program was carried out by over 250 Government and private hatcheries located on Hokkaido and Honshu and has been exceptionally successful in it's returns.

Japan released approximately 2 billion salmon fry in 1983 most of which were chum fry. There were also released small amounts of pink, cherry, and sockeye during the same year. From this the coastal fishermen expect to harvest over 38 million fish when the mature salmon return in 1987. If these projected hatchery returns are accurate and salmon imports continue to increase, Japan Fishery officials believe that salmon supplies may exceed demand resulting in lower prices. They are therefore considering a hatchery enhancement program for fry of commercially more high value species such as cherry and sockeye salmon.

Financial problems are affecting plans for a new five year plan for salmon hatcheries. The Finance Ministry does not wish to continue assuming the cost of financing the hatchery program and wants the coastal trap-net fishermen to contribute more to the program since they benefit most from the salmon returns. In 1983 the fishermen contributed approximately 20% of the cost of the hatchery enhancement program with the Government supplying the remainder.

Japanese fish farmers (cage-culture) raise only coho (silver) salmon in ocean cages. Sea farming of salmon began in 1973 with the importation of one million coho salmon eggs from the USA for experimental purposes. These pen-farming operations were switched from fresh to salt water in 1975 because the salmon showed too slow a growth rate in fresh water.

The Japanese production of cage cultured coho salmon increased from 72 to 2,900 metric tons during the years 1978 to 1983. As in previous years, the entire production was consumed domestically; none was exported. Japan cage farms expect to harvest 4,500 metric tons of salmon in 1984 and 8,000 metric tons by 1990. This is noteworthy due to the Japanese Government policy on cage farms; they do not offer financial incentives to salmon farmers, as they do to private hatchery operators, and seem to prefer to let the marketplace decide the success or failure of this type of aquaculture.

IN THE

BY

_____ BILL NO. _____

IN THE LEGISLATURE OF THE STATE OF ALASKA
FIFTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act authorizing and encouraging
aquatic farming and providing an
effective date."

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

* Section 1. FINDINGS AND PURPOSES. The legislature
finds and declares that

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

(2) Many areas of the state are ecologically suited for
aquatic farming development;

(3) Aquatic farming would complement and enhance the
variety and quality of Alaska seafood and aquatic products, and
would thus benefit Alaska's economy as a whole;

(4) The principal responsibility for development of
aquatic farming in the state rests with the private sector.
Existing constraints on the private sector tend to be
administrative rather than scientific or technological. The
proper role of government is to ease those constraints and to
provide encouragement and support through programs and services
that cannot reasonably be expected from private sources; and

(5) It is the policy of this state to encourage the
establishment and growth of an aquatic farming industry.

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

CHAPTER 94. AQUATIC FARMING

Sec. 08.94.010. AQUATIC FARM AND HATCHERY PERMITS; LIMITATION ON RELEASE. (a) No person may conduct either of the following activities without a permit from the commissioner:

(1) the construction or operation of an aquatic farm;
or

(2) the construction and operation of a hatchery for the purpose of supplying aquatic plants and animals to an aquatic farm.

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

(c) No salmon, steelhead or other trout may be released from a hatchery or aquatic farm permitted under this section into the public waters of the state without authorization from the Department of Fish and Game.

(d) An application fee of \$100 must accompany the application for a permit under this section.

Sec. 08.94.020. REGULATIONS; OTHER AUTHORITY. (a) The commissioner may adopt regulations necessary to implement this chapter. The commissioner shall compile and annually report aquatic farm and hatchery production statistics.

(b) Except as expressly provided in AS 16.05.822, the Board of Fisheries may not adopt any regulations, or take any action regarding either the issuance, denial or conditioning of any permit under AS 08.94.010 or AS 16.05.821; the construction or operation of any farm or hatchery permitted under

AS 08.94.010; or a permitted harvest under AS 16.05.821. Regulations or orders adopted by the Board of Fisheries under AS 16.05.251 do not apply to a permitted harvest under AS 16.05.821.

