

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE 8672

1884 SCOMM 75: MARICULTURE (FISH FARMING), 1987-1990

prohibited from selling eggs, fry, or smolt except to another PNP hatchery or to the state. therefore, a change in the law would be required in order to extend the sales opportunity to the private sector. Once the private for-profit salmon farming industry begins to evolve, there will be a demand to have private for-profit freshwater hatcheries to produce smolts for the mariculture industry. These will come from either eggs taken by permit from natural salmon stocks, or by purchase of eggs from public or PNP hatcheries, or eventually from private broodstock produced from the saltwater farming operations. The latter will represent the preferred source of eggs because of the need to develop domesticated broodstock. This will take at least one generation, 4-5 years for chinook salmon to provide eggs, but generally three generations to initiate change towards domestication. Therefore, in the interim, the availability of eggs for salmon farmers with freshwater hatcheries or smolts for those with only saltwater farms will need to be addressed.

On the one hand, sale of eggs or smolts could assist in the financial health of the salmon ocean ranching program which benefits the common property fishery. This dilemma represents the heart of the public policy debate; specifically, the allocation of resources from an established common property fishery to a proposed private for-profit industry. This issue clearly belongs in the legislative arena, but it needs to be resolved so that agencies such as ADF&G know how to allocate eggs, fry, or smolts to the potentially new salmon farming industry.

SUMMARY:

The availability of eggs, fry and smolts for the salmon farming industry is an allocation decision, and is central to the public policy debate regarding allocation of resources from the common property fishery to the private for-profit farmer. Under the current law, the Board of Fisheries would probably make the determination of whether or not eggs, fry, or smolts are surplus. If the Legislature legalizes salmon farming and the Board of Fisheries determines that a surplus exists, then eggs, fry or smolts could be sold to potential salmon farmers by the commissioner of ADF&G.

HABITAT PROTECTION
Department of Fish and Game
Division of Habitat

ISSUE:

Ensure protection of important habitat through proper siting and design of mariculture facilities.

DISCUSSION:

Floating mariculture operations can result in one or both of the following environmental effects: (1) accumulation of organic-rich sediments on the benthic substrate beneath the facility, and (2) changes in water quality.

Proper siting of mariculture facilities is essential if there is to be minimal environmental effect from a mariculture operation. If not properly sited, the accumulation of organic-rich sediments in the form of wastes, uneaten food, and shell debris below the facility can cause physical and chemical changes in the natural bottom sediments. Included in these changes are increased oxygen consumption within the sediment; and increased concentrations of total volatile solids, total organic carbon, sulfides, nitrogenous compounds, and phosphates.

Accumulation of such sediments and resultant oxygen depletion in the interstitial water can have effects upon the infaunal invertebrate community in the immediate area. Loss of species that are intolerant of organic enrichment often occurs in these areas. In addition, if such accumulation occurs in an area of extensive bottom vegetation such as eelgrass beds, important habitats can be lost. It should be noted, however, that wastes generated by the farming operation generally are not similar to city wastes which can contain detergents, heavy metals, and other contaminants. The wastes referred to here are purely organic in nature.

In order to prevent organic-rich sediments from building up on the benthic substrate and affecting infaunal invertebrates and important habitats, facilities should be sited in areas known to be well flushed in water with adequate depth. Facilities should not be sited in sensitive habitats such as eelgrass beds, herring spawning areas, or mouths of anadromous fish streams. Siting over eelgrass beds or other marine vegetation can result in degradation of these habitat types by sediment accumulation or possibly shading. Likewise, if these habitat types are providing substrate for herring spawn, additional impacts would result from their loss. The mouths and intertidal areas of anadromous fish streams serve as feeding and marine

accumulation areas for outmigrating fry and smolts. Such areas should be avoided to minimize impacts to these sensitive areas and prevent possible disturbance to returning adults.

High concentrations of marine mammals and waterfowl can result in increased predation problems. In addition, disturbance to important wildlife could occur from increased human activity in the area. To minimize such problems, known concentration areas such as haulouts, nesting areas, and marine mammal or bird feeding areas should be avoided when possible.

SUMMARY:

Mariculture facilities could have a significant impact on important habitat areas if improperly designed and sited. These problems can be minimized by implementing proper siting and design criteria.

PREDATION
Department of Fish and Game
Division of Habitat

ISSUE:

Minimizing Predation and Bear/Human Conflicts

DISCUSSION:

Predation is a common problem with mariculture operations. The list of predators includes all types of fish or shellfish-eating mammals, fish and birds. Generally, the most serious problems with predator control involve mammals and birds. In Alaska, these categories can be expected to include seals, sea lions, mink, marten, otters, and various birds. If shore-based facilities are involved, improperly disposed garbage and wastes will attract bears and result in confrontation problems.

The problem of predation can be reduced by installation of screening or netting, and attempting to avoid known concentration areas such as bird nesting areas, marine mammal haulouts, or heavily used bird or mammal feeding areas. The department will consider mariculture facilities to be "attractive nuisances" to predators and would not favor destruction of predators under 5 AAC 92.410(a) (2), defense of life or property. The Department of Fish and Game is working closely with the Department of Environmental Conservation and the U.S. Forest Service to address the problem of bears and garbage, and garbage and wastes at shore-based facilities must be disposed of properly.

SUMMARY:

Predation could be a significant problem at mariculture facilities, but with proper design and siting predation can be minimized or prevented altogether.

PRODUCT WHOLESOMENESS
Department of Environmental Conservation
Division of Environmental Health

ISSUE:

Ensure product wholesomeness through site certification and by regulating the use of chemicals in mariculture operations.

DISCUSSION:

Currently, Alaskan seafood products have a world-wide reputation for quality and wholesomeness. The state has invested considerable resources in this reputation, through DEC's seafood inspection program and Alaska Seafood Marketing Institute's promotional efforts. It is important to ensure the safety and wholesomeness of any seafood produced through a mariculture industry. The Department of Environmental Conservation believes that safe and wholesome mariculture products can be produced if the department is given the authority to regulate certain aspects of the industry.

The Department of Environmental Conservation needs additional authorities to develop standards and regulation for the certification of mariculture sites and for the control of chemicals used to treat the product or their environment.

Chemical Usage

Currently the use of chemicals in mariculture operations is regulated by the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA). The FDA regulates the use of medicines and food colorings, and the EPA controls the use of chemicals such as anti-fouling compounds and parasiticide.

These chemicals must be registered with the appropriate federal agency. The manufacturer for registration submits scientific data supporting claims for efficacy and safety and identifying any environmental hazards. If the regulating agency finds the data to be adequate, the agency issues a label for the product, including instructions for use and safety precautions.

The regulatory agencies have established, for some of these chemicals, required minimum time periods between the time when the chemicals are applied to food products and the time when the food product may be marketed. For some chemicals, there are restrictions on levels allowable in the tissues of

the product when it is sold. If label instructions for these chemicals are followed, use of these products should be safe and not present any harm to the consumer.

Chemical compounds are used as anesthetics to reduce trauma to the animals during handling; disinfectants are used to remove pathogens from gear and equipment; food colorings are used to alter the color of the animal's flesh; and antiseptics, antibacterials, viricides, fungicides, and parasiticide are used to control disease organisms.

The potential problem with the use of chemicals is ensuring that they are being applied according to the label instructions. Currently, the FDA and EPA are responsible for monitoring their use. However, both agencies have limited resources available for surveillance in Alaska. To maintain consumer confidence in the safety of mariculture products, the Department of Environmental Conservation needs specific authority to develop regulations to control the use of chemicals and authority to conduct inspections to confirm application according to label instructions. State regulations adopted pursuant to such statutory authority would refer to federal regulations so that federal labels would be accepted by the state. The purpose of monitoring would be to confirm that the chemicals were used properly. Regulations would likely include requirements for training and certification of applicators of these chemicals and requirements for record keeping and testing.

Site Certification

In order for any state's shellfish to be sold in interstate commerce, it is necessary for the state to have a shellfish site certification and processing inspection program that meets the requirements of the federal Food and Drug Administration. The Department of Environmental Conservation administers an Alaskan shellfish program which has been approved by the FDA. Under this program, all shellfish growing areas in Alaska must be certified, and harvesters and processors must be permitted by the Department of Environmental Conservation.

The Department of Environmental Conservation surveys growing areas for sources of pollution and extensively samples and tests the water quality to determine if it meets regulatory requirements. Sampling and testing is also conducted to determine levels of paralytic shellfish toxins.

If the site is acceptable, then it is certified by the Department of Environmental Conservation. Only shellfish from certified growing areas may enter commerce. The specific requirements for growing area water quality and site surveys are contained in the National Shellfish

Sanitation Programs Manuals which are referred to in Department of Environmental Conservation's regulations.

Legislation should give the Department of Environmental Conservation the authority to develop a certification and permitting program for other mariculture species similar to the one presently in place for shellfish. Mariculture sites should be surveyed and certified. The site certification program would ensure that Alaskan mariculture products were free from exposure to pollutants and contamination in the growing site. The site certification program would prevent mariculture products from being raised in areas which are subject to pollution.

Labeling

DEC is responsible for ensuring that seafood produced in Alaska is safe and wholesome. DEC also assists the Alaska Seafood Marketing Institute in developing programs to produce and promote quality products. It is important to ensure the safety and wholesomeness of any seafood produced through a mariculture industry. Current statutes and regulations would not require any differentiation in labeling between wild products and farmed products. It might be helpful to consumers to distinguish mariculture products from "wild" products. The Department of Environmental Conservation would enforce such requirements if they are instituted.

SUMMARY:

The production of safe and wholesome mariculture products and the preservation of Alaska's seafood product's reputation for quality can be maintained and enhanced by giving the the Department of Environmental Conservation's Division of Environmental Health the authority necessary to regulate the use of chemicals and insure that mariculture sites are free from contaminants which might affect public health.

Summary of Mariculture Requirements

(British Columbia, Maine, California, Washington)

The following chart is a compendium of information from four separate systems of implementing mariculture programs. For detailed information regarding actions taken by each program, please refer to the corresponding footnotes.

	Y Issue addressed	N Issue not addressed	? Information not available	¹ Footnote
	British Columbia	Maine	California	Washington
General				
Lead Agency	Y	Y	Y	Y
Site Survey	Y ¹	N ²	N ³	Y ⁴
Public Notice/Hearings	Y	Y ⁵	Y ⁶	Y
Application Fees	Y ⁷	?	Y ⁸	Y ⁹
Annual Report	Y ¹⁰	?	Y ¹¹	Y ¹²
Land Use				
Size/Density of Farm	?	Y ¹³	?	Y ¹⁴
Land Use Planning Designation for Mariculture	?	?	?	Y
Leases Issued for Mariculture	Y ¹⁵	Y ¹⁶	Y ¹⁷	Y ¹⁸
Land Use Preferences	?	Y ¹⁹	?	Y ²⁰
Conflict Resolution	Y	Y	Y	Y
Clean-up/Performance Bonds	Y	Y	?	Y
Land Rent	Y	Y ²¹	Y ²²	Y ²³
Survey Plat Required	?	?	Y ²⁴	Y ²⁵
Water Quality				
Separation of Facilities	Y ²⁶	N	N ²⁷	Y ²⁸
Waste Discharge	Y ²⁹	N	Y ³⁰	Y ³¹
Water Quality Siting Criteria	Y ³²	N	Y ³³	Y ³⁴
Water Quality Monitoring	Y ³⁵	Y ³⁶	Y ³⁷	Y ³⁸
Fish and Wildlife				
Broodstock Acquisition	Y ³⁹	?	Y ⁴⁰	?
Disease Controls	Y ⁴¹	?	Y ⁴²	Y ⁴³
Genetic Controls	Y ⁴⁴	?	Y ⁴⁵	Y ⁴⁶
Exotic Species	Y ⁴⁷	?	Y ⁴⁸	Y ⁴⁹
Private For-Profit Hatcheries	Y ⁵⁰	?	Y ⁵¹	?
Protection of Existing Wild Stocks or Other Fish & Wildlife	Y ⁵²	?	? ⁵³	Y ⁵⁴
Measures to Protect Sensitive Habitats	Y ⁵⁵	Y ⁵⁶	Y ⁵⁷	Y ⁵⁸
Product Quality/Wholesomeness				
Site Certification and Evaluation	Y ⁵⁹	? ⁶⁰	Y ⁶¹	Y ⁶²
Control and Monitoring of Chemicals and Additives	Y ⁶³	?	? ⁶⁴	Y ⁶⁵
Product Labeling	Y ⁶⁶	?	Y ⁶⁷	? ⁶⁸

General

1. **Finfish:** An environmental assessment of site suitability must be completed for every potential net pen site. Possible requirements, in addition to a site plan (location and boundaries), include: depth contours, current patterns, maps of sub-tidal vegetation, invertebrate studies and pre-installation water quality data. A SCUBA survey is required in areas where water depth is less than 20 meters to describe substrate, vegetation and faunal presence. In areas deemed "sensitive", may also require: seasonal assessment of oceanographic characteristics, identification of other effluent discharges in the same area, measurements of background water quality and sediment quality characteristics, vegetation mapping, and compilation of fisheries resources information.

Other species: The culture of molluscs, crustaceans and marine plants may also have significant environmental impacts. Site survey information required may vary depending on the proposal. Department of Fisheries and Oceans (DFO) offices should be contacted. Information required may include certain of the survey elements required for finfish culture.

2. No requirements at present. Maine is in the process of developing standards for siting and other criteria for management of mariculture activities.
3. No standardized site survey requirements. The Sanitary Engineering Branch of the Department of Fish and Game studies and decides on the acceptability of all shellfish areas. Applicants are required to provide preliminary water quality data (no specifics listed) to evaluate the areas for pollution. Also, the application for the lease of state water bottoms for aquaculture must include, when available, high and low tide lines.
4. **Finfish:** Prior to permit application, an initial site characterization survey is required. Requirements vary by facility size (i.e. Class I = production capacity less than 25,000 lbs/year; Class II = production capacity greater than 25,000 lbs/year but less than 100,000 lbs/year; Class III = production capacity greater than 100,000 lbs/year). Requirements for all classes: recommended consultation with state and local authorities, bathymetric survey, hydrographic survey (i.e. current and velocity), and diver survey of biological resources done April thru September. Class III additional requirements: drogue tracking, vertical hydrographic profiling (as part of hydrographic survey), sediment chemistry sampling and benthic infauna sampling.

Other species: Site survey requirements vary; are dependent upon local SEPA (State Environmental Policy Act) requirements.

5. Mandatory public hearings after 20 day notice in newspaper and trade journal.
6. Mandatory public hearings after 90 day notice in newspaper.
7. \$25
8. \$100
9. \$25
10. Annual health report required by the Fish Transport Committee, Department of Fisheries and Oceans (DFO). Operational log with monthly or quarterly production figures required. Water quality monitoring report specified on a site-specific basis.
11. Yearly registration with the California Department of Fish and Game required.
12. Annual report must be submitted to the Department of Natural Resources which distributes it to other resource agencies. Facilities with less than 20,000 lbs/year production are exempt. Those with productions of 20,000 to 100,000 lbs/year must submit benthic dive survey only. Facilities with production greater than 100,000 lbs/year must submit complete report (benthic survey, water quality survey and hydrographic survey).