Sec. 08.94.030. DISEASE CONTROL AND INSPECTION. (a) The Department of Fish and Game may order the destruction and disposal of any diseased stock or aquatic farm products when that department finds it necessary to protect natural stocks. A permit holder under AS 08.94.010 or AS 16.05.821 shall immediately report any outbreak or incidence of disease to the Department of Fish and Game.

(b) A permittee under AS 08.94.010 shall permit the Department of Fish and Game to inspect the farm or hatchery during operating hours and upon reasonable notice. The cost of inspection will be borne by that department.

(c) The Department of Fish and Game shall develop a disease management and control program for aquatic farms and hatcheries.

(d) The Department of Fish and Game shall, to the extent feasible, provide permittees with disease diagnostic and management services, and may enter into agreements with other state or federal agencies, or the private sector, to provide those services.

Sec. 08.94.040. PERMIT CONDITIONS; RESTRICTION ON TRANSFER; ANNUAL RENEWAL. (a) The Commissioner, after consulting with the commissioners of fish and game, and environmental conservation may attach conditions to a permit under AS 08.94.010 that are necessary to protect the public health or natural stocks.

(b) A private hatchery permitted under AS 08.94.010 may sell or transfer stock from the hatchery only to an aquatic farm or other hatchery permitted under AS 08.94.010.

(c) No stock may be transported to or from an aquatic farm or hatchery permitted under AS 08.94.010 without first submitting a notice of transfer to the Commissioner. The notice must be accompanied by a health inspection report from the Department of Fish and Game, or from a disease diagnostician approved by that department. The notice of transfer must be submitted no later than 30 days before the proposed date of transfer. The Department of Fish and Game may restrict or disapprove the transfer if it finds that the transfer would either present a substantial risk of spreading disease or, in the case of a transfer from a hatchery, would significantly impair the production needs of that hatchery.

(d) A permit issued under AS 08.94.010 must be renewed annually. The renewal application must be submitted to the Commissioner no later than 30 days prior to the expiration of the permit. Each renewal application must be accompanied by a health inspection report from the Department of Fish and Game, or from a fish disease diagnostician approved by that department. In the renewal, the commissioner may impose additional conditions necessary to control and manage disease.

Sec. 08.94.070. LIMITATIONS ON SALE. (a) No person may sell, transfer or offer to sell any aquatic farm product unless that product was grown or propagated on a farm permitted under AS 08.94.010, and that permit was in effect at the time of the sale, transfer or offer.

(b) No person may knowingly purchase, receive or offer to purchase or receive any aquatic farm product that was not grown

or propagated from a farm having a valid permit under AS 08.94.010 at the time of the purchase, receipt or offer.

(c) The sale of any aquatic farm product must be evidenced by a bill of sale. A summary of all bills of sale specifying quantities, products and sales prices must be submitted to the commissioner on a quarterly basis. Quarterly summaries submitted under this subsection, and information contained in the summary when presented in a manner so as to enable identification of the seller, are confidential and may not be released by the commissioner. This subsection does not prevent the commissioner from releasing:

(1) aggregated sales information that does not enable identification of a particular seller or the substance of that seller's transactions; or

(2) the quarterly summary:

(A) to the Department of Revenue to assist that department in carrying out its statutory responsibilities on the condition that the confidentiality required by this subsection will be accorded by that department;

(B) the municipality with jurisdiction over the sale for the purpose of verifying applicable taxes due on the sale, on the condition that the confidentiality required by this subsection will be accorded by that municipality;

(C) pursuant to court order; or

(D) to the seller upon the seller's written request.

Sec. 08.94.060. PENALTY FOR VIOLATION. A person who violates a provision of this chapter, a regulation adopted under this chapter, or a term or condition of a permit issued under AS 08.94.010, is guilty of a class B misdemeanor.