Land Use

13. 5 acres per lease with a maximum acreage of 200 acres per person.
14. Maximum of 40 acres per oyster farm, salmon farms are divided into Class I, Class II and Class III farms depending on the carrying capacity of the site. The class determines how many thousands of pounds can be produced at the site.
15. Lease or license of occupation issued, section 10 permit used for one year to allow site research.
16. Leases issued up to 10 years, negotiated if there is no competitive interest.
17. Leases issued for up to 25 years auctioned.
18. Leases issued for 5 to 10 years.
19. First to the state, second to riparian owner of the intertidal area within the lease area, third to fisherman who have traditionally fished in or near the lease, fourth to the riparian owner within 100 feet of the lease area.
20. To adjacent upland owner.
21. Based on type of use.
22. Auction amount plus privilege tax charged for amount of product sold.
23. Fair market value plus value of existing edible shellfish within the lease.
24. Paper plat tied to existing upland monuments.
25. Paper plat tied to existing upland monuments.

Water Quality

26. Minimum distance between operation lease boundaries must be at least 5 km to minimize risk of disease transfer and minimize potential cumulative water quality impacts.
27. No spacing or size limits; many sites are contiguous. The size and location of allotments is decided by the Department of Fish and Game on a case-by-case basis as they work with the applicants.
28. No specific distance limits, however, may limit fish production due to local water conditions (i.e. they restrict production in areas with chronic water problems due to dissolved oxygen and nitrogen concentrations). Washington also limits maximum production to 1,000,000 lbs/year/square nautical mile.
29. The Ministry of Environment, Waste Management Branch, has draft regulations that exempt finfish farm effluent (feces and feed) from waste management permit requirements. Shellfish farms are also exempt. Sewage facilities associated with farm facilities are required to get a waste management permit for water discharge, although this permit requirement has not been strictly enforced. B.C.'s main waste concern at this time is dead fish and possible disease transmission from disposal in open water. They are hoping a multi-collection and disposal service can be arranged.
30. Regional Water Quality Boards (9 in state) issue water quality discharge permits - NPDES permits. Water quality discharge standards are the same as the federal standards.

31. A NPDES permit is required for the discharge of pollutants into surface waters of the state by a point source. Both aquaculture activities and processing operations require permits. For aquaculture, this includes "Concentrated Aquatic Animal Production Facilities" such as ponds, raceways, or similar structures which produce 20,000 pounds per year of cold water species or more, and which feed 5,000 pounds per month of feed or more, and which discharge at least 30 days per year. Permits for such facilities require sedimentation basins for cleaning wastewater and require monitoring of effluent quality. Also included are in-water aquaculture projects in which a discharge of pollutants is used to grow aquatic organisms. Washington has water quality and effluent standards that all discharges must meet. Also, any activity or action which would cause short-term violation of the state's Water Quality Standards requires a Water Quality Standards modification from the State Department of Ecology.
32. For finfish: Pens must be anchored in not less than 10 meters of water at zero tide. Minimum of 2 meters between bottom of pen and ocean floor. Net pens should be located in areas of good circulation and tidal flushing. No direct sewage discharge from living quarters on the lease site.
33. No preconceived rules or standards. Decisions are made on a case-by-case basis. The proposed area must have good flushing.
34. For finfish: Required minimum depth between pen bottom and ocean floor ranges from 20 to 60 feet, depending on the size of operations and local currents.
35. Monitoring of approved net pen operations may be required to provide information on substrate quality, water quality (distribution of dissolved and suspended solids, nutrients, pathogens, chemicals), accumulation patterns of organic deposits, alterations in vegetation distribution patterns, change in benthic structure or other site-specific information. Once a site has been in operation for some time, reporting requirements may be required if there is increased production, negative impact on the environment, or as part of a general coastwide aquaculture impact assessment program. Sample measures, replicates and frequency are specified on a site-specific basis.
36. The Department of Marine Resources may conduct an annual review of each aquaculture lease if the operation has been conducted in a manner injurious to marine organisms.
37. Operators are required to provide on-going water quality data as deemed necessary to evaluate the area and ensure year-round protection of the shellfish consumer. The amount of sampling required depends on the location and susceptibility of harvest sites to pollution problems. At any time the state may obtain water samples.
38. Annual monitoring requirements vary by facility size. Class I = none; Class II = Benthic survey/diver survey; Class III = Annual summer monitoring to include benthic/diver survey, sediment chemistry, benthic infauna, water quality sampling, current velocity and direction.

Fish and Wildlife

39. Eggs obtained from surplus eggs at federal hatcheries or purchased from private hatcheries.
40. Broodstock purchased from commercial sources (commercial license holders or registered aquaculturists). If no commercial supply available, then broodstock can be collected from wild stocks under permit from the California Department of Fish and Game (CFG). The broodstock remains the property of the state, but the progeny belong to the applicant.
41. Eggs must be certified as disease free by the Department of Fisheries and Oceans (DFO). Fish Health Protection Regulations (DFO) apply.
42. Covered by Aquaculture Disease Control Regulations of the CFG.

43. Requires permit from the Washington Department of Ecology (WDE) for transportation or import of live fish or viable sexual parts.
44. DFO and Provincial Ministry of Environment require approval for transport of eggs, smolts, or fish over 50km.
45. Any fish planting requires approval of the CFG.
46. Covered by fish transport permit (WDF).
47. All salmonid importation must comply with Federal-Provincial Policy for the importation of live salmonids into British Columbia.
48. All importation, transportation, and planting of fish is controlled by the CFG.
49. Covered by fish transport permit (WDF).
50. Must be licensed by DFO.
51. Controlled by CFG regulations.
52. Federal-Provincial importation policy for salmonids.
53. Importation, transportation, and planting of fish is controlled by the CFG.
54. Site location controlled by Interim Guidelines of the Department of Ecology. WDF and the Washington Department of Game review site locations.
55. Location approval by DFO. Detailed dive survey required. No finfish pens located within 1km radius of the mouth of anadromous fish streams. No net pens in "sensitive habitats" as defined by Sec. 31(5) of the Fisheries Act.
56. Applicant cannot unreasonably interfere with ingress and egress of riparian owners, navigation, fishing or other uses of the area (Department of Marine Resources regulation).
57. Leasee may not unreasonably impede public access to state waters, but may limit public access to the extent necessary to protect facility (CFG regulations). CFG reviews location of sites.
58. Interim guidelines do not allow siting over "habitats of special significance" (determined by WDF) in waters 75 feet or less in depth.

Product Quality and Wholesomeness

59. Siting criteria is considered one of the most important criteria for aquaculture development. Information may be required for current patterns, sub-tidal vegetation mapping, invertebrate studies, and water quality parameters.
- Net pens are restricted by distance from shellfish operations and from other lease operations. This restriction prevents contamination of shellfish or other fish from transfer of pathogenic organisms and chemicals.
60. No information on product quality or wholesomeness available from materials on hand.
61. Requires an actual on-site inspection by a representative before a permit is given. Aquaculture proposals are required to include a description of plans and maps showing locations of proposed harvesting areas. They also must include a description of type and location of any facilities to be used for handling, packaging, or string products within the state.

62. Applicants must have submitted a site assessment prior to the application process which included 1) a bathymetric survey 2) a hydrographic survey and 3) a dive survey of biological resources.

Washington has also divided the coastline into "habitats of special significance" which identify 1) areas important to commercial or sport fisheries, 2) those of critical ecological importance and 3) those especially sensitive to degradation by culture activities.

63. They are looking into effects of anti-foulant and antibiotic use on net pen farms. Initial indications show that oysters accumulate chemicals that are used to treat nets with the result of reduced growth and poisonous flesh. No research available yet on accumulation in farm fish of anti-foulants. Because of this, distance restrictions are in place for proximity of net pens to shellfish and other fish farms. From literature, it does not appear that B.C. has any definite restrictions or federal guidelines regarding the use of chemicals or additives.

64. Use of chemicals was not mentioned in material available.

65. Applications for aquaculture must go through an environmental assessment by submitting an operations plan which includes chemical and anti-foulant use. Also as a guideline, Washington has determined that TBT should not be used as an anti-foulant agent. Use of other anti-foulants must be reviewed on a case-by-case basis and reported to the Washington Department of Ecology.

Only antibiotics licensed by FDA are allowed to be used at the present time. This limits use to oxytetracycline, sulfamerazine, and Romet 30. These should be used sparingly on a short-term basis (there did not appear to be minimum time and dosage requirements for this).

Annual monitoring report includes types of antibiotics used and frequency of use over past year. Also includes types of anti-foulants used and frequency of net treatment.

66. Fish crossing provincial lines must have proof of coming from registered facility. This is also true for exporting fish.
67. Department of Health Services, Food and Drug Branch sets requirements for proper packaging and labeling of fish and shellfish moved in commerce.
68. No information on labeling from information available.

STATE OF ALASKA

OFFICE OF THE GOVERNOR

DIVISION OF GOVERNMENTAL COORDINATION

STEVE COWPER, GOVERNOR

CENTRAL OFFICE

P.O. BOX AW
JUNEAU, ALASKA 99811-0165
PHONE: (907) 465-3562

SOUTHEAST REGIONAL OFFICE

431 NORTH FRANKLIN
P.O. BOX AW, SUITE 101
JUNEAU, ALASKA 99811-0165
PHONE: (907) 465-3562

SOUTHCENTRAL REGIONAL OFFICE

2600 DENALI STREET
SUITE 700
ANCHORAGE, ALASKA 99503-2798
PHONE: (907) 274-1581

NORTHERN REGIONAL OFFICE

675 SEVENTH AVENUE
STATION H
FAIRBANKS, ALASKA 99701-4596
PHONE: (907) 456-3084

Dear Applicant:

The Shellfish Farm Application is designed to help you obtain most of the authorizations you will need from the State of Alaska Departments of Natural Resources (DNR), Fish and Game (ADF&G), Environmental Conservation (DEC), and Division of Governmental Coordination (DGC) in order to begin your shellfish mariculture project. A Coastal Project Questionnaire, which is available from any of these agency offices, must also be submitted with your application to help determine which specific permits must be obtained prior to constructing your project.

Please read this application carefully. A fully completed application will help the state agencies to process your request promptly. Incomplete or incorrect information may result in requests for additional information, processing delays, or the application may be returned to you for resubmission. You will receive a notice and processing schedule for the state coastal zone consistency review from DGC when your application has been accepted for processing. Your permits will also be processed on this schedule.

If you need technical assistance in completing this application, please refer to the list of agency representatives provided at the back of this application packet. If you have questions about this application process, or you are not able to determine which agency can best answer your technical questions, contact the Division of Governmental Coordination in Juneau at 465-3562, in Anchorage at 274-1581, or in Fairbanks at 451-2818.

Additional Permits

In addition to the permits and approvals which you are applying for in this consolidated permit application, you will also need to separately apply for and obtain a Fish

Transport Permit from ADF&G to obtain and hold broodstock; and a Growing-Area Certification and a Harvester's Permit from DEC in order to sell your product. These permits are not covered by this application since they are required for later phases of your project.

A Fish Transport Permit is required by ADF&G in order to hold, transport, and raise live fish including shellfish. You will need this permit before you can obtain, hold, or begin raising your product. We encourage you to contact the Fisheries Rehabilitation, Enhancement and Development (FRED) Division in Juneau at 465-4160 or in Anchorage at 267-2157 as early as possible in order to apply for and obtain a Fish Transport Permit.

You should contact DEC regarding area certification requirements so that you can be reasonably sure that your site will qualify. We recommend that you apply for growing area certification and a harvester's permit at least six months before you intend to harvest shellfish. To obtain more information on certification requirement please contact DEC in Anchorage at 272-1561 or in Juneau at 465-2609 or 465-2696.

jbak87122401DMF

Consolidated Shellfish Farm Permit Application

General Instructions

1. Fill in the blanks on the form provided.
2. If additional space is needed to fully answer a particular question, attach additional pages marked with the corresponding number in the application.
3. Applications must be *typed* or *printed* clearly in *ink*.
4. Applications must be signed by the applicant or an authorized representative.
5. The application should be forwarded to the appropriate regional office of the Office of Management and Budget's Division of Governmental Coordination for the region in which the farm is to be located (see attached map for regional boundaries).

Southeast Regional Office
431 North Franklin Street
P.O. Box AW, Suite 101
Juneau, Alaska 99811-0165
(907) 465-3562

Southcentral Regional Office
2600 Denali Street
Suite 700
Anchorage, Ak 99503-2798
(907) 274-1581

Northern Regional Office
675 Seventh Avenue
Station H
Fairbanks, AK 99701-4596
(907) 451-2818

6. **Please note:** This application is for a specific mariculture project. You will need to submit a new application if you change any of the following:
 - A. The species to be propagated
 - B. The size or design of your operation
 - C. The location of your operation
 - D. Request a long-term tidelands lease for a previously permitted site

APPLICANT INFORMATION

- ## PROJECT INFORMATION

- ## PROJECT LOCATION

5. Attach topographic maps (U.S.G.S. Scale 1: 63360) and nautical charts to this application that show the site location and general area. Clearly indicate the site location on the charts and maps.

SITE PLAN & PHYSICAL DESCRIPTION

1. Provide a site plan drawn to scale (no less than 1" = 50') which shows the layout and location of the following:
 - A. The rafts or other production facilities employed (please include size and number).
 - B. Anchoring systems and shoreties.
 - C. Docks, floathomes, or caretaker facilities, including source of freshwater for domestic use and processing water, wastewater disposal systems, and solid waste storage and disposal.
 - D. Any freshwater discharges.
 - E. Roads or air strips.
 - F. Other upland or tideland facilities at the site associated with the farming operation.
 - G. Fuel and chemical storage.
 - H. Property lines referenced in #4 of the previous section.
2. On the site plan, draw lines and identify the tide level at the following stages:
 - Mean Lower Low Water (MLLW)
 - Mean Higher High Water (MHHW)
 - Mean High Water (MHW)
3. Diagram surface tidal current speed and direction at maximum tide flow on the site plan or nautical chart.
4. Water depth at the site of culture gear at MLLW would be: _____

SITE SUITABILITY

1. Physical and Biological Characteristics
 - A. Have you conducted an on-site investigation? yes _____ no _____
 - B. Provide any information you may have regarding tidal flushing, water temperature, salinity, and turbidity/sedimentation at the site. Include the dates these data were obtained.

 - C. Describe the bottom type composition at the site (if more than one type, indicate percent).
sand _____ mud _____ rock _____ gravel _____ eelgrass _____
other: _____

 - D. Describe winter conditions at the site (temperatures, icing, storms, etc.).

E. Do anadromous fish (e.g. salmon) use any streams in the area for spawning? yes _____ no _____

If yes, indicate which streams are used and label them as such on the site plan.

F. Is the target species naturally present in the area? yes _____ no _____

If yes, describe abundance condition.

G. Describe measures you would propose to control predation by marine mammals, seabirds, or other potential predators.

WATER QUALITY

NOTE TO APPLICANT: Sewage or industrial discharge(s) may accumulate in, or harm the growth or consumptive use of your shellfish product. Oysters, mussels and scallops are filter feeders and may accumulate fecal coliform bacteria from sewage discharges. If a caretaker facility is located near the culturing operation there may be a risk of contamination. DEC will require that the wastewater treatment systems used on caretaker facilities meet Alaska State Water Quality Standards criteria for harvest or consumption of raw mollusks or other aquatic life.

A. Were there any sources of past pollution at the site, such as a shorebased seafood processor, industrial facility, or a town or village? yes _____ no _____

If you answered yes to the above, identify:

- The type of previous use (i.e. mine, village, seafood processor) _____
- The last known date of use _____
- The distance from site of previous use to your project site _____

B. Are there any currently active sources of human or industrial pollution in the area? yes _____ no _____

If yes, please describe:

- The type of discharge(s) _____
- The location and distance from your site _____
- The name of the discharger(s), if known _____

C. If there is a caretaker facility proposed for the site, please identify:

- The sewage treatment method to be used _____
- The expected volume of seawater and greywater _____
- The location of the treated sewage's discharge point _____

CURRENT LAND USE STATUS

Describe the type and intensity of present uses of the project site and the surrounding area (e.g. commercial development, recreation, commercial fishing, or residential use, etc.).

FARM OPERATION AND DEVELOPMENT

1. Species to be raised:

Species	Annual Production Goal
A _____	_____
B _____	_____
C _____	_____

2. Please provide a timetable showing approximate dates for installation of spat collection gear, placement of production facilities, date of first sale, and a schedule for reaching expected maximum production.

3. Donor Stock

Have you submitted a Fish Transport Permit application to the Department of Fish and Game?
yes _____ no _____

If yes, date of application _____

Certification Statement

I certify that all of the information contained herein is true and complete to the best of my knowledge. I also understand that I must separately apply for and hold a Fish Transport Permit from the Department of Fish and Game in order to hold, transport, and raise shellfish, and a Growing Area Certification and a Harvesters Permit from the Department of Environmental Conservation in order to sell my product.

Signature of Applicant or Agent

Date

TITLE 5.
FISH AND GAME
CHAPTER 41.
TRANSPORTATION, POSSESSION, AND RELEASE OF LIVE FISH

ARTICLE 1.
SCOPE OF REGULATIONS

5 AAC 41.001 is amended to read:

5 AAC 41.001. APPLICATION OF THIS CHAPTER. The provisions of this chapter govern the transportation, possession, or release of live fish transplanted for or cultivated for human consumption or sport fishing purposes, or as part of an aquaculture program for scientific, educational or propagative purposes, and the transportation and possession of shellfish for commercial purposes in conjunction with a shellfish farming operation.

(In effect before 1988; am __/__/88, Register __)

Authority: AS 16.05.251(a)

ARTICLE 3.
GENERAL PROVISIONS

5 AAC 41.100 is amended to read:

5 AAC 41.100. DEFINITIONS. In addition to the definitions set out in 5 AAC 41.10.060 and AS 16.05.940, in 5 AAC 41.001--

"application" means a letter or documents which provide information necessary for the commissioner or his designee to issue, condition or deny a permit;

(2) "department regional office" means the Alaska Department of Fish and Game, Fisheries Rehabilitation, Enhancement and Development Division offices located as follows:

Region I - Southeastern Region
Island Center Building
P. O. Box 2-
Douglas, Alaska 99824-0020

Region II - Central, Westward and
Arctic-Yukon-Kuskokwim Region
333 Raspberry Road
Anchorage, Alaska 99502

(3) "fish pathology section" means the Alaska Department of Fish and Game, Fisheries Rehabilitation, Enhancement and Development Division, Fish Pathology Section, located at 333 Raspberry Road, Anchorage, Alaska 99502, telephone (907) 344-0541;

(4) "ornamental fish" means a fish commonly known as "tropical fish," "aquarium fish," or "goldfish" which are imported, cultured, or sold in the state customarily for viewing in aquaria or for raising in artificial systems, and not customarily used for sport fishing or human consumption purposes;

(5) "permit" means a fish transport permit, including any amendment or condition issued or approved by the commissioner or his authorized designee, which has not been suspended, terminated or expired;

(6) "permittee" means the holder of a permit and includes anyone employed, contracted, or assigned by the person to whom the permit was issued.

(In effect before 1988; am __/__/88, Register __)

Authority: AS 16.02.251(a)

5 AAC 41 is amended by adding a new article:

ARTICLE 4. SHELLFISH FARMING

Section.

- 200. Applicability of Regulations
- 210. Permit Required
- 220. Shellfish Farm Permit Application
- 230. Additional Information
- 240. Review and Determination
- 250. Permit Conditions
- 260. Inspection of a Farm
- 270. Annual Report
- 400. Definitions

5 AAC 41.200. **APPLICABILITY OF REGULATIONS.** The provisions of 5 AAC 41.200 -- 5 AAC 41.400 govern the permit application process for shellfish farm permits, and establish guidelines and procedures regarding the operation of permitted shellfish farms. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.210. PERMIT REQUIRED. A shellfish farm permit, issued by the commissioner, is required for the operation of a shellfish farm. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.220. SHELLFISH FARM PERMIT APPLICATION. An applicant must submit a consolidated shellfish farm permit application and coastal project questionnaire to the nearest office of the Office of Management and Budget, Division of Governmental Coordination for purposes of complying with the project consistency review of the Alaska Coastal Management Program as identified in 6 AAC 50.010- AAC 50.190. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.230. ADDITIONAL INFORMATION. If, after an application has been distributed to the department, and the department determines that information in the application is insufficient for an adequate evaluation of the proposed shellfish farm, the department will request additional information from the applicant. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.240. REVIEW AND DETERMINATION. (a) The commissioner will review the recommendations resulting from the department's review of the application before rendering a decision on an application.

(b) The commissioner will render a decision on the application within 5 days after a determination on project consistency with the Alaska Coastal Management Program has been issued by the Office of Management and Budget. The commissioner's decision will be based on the following considerations:

(1) the physical and biological characteristics of the proposed location must be suitable for a shellfish farming operation;

(2) the proposed farm may not unreasonably or adversely affect management of natural stocks, and must not

require significant alterations in traditional fisheries or other existing uses of fish and wildlife resources;

(3) the proposed farm may not significantly affect fisheries, wildlife or their habitats in an adverse manner; and

(4) the proposed shellfish farm plans and staffing plans must demonstrate technical and operational feasibility.

(c) An application for a shellfish farm permit which has been denied by the commissioner will, in the commissioner's discretion, be reconsidered if the applicant provides new or additional information that may have altered the original decision. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.250. PERMIT. The commissioner will include conditions to the permit that are appropriate to ensure the shellfish farm does not significantly affect fisheries, wildlife or their habitats in an adverse manner. Permits will be issued for a period of three years. Permits may be renewed by submitting a request in writing to the commissioner. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.260. INSPECTION OF A FARM. A permit holder shall allow inspection of the shellfish farm by department inspectors at any time the farm is operating. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.270. ANNUAL REPORT. A person who holds a permit for a shellfish farm shall submit an annual report no later than December 15 to the department. The annual report form shall be distributed to permit holders by the department. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

5 AAC 41.400. DEFINITIONS. In 5 AAC 41.200 -- 5 AAC 41.400

(1) "commissioner" means the commissioner of the Department of Fish and Game or his designee;

(2) "department" means the Alaska Department of Fish and Game;

(3) "farm" means a specific location where shellfish are raised in captivity or under positive control as in a pen, pond, raft, bottom culture or an area of water completely enclosed by a generally escape-proof barrier for the purposes listed in 5 AAC 41.200 -- 5 AAC 41.280;

(4) "shellfish" means any species of crustacean, mollusk, or other invertebrates, in any stage of their life cycle, found in or introduced into the state, consistent with the definition of "fish" in AS 16.10.296. (Eff. / / , Reg.)

Authority: AS 16.05.020
AS 16.05.092
AS 16.05.251
AS 16.05.340(b)

DOC 0062r

MEMO -- January 12, 1988

TO: Fisheries Cabinet

FROM: Paul Peyton

RE: Aquaculture socioeconomic studies

Legislators and others considering proposed regulation of aquaculture activities in Alaska have asked for additional information concerning the social and economic impacts of the various possible forms of development in Alaska. Central to most of the discussion is whether salmon can be profitably farmed in Alaska and compete in the marketplace with wild salmon and farmed fish from other areas. If farm production was to be permitted, what are the potential impacts to the existing common property fishery? What sort of commitment, in terms of time and dollars, would be required of the State to manage and support salmon farming activities?

The DCED has entered into a \$20,000 contract with the Sea Fare Group in Seattle to conduct a study of world salmon markets and evaluate the extent of market competition between wild and farmed salmon, including farmed salmon which potentially could be produced in Alaska. Principle investigator for this study will be Dr. James Anderson of the University of Rhode Island. Anderson is a recognized authority in the area and has authored several papers dealing with the market's response to increasing world supplies of farmed salmon. Market contacts, statistical research and report editing functions of the contract will be conducted by the Sea Fare Group which is a commercial consulting business operated by those people that put out the Seafood Leader magazine.

A second \$20,000 contract has been undertaken with the DPA group of Vancouver, B.C. DPA will evaluate the relative costs of farmed salmon production in major producing regions around the world, develop a proforma cost of production model for the Alaska situation and assess the sensitivity of major cost factors to overall costs of production. DPA has done similar work for the Government of British Columbia and others and has identified specific sources for the necessary data.

Both contracts call for an interim or progress report to be submitted about February 1st and the final report during the first week of March.

A third phase of the project, that of developing a policy options matrix will be postponed at least until preliminary results from the two contracted studies are reported. At that time we may elect to select a limited number of issues for policy option development and conduct the required work in-house or through an RSA agreement with ISER. There is about \$5,000 remaining in the project budget.



STATE OF ALASKA

STANDARD AGREEMENT FORM
FOR PROFESSIONAL SERVICES CONTRACT

1. Agency Contract Number	
2. ATN Number 88-0200	
3. Service Code(s) 5950	
4. Financial Coding 08751001	
5. Agency Assigned Encumbrance Number 0881427	
6. Vendor Number	7. AK Bus. Lic. #

This contract is between the State of Alaska.			
8. Department of Commerce and Economic Development		hereafter, the State, and	
9. Contractor The DPA Group, Inc.		hereafter, the Contractor	
Mailing Address 601 West Cordova Street	Street or P.O. Box	City Vancouver, B.C. (Canada)	State Zip Code V6B 1G1
10. ARTICLE 1. Appendices: Appendices referred to in this contract and attached to it are considered part of it.			
ARTICLE 2. Performance of Services:			
2.1. Appendix A (General Provisions), Articles 1 through 14, governs the performance of services under this contract.			
2.2. Appendix B sets forth the liability and insurance provisions of this contract.			
2.3. Appendix C sets forth the services to be performed by the contractor.			
ARTICLE 3. Period of Performance: The period of performance this contract begins <u>December 21</u> , 19 <u>87</u> , and ends <u>March 15</u> , 19 <u>88</u> . Performance may be extended for additional periods by the written agreement of the parties.			
ARTICLE 4. Consideration:			
4.1. In full consideration of the Contractor's performance under this contract, the State shall pay the Contractor a sum not to exceed \$ <u>20,000 (U.S.)</u> in accordance with the provisions of Appendix D.			
4.2. When billing the State, the Contractor shall refer to the ATN Number and send the billing to:			
11. Department of Commerce and Economic Development		Attn: Division of Business Development	
Mailing Address P.O. Box D, Juneau, AK 99811		Attention Larry Merculieff	
NOTICE: This contract has no effect as an offer by the Contractor until it is approved by the Department of Administration.			
12. CONTRACTOR		14. APPROVAL BY THE STATE CONTRACTING AGENCY	
Name of Firm The DPA Group, Inc.		NOTICE: This certifies the availability of funds. I am aware that certifying false, inaccurate, or misleading documents constitutes an unlawful falsification punishable under AS 11.56.210.	
Signature of Authorized Representative <i>[Signature]</i>		Signature of Head of Contracting Agency or Designee <i>[Signature]</i>	
Date <u>December 12, 1987</u>		Date <u>12/29/87</u>	
Typed or Printed Name of Authorized Representative H. D. Elmer		Typed or Printed Name of Authorizing Official John D. Williams	
Title SPECIAL ASSISTANT		Title Deputy Commissioner	
Employer I.D. No. (EIN) or SSN		15. APPROVAL BY THE DEPARTMENT OF ADMINISTRATION	
13. REQUESTING AGENCY #8751		<i>[Handwritten: n/c]</i>	
Department/Division Division of Business Development			
Signature of Project Director <i>[Signature]</i>			
Date <u>12/23/87</u>			
Name of Project Director Larry Merculieff			
Title Director			

APPENDIX A
GENERAL PROVISIONS

Article 1. Definitions.

- 1.1. In this contract and appendices, "Project Director" means the person who signs this contract on behalf of the Requesting Agency and includes a successor or authorized representative.
- 1.2. "State Contracting Agency" means the Department for which this contract is to be performed and for which the Commissioner or Authorized Designee acted in signing this contract.

Article 2. Inspection and Reports.

- 2.1. The Department may inspect, in the manner and at reasonable times it considers appropriate, all the Contractor's facilities and activities under this contract.
- 2.2. The Contractor shall make progress and other reports in the manner and at the times the Department reasonably requires.

APPENDIX C
SERVICES TO BE PERFORMED

COST OF PRODUCTION MODEL FOR PEN-REARING
OF SALMON IN ALASKA AND CURRENTLY PRODUCING REGIONS
ATN No. 88-0200

This study will be conducted in two phases. In the first phase, The contractor will determine the relative costs of production in major pen-rearing regions. In the second phase, the contractor will develop a cost of production model for pen-rearing salmon in Alaska and assess the sensitivity of major cost factors to overall costs of production.

Phase I - Comparative Cost of Production Analysis

The steps to be undertaken by the contractor in Phase I are detailed as follows:

1. Discuss with representatives of the Department of Commerce and Economic Development to clarify the scope of the study.
2. Conduct a literature review of recent studies (to include Bjorndal, Salvanes, Ridley, Shaw, BIM, Anderson, Wurmman, Nasaka) on cost of production in the five major supply regions.
3. Develop profiles for B.C. and Chile from previous models developed by study team members to complete the comparison of costs of production.
4. From a literature review, determine the public support provided to the five major supply regions. The types of public support to be quantified will include the following:
 - final assistance;
 - research and development;
 - education; and
 - other services (for example, diagnostic and extension).