Sec. 08.94.100. DEFINITIONS. In this chapter,

(1) "Aquatic farm" means a facility which grows, farms, or cultivates aquatic farm products within either artificially enclosed marine or fresh waters, or within controlled waters for immobile species. The term does not include releasing fish or shellfish into the waters of the state and their subsequent recapture in the practice known as ocean ranching;

(2) "Aquatic farm products" include any form of aquatic plants and animals, and fish parts that are propagated, farmed, or cultivated in an aquatic farm and that are sold or offered for consumption;

(3) "Commissioner" means the commissioner of the Alaska Department of Commerce and Economic Development;

(4) "Hatchery" means a facility for the artificial incubation of stock, including rearing of juvenile aquatic plant or animals;

(5) "Stock" includes any form of live aquatic plants and animals that are acquired, collected, possessed or intended for use by a hatchery or aquatic farm permitted under AS 16.12.010 for the purpose of further growth or propagation.

* Section 3. AS 03.05.020(a) is amended by adding a new paragraph to read:

(6) monitor aquatic farms and hatcheries permitted under AS 08.94.010 for the possible presence of paralytic shellfish poisoning.

* Section 4. AS 03.05.026(d) is amended to read:

(d) The commissioner of environmental conservation, after consultation with the Alaska Seafood Marketing Institute and representatives of the aquatic farming industry, shall develop product specifications and standards for the use of the "premium

quality" seal on Alaska seafood products. The commissioner shall authorize a seafood processor to display a "premium quality" seal on products that quality for the seal if the processor meets the requirements of regulations adopted under this section and AS 03.05.025, and has been issued a permit to operate under AS 03.05.025. The commissioner shall authorize an aquatic farm permitted under AS 08.94.010 to display a "premium quality" seal on aquatic farm products if the aquatic farm meets the requirements of regulations developed under this section in consultation with the aquatic farming industry and the requirements of AS 08.94.

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

(f) The authority of the Board of Fisheries under this section is subject to the limitations of AS 08.94.020.

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

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

* Section 7. AS 16.05.340(a)(14) is amended to read:

(14) [FISH OR] game farming biennial licenses100

* Section ⁸~~7~~. AS 16.05 is amended by adding new sections to read:

Sec. 16.05.821. AQUATIC FARM STOCK ACQUISITION PERMITS.

(a) No person may acquire aquatic plants or animals from wild stock in the state for the purpose of supplying stock to an

aquatic farm or hatchery permitted under AS 08.94.010 without a permit from the commissioner. An application fee of \$100 must accompany the permit application.

(b) A permit issued under this section authorizes the permittee, subject to the conditions of AS 08.94, to harvest those species and quantities of wild stock in the state specified in the permit for the purpose of supplying stock to an aquatic farm or hatchery permitted under AS 08.94.010.

(c) The commissioner, in consultation with the commissioner of commerce and economic development, may attach conditions to a permit issued under this section, including conditions relating to the time, place, and manner of harvest. Size, gear, place, time, licensing and other limitations applicable to sport, commercial or subsistence harvest of aquatic plants and animals do not apply to a permitted harvest under this section.

(d) The commissioner shall forward a copy of any permit application under this section to the commissioner of commerce and economic development. The commissioner's decision must be made within 30 days of receipt of the application.

(e) The commissioner may deny or restrict a permit under this section upon finding that the proposed harvest will substantially impair sustained yield of the species. The commissioner's decision must contain the factual basis for that finding and must also explain why the substantial impairment could not have been reasonably foreseen and avoided through available management options. If the commissioner is unable to find substantial impairment, the permit application must be granted if any of the following circumstances exist:

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

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

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

(4) commercial harvest of the species sought is neither limited under AS 16.43 nor fully developed.

(f) When aquatic plants or animals are acquired under a permit issued under this section, they become the property of the permittee and are no longer a public or common resource.

(g) The commissioner shall make stock available for aquatic farming purposes.

Sec. 16.05.822. IMPORTATION OF AQUATIC PLANTS OR ANIMALS FOR STOCK. No person may import an aquatic plant or animal into the state for the purpose of supplying stock to an aquatic farm or hatchery unless authorized by a permit or regulation of the Board of Fisheries.