In addition, the type of tax structure established to pay for the support provided by governments in each country will be determined.

5. Prepare an interim report that summarizes the findings of Phase I (refer to reporting requirements in appendix D).

Phase II - Cost of Production Analysis for Alaska

The detailed steps that are to be undertaken by the contractor in Phase II are listed as follows:

1. Collect and analyze background information on likely general development areas. This activity will include a preliminary assessment of expected salmon farm development locations in the southeastern and southcentral areas, to guide the formulation of general biophysical assumptions for the production model. The assessment will include a brief examination of:

- location of logistic centers;
- transportation methods;
- probable areas excluded based on pollution, major alternate user groups, proximity to river mouths, excessive exposure to wind, etc.;
- location of existing potential smolt suppliers; and
- location of possible new hatchery locations.

These data will be collected in part during discussions with personnel in the Department of Commerce and Economic Development and the Department of Fish and Game.

2. Collect and review general biophysical data from selected development areas. This activity will include examination of:

- marine and freshwater temperature data;
- salinity data;
- location of major streams entering saltwater;
- phytoplankton data;
- important marine mammal concentrations; and
- location of major spawning streams and hatcheries.

These data will be obtained through discussion with personnel in government agencies and review of published data and additional unpublished data provided by government personnel. Agencies to be contacted will include:

- the Alaska Department of Fish and Game; and
- the National Oceanic and Atmospheric Administration, National Fisheries Service (Auke Bay Laboratory, Alaska, and Northwest and Alaska Fisheries Centre, Seattle, Washington).

3. Collect and review recent salmon culture activities in Alaska. This activity will include a review of recent state hatchery production data, particularly for chinook and coho salmon, and experimental marine farming results within the state (e.g., Little Port Walter Research Station). These data will be obtained through discussion with personnel in the government agencies identified in Step 2. This information will be used together with the biophysical data (especially temperature) collected in Step 2 to develop growth projections.
4. Prepare production criteria and assumptions for site areas suitable for pen-rearing of salmon. The information analyzed in Step 1 will be used to identify:

- theoretical average monthly temperatures;
- expected growth rates based on the average temperatures;
- seasonal differences in feed conversion rates;
- average monthly feeding rates; and
- stocking densities.

Where possible, the data will indicate the range of values or conditions that could exist within the study area. In addition, the analysis will identify:

- the likelihood of problems with phytoplankton outbreaks and predator populations; and
 - expected smolt acquisition, transportation and acclimation requirements and problems.
5. Adapt the British Columbia growth models to Alaska by estimating the impact of differences in temperature and other factors between B.C. and Alaska on the likely growth of pen-reared salmon.
 6. Estimate the cost of critical inputs for the selected areas for site development. The inputs would include the following:
 - capital costs (net cages, nets, etc.);
 - smolts;
 - fish feed;
 - labor; and
 - diagnostic services.
 7. Conduct sensitivity analyses to establish break-even points for pen-rearing salmon in Alaska. This would include an assessment of the following scenarios:
 - production at small and large scales;
 - with and without fish feed production within the state;
 - with and without direct transport to market; and
 - with constant and changing prices.
 8. Write and present to the Project Director a draft report of the study findings (refer to the reporting schedule in Appendix D). In addition, the contractor will supply the State with a computer diskette in JAVELIN format containing the cost of production model with supporting documentation. The draft report will also incorporate the findings of the interim report.
 9. After review by the project director, make required changes, if any, to the report and to the cost of production model.

APPENDIX D
CONSIDERATION, REPORTING SCHEDULE AND GENERAL CONDITIONS

COST OF PRODUCTION MODEL FOR PEN-REARING
OF SALMON IN ALASKA AND CURRENTLY PRODUCING REGIONS
ATN No. 88-0200

REPORTING SCHEDULE: The contractor will submit an interim project report in writing to the Project Director which summarizes the findings of Phase I (Comparative cost of Production Analysis) by February 1, 1988.

A draft of the final project report containing all study findings, including those findings contained in the interim report, will be submitted in writing to the Project Director for review and approval by February 23, 1988. At the same time the contractor will submit a computer diskette containing the cost of production model with supporting documentation. The contractor will incorporate changes to the draft material suggested by the Project Director and submit ten copies of the approved final report and two copies of the production model diskette on or before March 4, 1988. This schedule allows three days for the Project Director to complete his review of the draft report.

CONSIDERATION: The contractor will submit an invoice for payment with the interim project report on or before February 1, 1988 which reflects all expenditures and services rendered for that period of the contract. A second and final invoice for payment will be submitted with the final project report on or before March 4, 1988 which reflects all expenditures and services rendered for the remaining period of the contract. Payments on both the interim and final invoices are subject to the limitations and conditions described below. All invoice amounts will be stated in U.S. dollars and all payments will be made in U.S. dollars.

Fees charged for services performed by the contractor's various study team members will not exceed the rates shown in the schedule below. (All amounts are in U.S. dollars):

<u>Study team member</u>	<u>Per day</u>	<u>Per hour</u>
D. Egan	\$375	\$47
J. Dale	200	25
M. Winsby	350	44
T. Bjorndal	520	65

Upon acceptance of the interim and final project reports and receipt of the accompanying invoices by the Project Director, the State will pay the contractor within 30 days. Failure of the contractor to comply with the reporting provisions of this contract will result in the State withholding payment until such compliance is obtained.

If the total amount due on the contractor's interim invoice exceeds \$12,000 (U.S. dollars), the State will withhold payment of the excess until the final project report and model is received and accepted by the Project Director. Payment of any excess due on the interim invoice will be made at the same time as the final payment. Under no circumstances will the State be liable for total project costs in excess of \$20,000 (U.S. dollars).

If the State cancels the project at any time during the course of this contract, the Contractor shall submit a final billing based on actual expenses incurred up to the termination date.

CONTRACT DISPUTES: All contract disputes will be subject to the provisions of Appendix A, Article 3 of the Standard Form For Professional Services Contract, unless other specifically identified statutes and/or legal requirements apply.

REQUESTS FOR CONTRACT EXTENSION: Requests to extend the ending date for contract performance must be submitted in writing at least 21 days prior to March 4, 1988. The written request should specify the reason why the contract extension is requested and the proposed date to which extension is needed. Upon receipt of the requested extension, the Project Director will send contract amendment forms to the contractor. Contract amendment forms must be signed by the Contractor's authorized agent and returned to the Project Director at least 10 days prior to expiration of the contract. Requests for contract amendments will not be considered if such requests are not received within the time frames specified. Because the value of this study to the State is highly dependent on having the required reports completed according to the schedule specified above, it is unlikely that the Project Director will approve an extension of the contract.



STATE OF ALASKA

STANDARD AGREEMENT FORM
FOR PROFESSIONAL SERVICES CONTRACT

1. Agency Contract Number	
2. ATN Number 88-0198	
3. Service Code(s) 5950	
4. Financial Coding 08751001	
5. Agency Assigned Encumbrance Number 0881428	
6. Vendor Number	7. AK Bus. Lic. #

This contract is between the State of Alaska.

8. Department of Commerce and Economic Development		hereafter, the State, and	
9. Contractor The Sea Fare Group		hereafter, the Contractor	
Mailing Address 3510 1st Avenue N.W.	Street or P.O. Box	City Seattle	State Washington
		Zip Code 98107	

10. **ARTICLE 1. Appendices:** Appendices referred to in this contract and attached to it are considered part of it.
- ARTICLE 2. Performance of Services:**
- 2.1. Appendix A (General Provisions), Articles 1 through 14, governs the performance of services under this contract.
 - 2.2. Appendix B sets forth the liability and insurance provisions of this contract.
 - 2.3. Appendix C sets forth the services to be performed by the contractor.
- ARTICLE 3. Period of Performance:** The period of performance this contract begins December 24, 19 87, and ends March 30, 19 88. Performance may be extended for additional periods by the written agreement of the parties.
- ARTICLE 4. Consideration:**
- 4.1. In full consideration of the Contractor's performance under this contract, the State shall pay the Contractor a sum not to exceed \$ 20,000 in accordance with the provisions of Appendix D.
 - 4.2. When billing the State, the Contractor shall refer to the ATN Number and send the billing to:

11. Department of Commerce and Economic Development	Attn: Division of Business Development
Mailing Address P.O. Box D, Juneau, Alaska 99811	Attention Bonnie Jo Borchick

NOTICE: This contract has no effect as an offer by the Contractor until it is approved by the Department of Administration.

12. CONTRACTOR		14. APPROVAL BY THE STATE CONTRACTING AGENCY NOTICE: This certifies the availability of funds. I am aware that certifying false, inaccurate, or misleading documents constitutes an unsworn falsification punishable under AS 11.56.210	
Name of Firm The Sea Fare Group		Signature of Head of Contracting Agency or Designee <i>[Signature]</i>	Date 12/30/87
Signature of Authorized Representative <i>[Signature]</i>	Date 12/22/87	Typed or Printed Name of Authorizing Official J. Anthony Smith	
Typed or Printed Name of Authorized Representative Sandi McKenzie		Title Commissioner	
Title President	Employer I.D. No. (EIN) or SSN 91-1224431	15. APPROVAL BY THE DEPARTMENT OF ADMINISTRATION <i>[Signature]</i>	
13. REQUESTING AGENCY #8751			
Department/Division DCED/Division of Business Development			
Signature of Project Director <i>[Signature]</i>	Date 12/29/87		
Typed or Printed Name of Project Director Larry Merculieff			
Title Director			

Article 1. Definitions.

- 1.1. In this contract and appendices, "Project Director" means the person who signs this contract on behalf of the Requesting Agency and includes a successor or authorized representative.
- 1.2. "State Contracting Agency" means the Department for which this contract is to be performed and for which the Commissioner or Authorized Designee acted in signing this contract.

Article 2. Inspection and Reports.

- 2.1. The Department may inspect, in the manner and at reasonable times if considers appropriate, all the Contractor's facilities and activities under this contract.
- 2.2. The Contractor shall make progress and other reports in the manner and at the times the Department reasonably requires.

APPENDIX C
SERVICES TO BE PERFORMED

WORLD MARKETS FOR SALMON -- PEN-REARED SALMON IMPACTS
ATN No. 88-198

The purpose of this project is to evaluate the extent of potential market competition between wild and farmed Alaska salmon, and between Alaska salmon and farmed salmon from other states and countries.

Questions such as the following are of key concern and will be addressed by the contractor:

- Will world markets be able to absorb farmed Alaskan salmon, from 1990 (when the potential first harvests of Alaskan pen-raised salmon would take place) onward at a price that will be profitable for the producers?
- Will the amount of farmed salmon projected for production worldwide in this time frame dampen current markets for Alaskan wild salmon, and if so, to what extent?
- Would the Alaskan pen-raised salmon be directly competitive with Alaskan wild salmon or simply a part of the farmed salmon supply?

TASK 1: BASELINE MARKET AND PRICE INFORMATION

In-house files of recent and on-going studies of the contractor, Dr. James Anderson's sources and other existing information will form the basis of data for this task, however, some original data gathering will be performed. In particular, supermarket representatives and Japanese salmon buyers will be interviewed. Interviews will be conducted so that the data gathered is consistent with work performed by Dr. Anderson for New England food service groups.

The contractor will first outline the current distribution channels for farmed salmon and Alaskan wild production and describe the areas in which wild and farmed stocks may directly compete.

Next, historical prices will be examined for any trends relative to supply for both farmed and wild salmon. While average prices will be reported in this step, exceptions to the rule will be noted. Of particular interest are exceptions that reflect higher prices through unique marketing or product identification efforts, particularly where products are specifically identified as Alaskan.

A. Where are Alaska's King, Coho and Sockeye Salmon Marketed?

The contractor will present a thorough overview of the current market and marketing conditions for Alaskan king, coho and sockeye salmon. The overview will be specific as to species, product form, transportation modes, purchase arrangements, export assistance, tariff barriers, trade promotion activities and other information which will help to thoroughly describe the existing markets for Alaska wild salmon.

A survey will be performed for major institutional and retail market sectors to delineate the geographic sales distribution, utilization of various product forms, seasonality of sales, and usual distribution channels.

B. Price Levels Over the Past 10 Years for King, Coho and Sockeye Salmon.

The contractor will present an accurate historical description of market price trends for Alaskan salmon. Government and private seafood price data sources will be analyzed to determine domestic and export price and volume of sales information by major product form. The contractor will include supply level (landings) figures and a comparison by product form.

C. Existing Markets for Farmed Salmon.

The contractor will present a thorough and quantitative overview of the major world supply sources and markets for farmed salmon. The overview will be specific as to species, product form, transportation modes, purchase arrangements, export assistance, tariff barriers, trade promotion activities and other information which will help to thoroughly describe existing market conditions. This will be drawn in part from the contractor's in-house studies of domestic and world salmon farming activities and markets, such as recent work by Anderson and Brooks analyzing buyer preferences for farmed and wild salmon in the northeast. The contractor will expand the analysis to include other countries and geographic regions of the United States as part of this task. Particular emphasis will be given to the market in Japan. Additional information will be obtained from interviews with trading companies and other firms and individuals active in and knowledgeable about the salmon industry.

D. Price Levels of Pen-Reared Salmon Over the Past Five Years.

The contractor will describe and compare the prices and volumes of pen-reared salmon products over the past five years in all major world markets.

E. Effects of the Exchange Rate and Supply Changes on Market and Price Distribution.

Exchange rate information will be collected and correlated with import/export figures and the price levels of major salmon products over the last five years. The contractor will compare the fluctuating value of the dollar to the price and volume of salmon products traded on the world market.

TASK 2: MARKET FORECASTS

Because farmed salmon production could not occur in Alaska for several years, forecasts of future market conditions are important to investment decisions. Forecasts of expected demand levels and prices will be presented by the contractor. Using information collected in Task 1, the relationship between wild and farmed products stocks will be examined.

A. Volume of Farmed Salmon Expected to Enter the Marketplace Over the Next 10 Years.

The contractor will review recent studies of farmed salmon production trends and projections for the next ten years. Where discrepancies are evident, the contractor will provide an evaluation of the accuracy of the studies presented.

B. Future Markets and Price Level Expectations for Potential Alaskan Farmed Salmon.

The contractor will develop a matrix of market size and price forecasts to be used in evaluating the effects of production increases expected over the next ten years. The matrix will be derived from available econometric work, interviews with industry, academic and government experts and research completed in the tasks above. The contractor will project a range of possible volumes of farmed Alaska salmon, and predict the effects on major markets, including the an analysis of the most likely market niches these salmon could occupy and the price ranges available. An analysis of the effects of possible exchange rate changes will be included.

C. Analyze the Degree of Overlap or Competition Between Alaskan Wild Salmon, Potential Alaskan Farmed Salmon and Other Farmed Salmon in Major Markets

The contractor will predict the degree of market competition expected in the future between Alaska wild salmon and potential farmed salmon products. The analysis will compare projected

prices, availability, product forms and characteristics (fresh/frozen, size, color, method of harvest and etc.), of the major Alaskan wild salmon fisheries and farmed salmon harvests. The major marketing attributes that may cause substitution or differentiation of the types of salmon will be analyzed in the particular areas where there might be market overlap or competition.