Section 16.05.823. PENALTIES FOR VIOLATION. A person who violates a provision of AS 16.05.821 - 16.05.822, a regulation adopted under AS 16.05.821 - 16.05.822, or a term or condition of a permit issued under AS 16.05.821, is guilty of a Class B misdemeanor.

* Section 9. AS 16.05.920(a) is amended to read:

(a) Unless permitted by this chapter or AS 08.94, or by regulation adopted under this chapter or AS 08.94, a person may not take, possess, transport, sell, offer to sell, purchase, or offer to purchase fish, game or marine aquatic plants, or any part of fish, game or aquatic plants, or a nest or egg of fish or game.

* Section 10. AS 16.05.930 is amended by adding a new subsection to read:

(g) AS 16.05.330 - 16.05.720 do not apply to any activity authorized by a permit issued under AS 08.94.010 or AS 16.05.821, or to any person or vessel employed in pursuit of an activity permitted under AS 08.94.010 or AS 16.05.821.

* Section 11. AS 16.10 is amended by adding a new section to read:

Sec. 16.10.269. LIMITATIONS. AS 16.10.265 - 16.10.267 do not apply to the purchase or sale of aquatic farm products from a permittee under AS 08.94.010 or stock from a permittee under AS 16.05.821.

* Section 12. AS 16.10.380(b) is amended to read:

(b) In this section "user group" includes, but is not limited to, sport fishermen, processors, commercial fishermen, aquatic farmers, subsistence fishermen, and representatives of local communities.

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

(h) AS 16.10.400 - 16.10.475 do not apply to the construction or operation of a private hatchery permitted under AS 08.94.010.

* Section 14. AS 16.10.420(3) is amended to read:

(3) no salmon eggs or resulting fry, sold to a permit holder by the state or by another party approved by the department, may be resold or otherwise transferred to another person, unless that person holds a permit under AS 08.94.010;

* Section 15. AS 16.10.420(7) is amended to read:

(7) surplus eggs from salmon returning to the hatchery be made available for sale first to the department and then, after inspection and approval by the department, to operators of other hatcheries authorized by permit to operate under AS 16.10.400 - 16.10.470, or AS 08.94.010;

* Section 16. AS 16.10.450 is amended to read:

Sec. 16.10.450. SALE OF SALMON AND SALMON EGGS BY HATCHERY. A hatchery operator who sells salmon returning from the natural waters of the state, or sells salmon eggs to another hatchery operating under AS 16.10.400 - 16.10.470 or AS 08.94.010, after utilizing the funds for reasonable operating costs, including debt retirement, expanding its facilities, salmon rehabilitation projects, fisheries research, or for costs of operating the qualified regional association for the area in which the hatchery is located, shall expend the remaining funds on other fisheries activities of the qualified regional association. Fish returning to hatcheries and sold for human consumption shall be of comparable quality to fish harvested by commercial fisheries in the area, and shall be sold at prices commensurate with the current market.

* Section 17. AS 16.43.140 is amended by adding a new subsection to read:

(d) This chapter does not apply to activities authorized by permit under AS 08.94.010 or AS 16.05.821.

* Section 18. AS 16.51.180(5) is amended to read:

(5) "seafood" means finfish, shellfish, and by-products, including but not limited to salmon, halibut, herring, flounder, crab, clam, cod, shrimp, and pollock. The terms does not

include aquatic farm products as that term is defined in
AS 08.94.100(2);

* Sec. 19. AS 16.05.940(12) is repealed.

* Sec. 20. This Act takes effect immediately in accordance
with AS 01.10.070(c).

THE FOLLOWING DOCUMENT HAS
NOT BEEN FILMED BUT IS
AVAILABLE IN THE ORIGINAL
FILE

**STANDING SENATE COMMITTEE ON
FISHERIES**

THE MARKETING OF FISH IN CANADA

FACT-FINDING MISSION TO ALASKA (U.S.A.)



PROGRAM

JUNEAU (ALASKA, U.S.A.)

7 TO 11 FEBRUARY 1987