The contractor will suggest the probable outcome of any future market overlaps which are identified. This work will identify Alaska salmon products that may not be competitive in the marketplace and the characteristics which make them noncompetitive, which products would have advantages in specific markets and the reasons, and will analyze the possibilities of undertaking effective marketing programs to improve sales and maximize prices.

APPENDIX D
CONSIDERATION, REPORTING SCHEDULE AND GENERAL CONDITIONS

WORLD MARKETS FOR SALMON -- PEN-REARED SALMON IMPACTS
ATN No. 88-198

REPORTING SCHEDULE: The contractor will submit an interim project report in writing to the Project Director which summarizes the results of work completed to date by February 5, 1988, as described in Appendix C..

A draft of the final project report containing all study findings, including those findings contained in the interim report, will be submitted in writing to the Project Director for review and approval by February 25, 1988. The contractor will incorporate changes to the draft material suggested by the Project director and submit ten copies including the unbound original (for further duplication) of the approved final report on or before March 4, 1988. This schedule allows three days for the Project Director to complete his review of the draft report.

CONSIDERATION: The contractor will submit an invoice for payment with the interim project report on or before February 5, 1988 which reflects all expenditures and services rendered for that period of the contract for review and approval by the Department. A second and final invoice for payment will be submitted with the final project report on or before March 4, 1988 which reflects all expenditures and services rendered for the remaining period of the contract. Payments on both the interim and final invoices are subject to the limitations and conditions described below.

Fees charged for services performed by the contractor's various study team members will not exceed the rates of \$75 per hour. Upon acceptance of the interim and final project reports and receipt of the accompanying invoices by the Project Director, the State will pay the contractor within 30 days. Failure of the contractor to comply with the reporting provisions of this contract may result in the State withholding payment until such compliance is obtained.

If the total amount due on the contractor's interim invoice exceeds \$12,000, the State will withhold payment of the excess until the final project report and model is received and accepted by the Project Director. Payment of any excess due on the interim invoice will be made at the same time as the final payment. Under no circumstances will the State be liable for total project costs in excess of \$20,000 (twenty thousand dollars).

If the State cancels the project at any time during the course of this contract, the Contractor shall submit a final billing based on actual expenses incurred up to the termination date.

WORK PLAN: Work on the various segments of this contract will be shared by Dr. James L. Anderson and other individuals in The Sea Fare Group. The contractor will obtain written approval of the Project Manager, and if necessary an approved contract amendment, before any significant change is made in the following schedule:

TASK 1: BASELINE MARKET AND PRICE INFORMATION

Where are Alaska's king, coho and sockeye salmon marketed?

Sea Fare Group 90%
James L. Anderson 10%

Price levels over the past ten years for king, coho and sockeye salmon.

Sea Fare Group 98%
James L. Anderson 2%

Existing markets for farmed salmon

Sea Fare Group 70%
James L. Anderson 30%

Price levels of pen-reared salmon over the past five years

Sea Fare Group 98%
James L. Anderson 2%

Effects of the exchange rate and supply changes on market and price distribution.

James L. Anderson 100%

TASK 2: MARKET FORECASTS

Volume of farmed salmon expected to enter the market place over the next ten years.

Sea Fare Group 70%
James L. Anderson 30%

Future markets and price level expectations for potential Alaskan farmed salmon

James L. Anderson 100%

Analyse the degree of overlap or competition between Alaskan wild salmon, potential Alaskan farmed salmon and other farmed salmon in major markets.

James L. Anderson 100%

CONTRACT DISPUTES: All contract disputes will be subject to the provisions of Appendix A, Article 3 of the Standard Form For Professional Services Contract, unless other specifically identified statutes and/or legal requirements apply.

REQUESTS FOR CONTRACT EXTENSION: Requests to extend the ending date for contract performance must be submitted in writing at least 21 days prior to March 4, 1988. The written request should specify the reason why the contract extension is requested and the proposed date to which extension is needed. Upon receipt of the requested extension, the Project Director will send contract amendment forms to the contractor. Contract amendment forms must be signed by the Contractor's authorized agent and returned to the Project Director at least 10 days prior to expiration of the contract. Requests for contract amendments will not be considered if such requests are not received within the time frames specified. Because the value of this study to the State is highly dependent on having the required reports completed according to the schedule specified above, it is unlikely that the Project Director will approve an extension of the contract.

APPENDIX E

- A) For the purposes of this work it is understood that unless specified all data sources are secondary sources.
- B) Because of the tight schedule required by this contract, the final draft may be received chapter by chapter. Jim Anderson's original work may be part of the final draft.

A handwritten signature, possibly reading "Jim", is located to the right of the text in item B.

Original sponsors: Zharoff, Eliason
and Duncan

1 IN THE SENATE BY THE RESOURCES COMMITTEE
2 HOUSE CS FOR CS FOR SENATE BILL NO. 297 (Resources)
3 IN THE LEGISLATURE OF THE STATE OF ALASKA
4 IFTEENTH LEGISLATURE - FIRST SESSION
5 A BILL
6 For an Act entitled: "An Act placing a moratorium until July 1, 1988, on
7 the issuance or granting of licenses, permits,
8 leases, or authorizations for commercial finfish
9 farming; providing for a bivalve spat collection
10 permit; and providing for an effective date."
11 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:
12 * Section 1. FINFISH FARMING MORATORIUM. (a) Except as provided in
13 (b) of this section, the following licenses, permits, leases, or authoriza-
14 tions may not be issued or granted for the construction or operation of a
15 commercial finfish farm:
16 (1) authorization for use of an interim-use permit for the
17 experimental commercial taking of a fishery resource (AS 16.05.050(10));
18 (2) fish farming license (AS 16.05.340(a)(14));
19 (3) collection permit (AS 16.05.340(b));
20 (4) land use or tidelands permit (AS 38.05.035);
21 (5) a land lease (AS 38.05.070);
22 (6) fish transport permit (5 AAC 41.005);
23 (7) permit to appropriate water (11 AAC 93.120);
24 (8) temporary water use permit (11 AAC 93.210 - 11 AAC 93.220).
25 (b) A fish farming license and a fish transport permit may be issued
26 for commercial finfish farming in a privately owned freshwater body that
27 has no outlet to state water.
28 * Sec. 2. NO PREFERENCE INTENDED. A license, permit, lease, or au-
29 thorization described in sec. 1 of this Act that is issued or granted for a

1 purpose other than commercial finfish farming and that is in effect during
2 the period of the moratorium imposed by sec. 1 of this Act does not create
3 a right or preference with regard to the issuance, granting, or renewal of,
4 or conditions or limitations placed on, any license, permit, lease, or
5 authorization for aquatic farming after the period of the moratorium.

6 * Sec. 3. AS 16.05.340(b) is amended to read:

7 (b) The commissioner of fish and game may issue without cost a
8 permit to collect fish and game, including fur animals, subject to
9 limitations and provisions that are appropriate, for a scientific,
10 propagative, or educational purpose. The commissioner also may issue
11 a permit for the collection of bivalve spat for use in connection with
12 an aquatic farm. In addition, the commissioner shall issue a permit
13 for the collecting of wild fur animals for improving the genetic stock
14 of fur farm animals. Permits issued under this subsection shall be in
15 accordance with current sustained yield management practices for the
16 species of wild game for which the permit is requested. The annual
17 permit fee for an Alaska resident to collect wild fur animals for fur
18 farming purposes is the same as the fee for resident trappers.

19 * Sec. 4. Section 1 of this Act is repealed July 1, 1988.

20 * Sec. 5. This Act takes effect immediately under AS 01.10.070(c).

ALASKA STATE LEGISLATURE . SENATE

5373

SENATOR RICHARD I. ELIASON

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



P.O. BOX 143
SITKA, ALASKA 99835
P.O. BOX V
JUNEAU, ALASKA 99811
(907) 485-4910

May 11, 1987

Commissioner Don Collinsworth
Department of Fish and Game
P.O. Box 3-2000
Juneau, Alaska 99802

COMMISSIONER'S OFFICE
RECEIVED
MAY 12 1987

Dear Commissioner Collinsworth,

DEPARTMENT OF FISH AND GAME

Recently hearings on Senate Bill 106, an act relating to aquatic farming, were conducted by the Senate Resources Subcommittee on Fisheries at five different locations -- Dillingham, Kodiak, Anchorage, Ketchikan, and Sitka. The individuals testifying at the hearings raised many concerns which must be addressed fully prior to the Legislature taking any formal action on permitting aquatic farming in Alaska.

Some of the unanswered questions asked are as follows:

- 1) How will land use conflicts be resolved?
- 2) How can favoritism or the appearance of favoritism be avoided in the awarding of tide land permits?
- 3) What steps will be implemented to reduce tide land speculation?
- 4) What is the role of the non-profit hatcheries in the sea farming industry?
- 5) Will the role of a non-profit hatchery change if the hatchery chooses to rear pen salmon?
- 6) What will be the role of borough governments if a sea farm is within the borough's jurisdiction?
- 7) What will be the procedures in determining the monetary value for the tide land sites?

- 8) Will additional safeguards be established if the potential sea farm site is in a designated wilderness area?
- 9) How will the upland owners' concerns be resolved?
- 10) What exactly is known regarding any potential environmental danger in raising salmon in a concentrated area?

As these questions and other unresolved concerns regarding aquatic farming are reviewed and discussed during the interim by the Subcommittee on Fisheries, it will be most helpful if the various affected state agencies take an active role in the discussion. As chair of the interdepartmental work group on mariculture, the subcommittee looks forward to working with you and other members of the working group during the interim.

Commissioner Collinsworth, hopefully time will allow the subcommittee to meet with the agency representatives prior to adjournment in order to formalize plans for the next few months.

Sincerely,



Senator Dick Eliason, Chair
Senate Resources Subcommittee on Fisheries

cc: Senate Resources Committee Members
House Resources Committee Members

Suggested questions to be addressed
from the Office of Representative Herrmann

1 BIOLOGICAL CONSIDERATIONS

- 1) What is the potential disease and genetic threat to wild stocks?
- 2) How can these be controlled
- 3) What type of oversight and supervision of mariculture operations is necessary to ensure that wild stocks are not threatened
- 4) How should pens be stocked?
- 5) Who should regulate egg take?
- 6) Should Atlantic Salmon be allowed? and should other species be imported?
- 7) What are the potential effects on habitat for anadromous fish streams?

11 MARKET QUESTIONS

- 1) Is foreign marketing of pen-reared salmon currently effecting markets for Alaska's wild stocks?
- 2) If Alaska got into pen-rearing of salmon, would our pen-raised salmon be able to compete?
- 3) Could increased efforts at marketing the advantages of wild salmon give Alaska fishermen a competitive edge in certain markets over pen-reared salmon?
- 4) Would development of pen-reared salmon in Alaska displace fishermen? - If so, How many?
- 5) How valid is the statement that the world market will be glutted with salmon by the time Alaska is ready to get into the industry?

111 ECONOMIC FEASIBILITY & BENEFITS

- 1) What is the range of options for proceeding with mariculture operations?
 - A) What would be the economic costs and benefits if the state only permitted small operations? or only large operations? (How many jobs would be created? How much would they pay, How much revenue would be generated? How many people would be displaced? What would be the economic impacts to the state if the fishing industry experienced displacement? Would these operations be economically viable?
 - B) What would be the best way to proceed if the goal of the state was to maximize the revenues generated?

5/20/87

III. Government Involvement

- B. To what extent should the state be involved in necessary monitoring/oversight. What is the state required to do? (i.e. Federal NSSP requirements).
- C. To what extent should the state be involved in providing technical assistance in site selection and necessary environmental analysis?
 - 1. How much should the industry contribute to offset administrative costs?
- D. 2. To what extent should the industry be required to pay for the use of the public resources and the resulting externalities such as pollution and landscape alterations?
- E. What role should the state play in market development?
- F. Given the fiscal and technical policy impacts of the different options - should we proceed to encourage various mariculture operations, and if so, in what areas?
- G. What criteria should be established to determine a whether or not a permit applicant is "fit, willing and able".
 - 1. How do we avoid excluding small, locally owned operations?
 - 2. Should bonding be required to discourage speculation and protect the state in the case of failure? (Clean-up costs).
- H. How are permits going to be transferred? Who decides?
- I. To what extent should the state provide investment incentives? (State subsidization through loans, tax credits ect.) Several sources say that tax credit incentives are necessary to attract venture capital.
- J. How much should the industry pay for necessary regulation, monitoring and oversight?

- C) What would be the best way to proceed to create the most jobs and steady employment?
- D) What would be the best way to provide economic benefits to rural areas?
- E) What would be the best way to provide economic benefits to urban areas?
- F) What would be the best way to minimize the effects on fishermen who may be displaced
- G) What would be the comparative costs and benefits of not going ahead with mariculture but instead increasing marketing strategies so that wild salmon could compete?

IV LAND USE & SITING CONFLICTS

- 1) How should best interest findings be made?
- 2) What guidelines should be established to determine whether a site should be permitted if there are competing uses (some of which may not be permitted?)

V ENVIRONMENTAL IMPACTS

- 1) Water Quality
- 2) Land Use Impacts
- 3) Impacts on habitat for wild stocks

VI GOVERNMENT INVOLVEMENT

Will financial resources be diverted from other fisheries programs such as hatcheries, and economic development of other existing fisheries?

(See Attached)

5/20/87

INTERAGENCY WORKGROUP ON MARICULTURE

David Benton	465-4100
Department of Fish and Game	
Doug Donegan	465-2609
Department of Environmental Conservation	
Rick Focht	465-4081
Commercial Fisheries Entry Commission	
Kerry Howard	465-2653
Department of Environmental Conservation	
Mike Kaill	465-4160
Department of Fish and Game	
Amy Kruse	789-3151
Department of Environmental Conservation	
Diane Mayer	465-3562
Office of Management and Budget	
Bob Palmer	465-3400
Department of Natural Resources	
Paul Peyton	465-2162
Department of Commerce & Economic Development	
Rick Reed	465-4290
Department of Fish and Game	
Jim Wakefield	465-2700
Department of Labor	



Send
back-up
info
to Canada
in
Hudson's
office

Any documentation ~~of~~ of:

- * Control of smolt owned by the 3 major corps?
- * Quote by scientist that in 10 yrs. there has been the destruction of 10,000 yrs. of salmon genetics
- * The release of diseased fish into the sea

Lørdag 2. desember 1989

Oppdrettsfisk DRUKNES I MEDISINER



SE: Enorm bruk av antibiotika i oppdrettsnæringen skaper motstandsdyktige bakterier og gjør medisinene virkningsløse.

Reidar Solberg
President
AIFMA Coop
4248 Squalicum Lake Road
Bellingham, WA 98226
(206) 592-5977

January 12, 1990

Pacific Fishery Legislative Task Force
Senator/Representative/Assemblyman
States of: Alaska, California, Idaho, Oregon, Washington

Dear Madam or Sir:

During this past summer, evidence began coming out of Norway that all was not well on the salmon farms. Visitors returning from Norway reported reading in local newspapers reports of widespread disease in farm fish and pollution in the fjords. Some of these diseases are known but there are some new ones that no one has seen before. The nature of these new diseases is unknown even to scientists.

My board of directors directed me to go and see first hand. My trip included interviews with journalists, scientists at the Institute of Marine Research at Bergen, a visit to a local salmon farm, and discussion with local townsfolk.

The Institute of Marine Research is the only scientific institute in the world that is looking into the disease and genetic effects of farmed salmon on wild stocks of salmon. There is a concern among scientists, whom I spoke to, that the Norwegian government may not continue to fund these programs in the future.

The local populace is in an uproar over what is happening on the local salmon farms.

I learned that many farmers, when faced with the need to destroy diseased fish, simply release them into the fjord where they can spread disease to wild stocks. Likewise, I have heard reports of Canadian farmers releasing contaminated farm fish in Vancouver, B.C..

Faced with the tragedy of economic disaster, it is understandable that a farmer would take this low-cost

way out. The cost of enforcing such clandestine activity, especially in remote areas of Alaska, would be very high.

I have taken the liberty of providing you with translations of several articles from local Norwegian newspapers which show the extent and the seriousness of a problem that "does not exist." Proponents of salmon farming have neglected to report on this critical issue.

We have to keep in mind that, while Norway has some 100,000 of wild stock salmon, Alaska is blessed with stocks in excess of 100 million salmon.

After personally seeing what is happening in Norway and listening to the public outcry, I can only hope that you conclude with me that the risks are too great for Alaska to entertain salmon farming.

Sincerely yours,



Reidar Solberg
President
AIFMA Coop

INTRODUCTION

The Board of Directors of the Alaska Independent Fisherman's Marketing Association, "AIFMA", in December of 1989 directed me to go to Norway and look into the effects of farm raised salmon on wild stocks of salmon. The areas of concern were disease and genetic intermingling. Where I received my information was at the Institute of Marine Research in Bergen, the Bergen Tidende newspaper, a fish farm on the island of Austrovul, and a number of local people through out western Norway.

My hope, after looking at the situation in Norway, is that we will hold off introducing fish farming in Alaska because of the threat of spreading disease to the hundreds of millions of wild stock salmon and the threat of spawning interruption by escaped or released farm raised salmon. The possibility also exists that diseased farm fish, or fish with heavy doses of antibiotics could effect the market conditions of natural salmon which have been handled and presented with so much care over the years.

A very unnerving bit of information, I learned, is that when faced with the need to destroy diseased salmon, many farmers simply release them into the fjord where they can mingle with the wild stocks of salmon. I have heard of this happening on farms on Vancouver Island, B.C. Diseased farm salmon were released at the direction of the British Columbia Fisheries Department.

SUMMARY

At this point in time the Institute of Marine Research in Bergen is the only one that is doing studies to determine what affect the farm raised salmon will have on wild stock of salmon.

we must remeber that Norway has only 100,000 wild stock spawners, where as we have returns as high as 60 million to Bristol Bay alone. If you tally up the return of salmon to all other Alaska fishing areas, and the river systems in Canada the potential loss would be devastating both ecologically and financially.

In Norway, the intent of the fish farms was to generate income for families in the island communities. There are a number of bankruptcies occurring at this time, even though the farms have be heavily subsidized by the Norwegian government. The interesting thing is that the control of smolt is in the hands of big busniness. The three major players in the smolt production is British Petroleum, Sea Farms (a multi-national corporation), and Mowi (this is Norsk Hydro, one of Norway's largest corporations).

In talking with the Norwegian scientist, their feeling is that fish farming has gone much faster then the scientific community has progressed in this area. There are 700 farms in Norway that can produce 250 tons of fish per year per farm. The question then arises, where is the food for the fish farms going to come from? Do we take the pollock, herring, and other fish with their high protein content and grind it up into a fish meal to feed salmon when we have starvation throughout the world.

Looking at possible risk of our wild stocks of salmon, whether it be through disease or through genetic destruction, allowing the onslaught of fish farms on the Pacific Coast is much to great of a risk. The statement made by a prominent Norwegian scientist, that in ten years there has been a destruction of ten thousand years of salmon genetics.

I come from the commercial fishing community and I think about the amount of damage one case of botulism in Belgium did to the market of salmon world wide, I have a real concern about the medications going into farm raised salmon. The amount of dollars generated by the commercial salmon fishery is much to great to risk loosing because of the efforts of certian special interest groups. Whether these groups be Weyerhauser Corporation in the state of Washington, B.C. Hydro with their push for dams on the Frazier River in Canada, or any group that would want to begin fish farming in Alaska, we cannot risk the value of wild stocks of salmon.

FISKERIDIREKTORATETS - HAVFORSKNINGSINSTITUTT
Nordnesparken 2, Postboks 1870- Nordnes
N - 5024 Bergen, Norway

Professors;

Snorre Tilseth
Brit Hjeltne
Arne Ervik
Geir Dahle
Dr. Oystein Skaala

Institute of Marine Research
P.O. Box 2906
5011 Bergen Nordnes
Norway
phone- 32 77 60

My meeting at the took place on the morning of November 30, with Magne Kalhovde also attending. Snorre Tilseth, the director of the fishery, was unable to attend. Brit Hjeltne was very helpful by giving us a tour of the facilities. She then gave us a run-down of the diseases affecting fish farms.

Farm fish diseases;

- (1)- Vibriosis (Vibrio bacteria)
Bacteria disease affecting salmon as well as trout
In farm fish as well as wild stocks
Detected as early as 1918
Virus is in the water, is much harder on farm fish due to the close environment which causes "stress."
- (2)- Hitra (Cold water vibriosis)
Seen in fish farms since 1977
Mostly in winter months
- (3)- Furunkulosis
Problem began on trout farms
The disease begins with blistering, then moves into the blood stream
Norway's problem began with fish brought in from Scotland in 1985
In 1988 the disease showed up in two other river systems in. No answer to where it came from.
- (4)- Salmon lice
A real problem for farm fish
Treatment is Nuvan (Neguvon insecticide that has an impact on crab, clams, etc.)
- (5)- Gyroactylus Salaris
Fresh water parasite
Appeared in farms in late 70's to early 80's
Created a huge problem
The thinking is that it came from Sweden due to movement of smolt from one river to another.
- (6)- BKD
First seen in Norway in 1980
- (7)- Infectious Anemia of Salmon (IAS)- was called (SAS)
New disease that appeared in 1984
They think it's a virus but aren't sure
To this point it has not appeared in wild stocks of salmon

(1) Furunkulose in two fish farms.

Even if the fish has got the infection it is still all right as food. That is as long as the fish is not ill and the illness has left no visible tracks, such as outward bleeding, sores, etc.

(2) Illness to live with. Furunkulose

It doesn't have to be a catastrophe for Norwegian fish farming. We already know how to live with Viberiose. We try not to "stress" the fish when the temperature in the water is high. Although the bacteria is in the water, it does not affect the fish as good food. To rid the water of Furukulose is impossible..

(3) Yersinia Ruckeri

The bacteria yersinia ruckeri is found in Norwegian fish farming. The bacteria was unknown in Norway untill a few years ago.. The illness is very infectious and can affect the fish if it is being "stressed" for example, under transportation. It can live both in sea water and in fresh water.

(4) Salmon Anemi Syndrom (SAS)

The veterinary institution thinks that SAS comes from a virus. The illness was first detected in 1984.. Six fish farms had to slaughter all their fish and begin all over again when they had SAS in their fish farms. SAS is a blood illness, the blood gets thin and it then affects the liver. At this time we don't know if the illness is contagious through roe, but it's contagious from fish to fish.

(5) Infectious Salmon Anemi

The feared illness salmon anemi has attacked fish farms in west Norway county of Hordaland. (Bergen is in Hordaland.) Infectious salmon anemi is so far only affecting Norway. The illness has a high rate of death. The salmon anemi has not entailed as big loses as the "Hitra disease" but the problem with salmon anemi is that we don't know what causes the infection. We don't have any drugs to attack the infection and it will take a long time to find a vaccine. The fish farms that get hit by the infection, all the fish must be slaughtered as soon as possible. We can not see that it spreads through roe, but we know that it spreads through the sea.

(6) Unknown fish illness

An unknown fish illness is ravaging at Stord. Over the whole bottom of a lake on Stord there have been found dead fish. The dead fish is being attacked by a fungus. It is not known if the fungus is the real reason for the dying of the fish.

(7) Hitra disease vaccine

Hitra disease vaccine is too expensive. Experiments this year with the "hitra disease" vaccine look very good so far. It may be necessary to us the vaccine on the same fish later. The problem is that the vaccine is very expensive, over \$100 for a liter.

(8) Bakteriell Nyresykdom

A fish farm had to slaughter all their fish fry because it was infected by the illness "bakteriell nyresykdom". This caused big loses for the owners with no money for compensation. This will probably mean that other fish farms with the illness will try to hide it in stead of slaughtering the infected fish.

(9) Gyrodactylus Salaris (salmon parasite)

Gyrodactylus Salaris (GS) is caught by wild fish in many of the rivers from fish farms which are dealing with rainbow trout. It will be a lot more difficult to get permission to have a rainbow trout farm.

(10) Furunculose

It's been found that Furunculose can begin in rivers as well as in the sea. It can act in four different ways.

1. High rate of death.. Interior bleeding and swelling of the spleen.
2. Not as high rate of death, outside sores visible.
3. Wrong color of the intestine of the fish.
4. No rate of death. The disease can begin in high water temperature.

(11) New illnesses

More new fish illnesses crop up. We know hardly nothing about these new illnesses. We think it has to do with viruses. As an unknown, we don't have any drugs against the viruses. The question is, how can new illnesses break out all of a sudden. Some of the illnesses can come from the fact that there are too many fish in the fish farms, and that the farms are giving too much medication. The other problem with medicine is that it can effect the export of the fish. The USA may say that they don't want to import any fish which has been given antibiotics.

(12) Bacterium Kidney Disease

This disease develops slowly and breaks out on fish as late as half a year later. It can be wounds in the fish meat and smoked fish can get a bit of a wrong color..

(13) Selling unslaughtered fish

Make it illegal to sell fish unslaughtered. The reason is that there may be a parasite in the fish. The parasite lives in the intestine of the fish. The parasite is not dangerous for human consumption.

(14) Gyrodactulus Salaris

Drammen watercourse has been hit by the freshwater parasite Gyrodactulus. It will cost millions to save the salmon stocks in the Drammen river.

(15) Furunculose

Tons of fish die. The only thing we can do is to work for better environments and hope that the researchers will find an effective vaccine.

(16) Gyrodactylus

32 rivers have parasites on the fish now (Feb. 24, 1989). To get rid of the infection we have to put poison in the rivers to kill all the fish so that the infection will dissipate and a new salmon stock can be brought in to the rivers.

(17) Gyrodactylus Salaris

The parasite hangs on small salmon in the rivers. As the parasite eats on the salmon it creates a sore on the skin which brings fungus, virus, bacteria into the salmon and kills it. The parasite doesn't have eggs, but gives birth to another parasite which is half formed with another, so the multiplication is fast.

(18) Virus from USA

A fish farm in North Trondelag has got a new virus that has not been found in Norway before. The virus is known on the Pacific Coast of the USA. The virus gives anemi to the fish.

(19) Furunkulose

Salmon that escape from fish farms bring infections to other areas. Escaped salmon which has been infected by furunkulose is on it's way up the river system. It is proven that fish which have escaped have brought furunkulose to another fish farm.

(20) Furunkulose

To try and restrict the Furunkulose, management has said that it is illegal to transport fish for one area to another.

(21) Vaccination

The vaccination of all the fish in the fish farms is out of the question at this time.

(22) Furunkulose

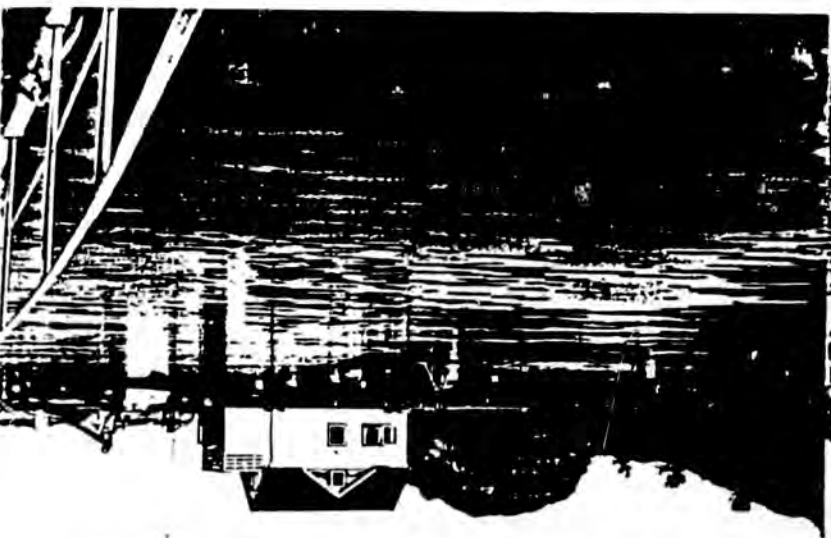
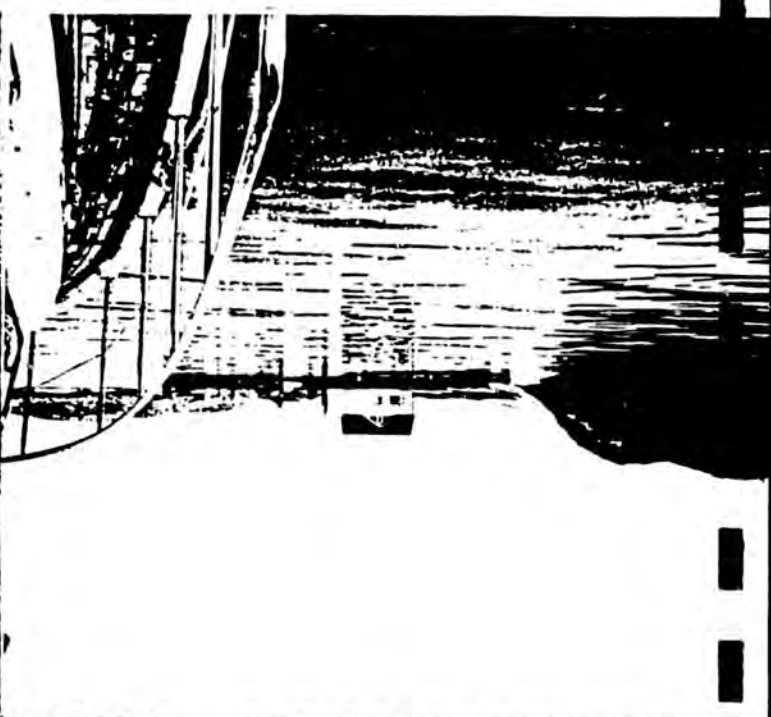
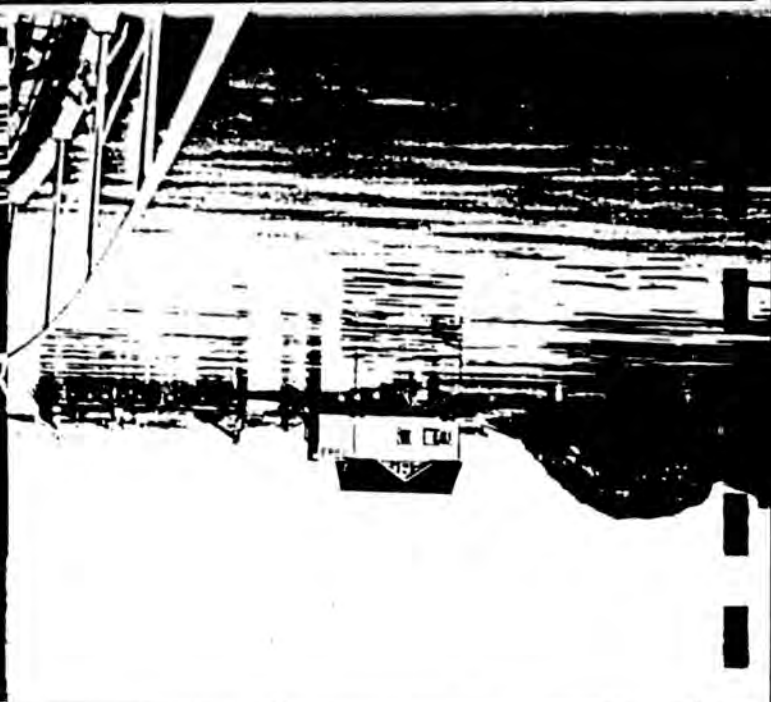
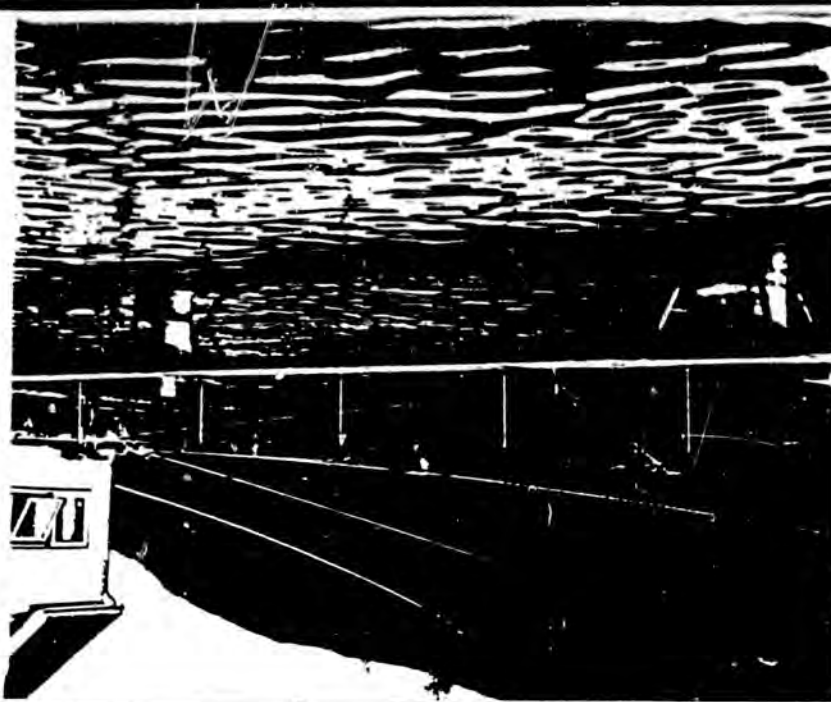
All fish with Furunkulose is to be slaughtered. Fish farmers are doing all they can to stop the infection of and spreading of Furunkulose. Now they are slaughtering all their fish that have Furunkulose.

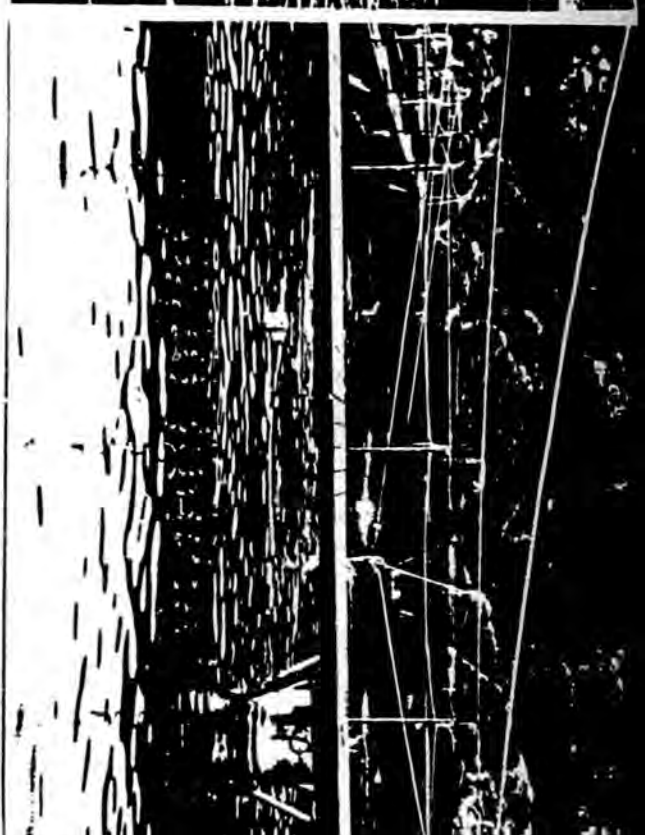
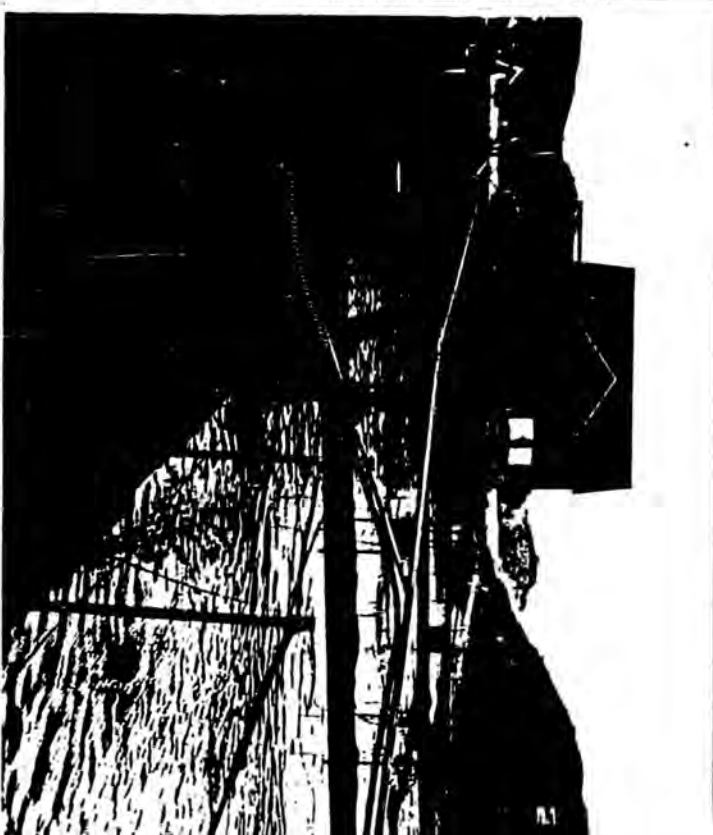
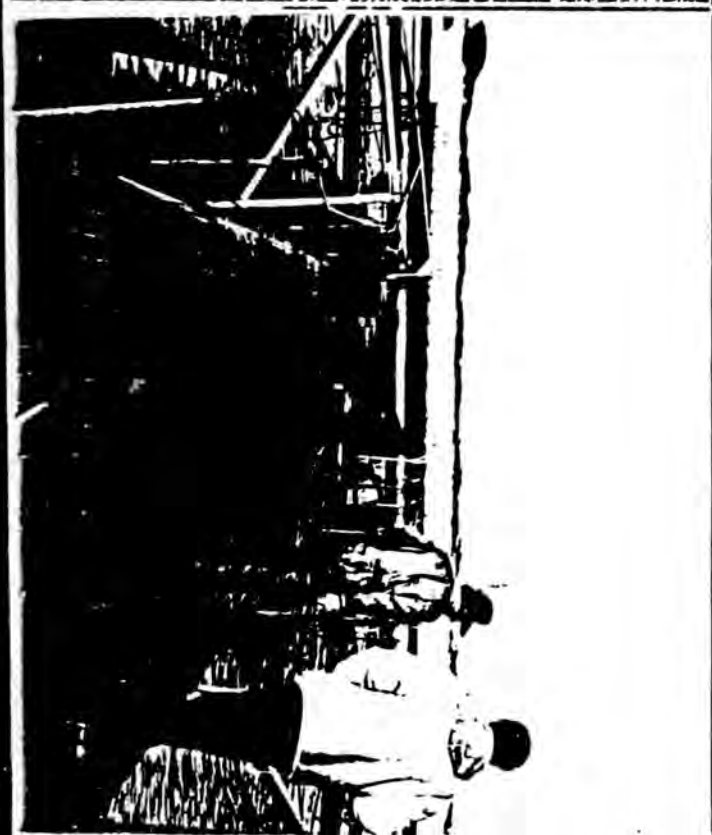
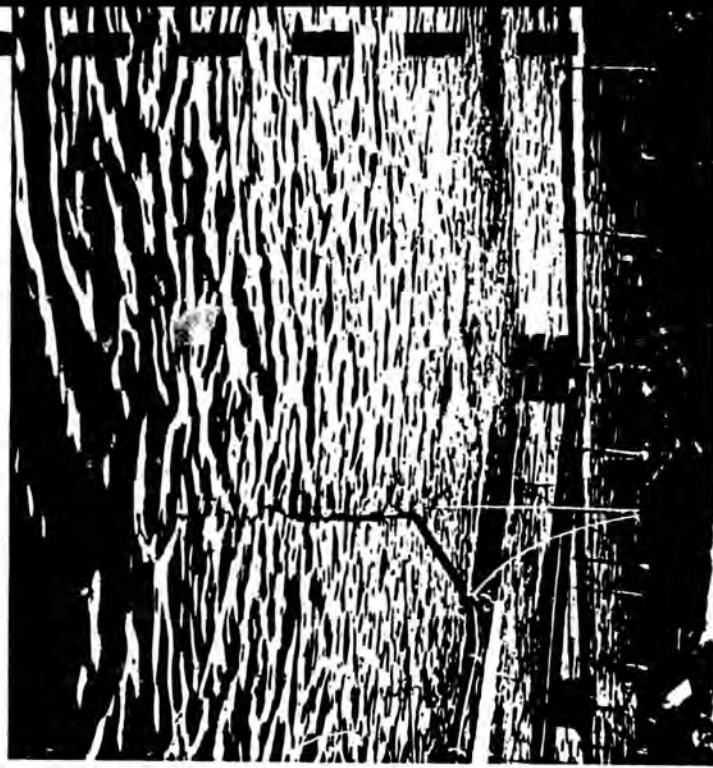
(23) Hitra disease

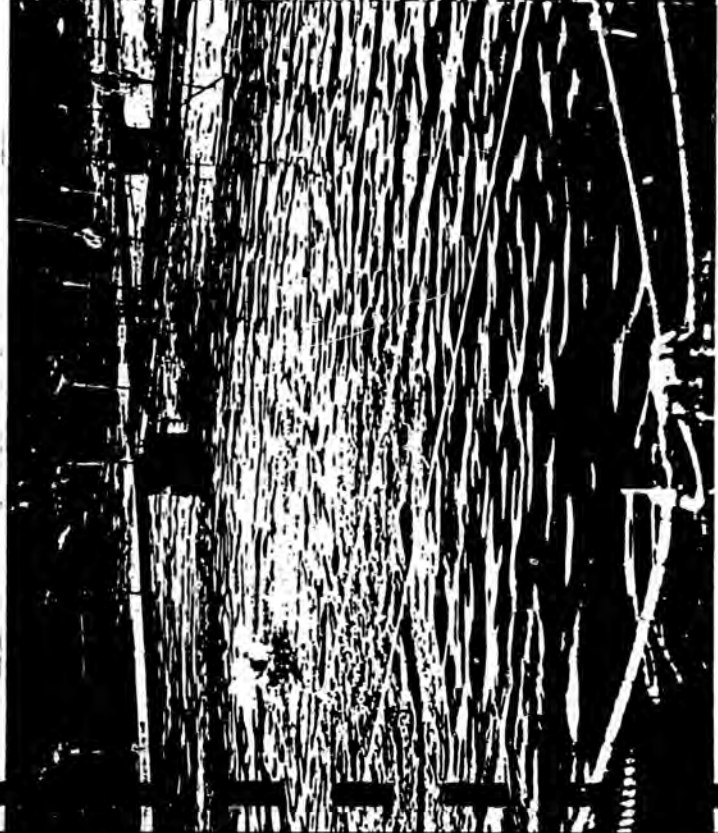
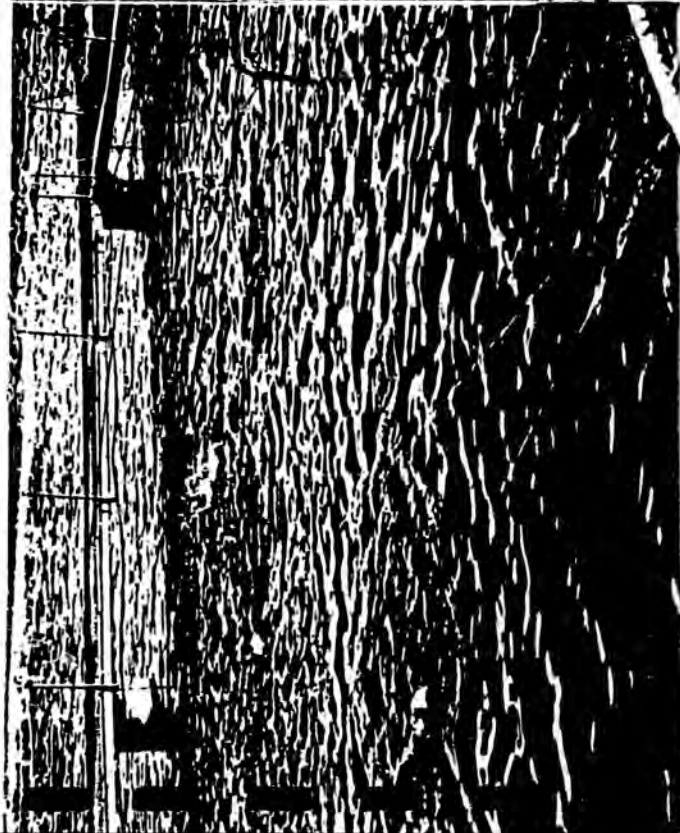
The return of Hitra disease after the winter of 1988 is taking place. Fish farmers along the west coast are cheering because of good growth of the fish, good temperatures in the sea, and not to much disease.

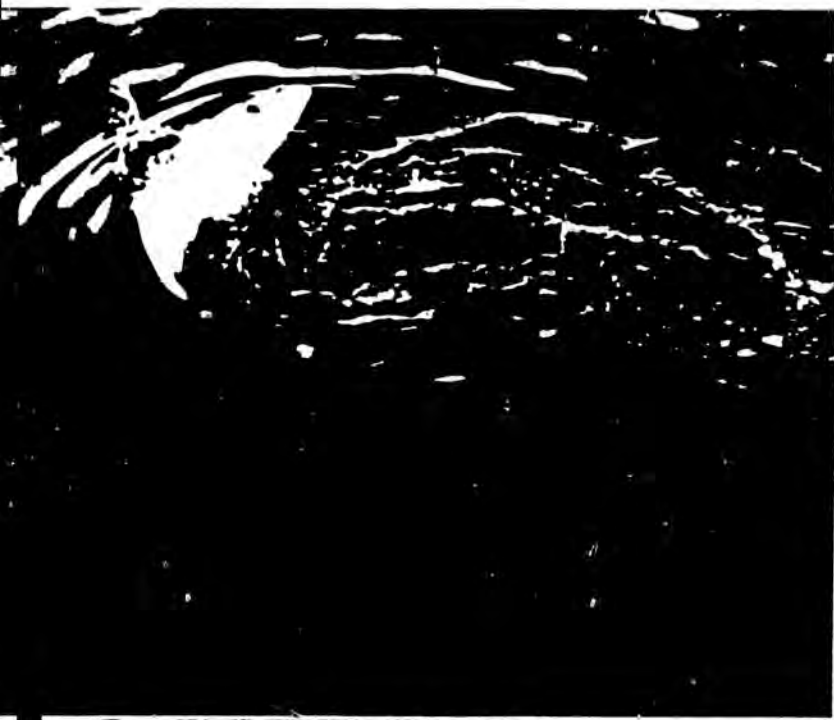
(24) Hitra disease

We have now developed an effective vaccine against "Hitra disease". It gives 95% protection to the fish. That means that the "Hitra disease" is on it's way to being wiped out. (April 1988)









— Eliason _____
— Mary _____
Sheila _____
Laura _____
Jo-Eve _____

NOTE:

Dile - This is
very interesting and
scarey!



UNITED STATES DEPARTMENT OF COMMERCE
International Trade Administration
District Office
222 West 7th Avenue, #32
Anchorage, Alaska 99513-7591 Tel.: 907/271-5041

January 25, 1990

RECEIVED
INTERNATIONAL TRADE

MEMORANDUM TO: Distribution

FROM: Charles F. Becker, Director
Anchorage District Office, ITA

OFFICE OF THE
GOVERNOR

SUBJECT: Frozen Norwegian Salmon

The following cable was received from the U.S. & Foreign Commercial Service in the American Embassy in Tokyo:

SUMMARY: Based on the current over supply of frozen salmon, the Japanese market will not accept 20,000 tons of frozen Norwegian salmon at the price of NOK 36, which is over 1,000 yen delivered to Japan. However, if the price is reduced to 600-800 yen/kilo, it will be a threat to U.S. frozen chum, coho and sockeye salmon. Although Japanese businessmen are concerned with the recent announcement of the Norwegian Fish Farmer's Sales Organization (NFFSO), they generally dismiss the plan of NFFSO on the grounds that the exporters of the salmon would have to suffer heavy losses in the Japanese market.

TEXT: U.S. & Foreign Commercial Service, Tokyo interviewed several Japanese sources (importers, brokers, wholesale market specialists, etc.) in the frozen salmon business to ascertain likely effect on the Japanese market after the recent announcement of NFFSO to produce 40,000 tons of frozen Norwegian salmon. Many Japanese businessmen doubt that any substantial quantity would be imported to Japan. The Japanese market is over-supplied with frozen salmon and is not in the position to accept a large amount of the frozen Norwegian salmon, especially at the current price of NOK 36 or over 1,000 yen/kilo delivered to Japan.

Frozen Norwegian salmon is comparable to Japanese fall chum, U.S. chum or coho salmon (because of the meat color), and their current market prices are below 800 yen/kilo. Additionally, the quantity indicated by NFFSO is large and it would take more than three months to sell 20,000 tons. Frozen Norwegian salmon is likely to sell in the same traditional market for chum which is generally limited to the Kanto Region (Tokyo, Kanagawa, Chiba, Saitama, Tochigi, and Gunma Prefectures). Because of its high fat content, the oxidation of fat is another concern when the fish is stored for a long period. Although it may be filleted or salted in addition to fresh frozen style, like chum and coho, for supermarket and department store sales, the price must be competitive or lower than those for chum or coho. This would be a new style (or market) for Norwegian salmon compared with their regular sales of fresh fish to restaurants or for the Sashimi market.



In February-March, 1989, Norway had a similar plan to sell 15,000 tons of frozen salmon. Even though the actual production is said to have been below 15,000 tons, total Japanese imports are estimated to have been only 400-500 tons. France is said to have been the largest importer, accepting 7,000-8,000 tons.

It is noteworthy that one importer thinks that almost the entire quantity of 20,000 tons currently offered to Japan and other Asian countries will eventually be imported at a low price into Japan, because the world market for frozen salmon is limited to only the EC and Japan. Further, he thinks that it will destroy the entire salmon market in Japan sometime in March through July. March or April are the most likely months that the salmon would be imported because that is when the salmon prices usually reach the highest level in the year. But, since the over-all salmon market is already depressed because of a large amount of imports in 1989, it will be difficult to sell all 20,000 tons before July when salmon fishing season in Bristol Bay enters its prime period.

EMBASSY COMMENT: This scenario, if true, is very critical for U.S. salmon fishermen, processors and exporters, because a decrease in the pre-season market price in Japan would reduce the base of price negotiation for frozen Alaskan salmon with Japanese buyers. Additionally, it would be possible for some Japanese importers to import frozen Norwegian salmon intentionally to manipulate the market for lower prices just before price negotiations commence with the exporters of Alaskan salmon.

A Japanese fishery industry newspaper on January 18 observed "for a successful outcome, NFFSO depends on unknown factors which are: a) a catch decrease forecast for Pacific salmon and, b) an expectation that other Atlantic salmon-producing countries will reduce their productions." It also comments that if Norway plans to produce 150,000 tons of salmon again in 1990, the proposed action plan will not solve their problems.

None of the sources contacted wanted to see frozen Norwegian salmon imported at this time. Post believes that it is likely a few hundred tons of frozen Norwegian salmon could be imported without any impact on the Japanese market. However, if NFFSO actually produces 40,000 tons of frozen salmon, whether or not any of it is imported to Japan, it will disturb the worldwide salmon market, possibly depressing the whole seafood market.



UNITED STATES DEPARTMENT OF COMMERCE
International Trade Administration
District Office
222 West 7th Avenue, #32
Anchorage, Alaska 99513-7591 Tel.: 907/271-5041

January 25, 1990

MEMORANDUM TO: Distribution

FROM: Charles F. Becker, Director
Anchorage District Office, ITA

SUBJECT: Surimi Product Exhibition: Japan

Tokai Denpun Company, Ltd. will sponsor the 15th Surimi Products Exhibition:

February 23, 1990, Friday
From: 11:00 AM till 19:30 PM
Shizuoka Terminal Hotel
Address: 56 Kurogane-Cho, Shizuoka-Shi, Shizuoka
Prefecture 420
Telephone: 0542-54-4141
FAX: 0542-55-3721

About 400 Japanese surimi product manufacturers, to which Tokai Denpun sells Japanese and imported surimi, will exhibit over 20,000 products under 2,000 different categories. Tokai Denpun invites overseas visitors to the exhibition. The exhibition will be educational and a good opportunity for overseas surimi processors and surimi products manufacturers to see and try many different products sold in Japan.

Anyone who wishes to visit the exhibition should directly contact:

Mr. Hitoshi Mori
Surimi Section, Marine Product Department
Tokai Denpun Company, Ltd.
4-15 Tenmachi, Shizuoka 420
Telephone: 0541-53-1181
FAX: 0542-51-3522

for pre-registration. Visitors are allowed to participate in all programs (Exhibition, Lectures and reception) at no charge. Tokai Denpun, a major surimi distributor, was established in 1947 and has 500 employees. Its paid-in capital is 470 million yen and the sales for 1989 was 120 billion yen. Its business includes domestic sales, import, export, processing and manufacturing of starch, agricultural products, marine products, livestock products, food additives, feed, brewing materials, oils and fats, medicine and industrial chemicals, chemical products, package materials and food machinery.



Shizuoka Terminal Hotel is near the JR Shizuoka Station. It takes about 1 hour from Tokyo on JR Tokaido Shinkansen. One-way fare is approximately 6,000 yen (145 yen/US\$1.00) from Tokyo. Although it is possible to return to Tokyo after reception on the same day, visitors wishing to stay in Shizuoka should contact hotel directly. Net room rates are 8,000-10,000 yen for single and 12,000-14,000 yen for double rooms. 10% service charge, any local tax and 3% consumption taxes will be added to the above room rate.

U.S. & Foreign Commercial Service representative, Tommy Asakawa, Mr. Mikio Kawasaki (Oregon State Office, Tokyo), Ms. Greta Anderson Goto and Ms. Kimiko Muguruma (Alaska State Office, Tokyo) will also attend the exhibition.

ABLE001
taly
GENCY

Description:

2092XXX-0000 FRESH (LIVE LOBSTERS) AND FROZEN FISH

Comments:

FIRM FOUNDED IN 1987 BY THREE PARTNERS, WHO MANAGE AND RUN THE BUSINESS. IT IS MAINLY AN IMPORTER/AGENT/DISTRIBUTOR AND EXPORTER OF LEATHERS. IT ALSO DEALS IN FRESH AND FROZEN FISH AND IN WOOD PULP. FIRM SELLS THROUGHOUT ITALY THROUGH SEVERAL REPRESENTATIVES AND REPORTED A SALES VOLUME OF APPROX. USD 2 MILLION FOR 1988. BANK REF.: CASSA DI RISPARMIO DI PISA, 56029 SANTA CROCE SULLARNO (PISA), ITALY.
MORRIS

WRITE TO:

MR. FRANCESCO BINI
OREGON PELLAMI SAS
VIA PROVINCIALE FRANCESCA SUD 49
56029 SANTA CROCE SULLARNO (PISA), ITALY

PH.: 39--571-30239 TELEX: 501262

FAX: 39--571-30239

Please send a copy of your response to:
COMMERCIAL OFFICER (TOP)
AMERICAN CONSULATE
FLORENCE, ITALY
APO NEW YORK 09019

Refer to -- P0009

GABLE032

Spain

DIRECT SALE/AGENCY/JOINT VENTURE

Description:

99733XX-0000 FRESH SHELLFISH

Comments:

SMALLED-SIZED FIRM, ESTABLISHED IN NOVEMBER 1989,
EMPLOYS 5. COMPANY ACTS AS IMPORTER/EXPORTER OF FRESH
AND FROZEN SEAFOOD. THEY ARE INTERESTED IN IMPORTING
SHELLFISH AND WOULD LIKE QUOTATION CIF BARCELONA. FIRM
IS ALSO LOOKING FOR A PARTNER TO INVEST ABOUT USD180,000
IN THEIR OPERATION. BANKREFS: BANCO HISPANO AMERICANO,
AG.13333, PI I MARGALL 39, 08140 CALDES DE MONTBUI
(BARCELONA).
DAVIS

WRITE TO:

MR. ANTONIO NSOUMB, MWNAGING DIRECTOR
COMERCIAL ANTONIO INC.
RONDA UNIVERSIDAD 21 - 4G
08007 BARCELONA

PHONE: 343/4125196

FAX: 343/412-5195

Please send a copy of your response to:
COMMERCIAL OFFICER (TOP)
BARCELONA, SPAIN
APO NEW YORK 09285

CABLE012
West Germany
DIRECT SALE FOR RESALE

Description:

9971XXX-0000 SURIMI PRODUCT
997342"-0000 FROZEN EELS

Comments:

FIRM WAS FOUNDED IN 1988, AND ACTS AS AGENT IN THE
FISH BUSINESS; EMPLOYS 3; ANNUAL TURNOVER DM 15 MILLION.
WHITLOCK

WRITE TO:

MR. ERNST W. SCHWARZ
SAS SEAFOOD AGENTUR SCHWARZ GMBH & CO.
NIIHOOGER 5
D-2280 MORSUM/SYLT

PHONE: (4654) 1421

FAX: (4654) 703

Please send a copy of your response to:

COMMERCIAL OFFICER (TOP)
AMERICAN CONSULATE GENERAL
HAMBURG, F.R. GERMANY
APO NEW YORK 09215

Refer to -- P0013

CABLE024

United Kingdom

DIRECT SALE FOR RESALE

Description:

IMPORT US GOODS FOR RESALE

209XXXX-0000 SEAFOOD

2253XXX-0000 TEXTILE GOODS

22628XX-0000 TEXTILE GOODS

3841XXX-0000 MEDICAL AND PHARMACEUTICAL PRODUCTS

3842XXX-0000 MEDICAL APPLIANCES AND SURGICAL
INSTRUMENTS

3541XXX-0000 MACHINE TOOLS FOR VARIOUS INDUSTRIES

2844XXX-0000 COSMETICS, AROMATIC FLAVORS AND
ADDITIVES

Comments:

OVERSEAS INTERNATIONAL CORPORATION WISH TO IMPORT
FOR RESALE A VARIETY OF PRODUCTS RANGING FROM MEDICAL
TO PERFUME AND MACHINE TOOLS. THEIR BUSINESS WAS
ORIGINALLY BASED IN THE MIDDLE EAST BUT TERMINATED AND
TRANSFERRED TO LONDON IN 1980. GOODS ARE TO BE OF A
HIGH STANDARD. (US/FCS/PJOWEN/GKNOWLES)CATTO

WRITE TO:

MR. E. K. DAVID, PRESIDENT
OVERSEAS INTERNATIONAL CORPORATION
1 CHEYNE CLOSE
PAGE HILL, BUCKINGHAM, MK18 1XP
UNITED KINGDOM

TEL: 0280-815112

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

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

1. The mariculture industry must benefit Alaskans.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**FISH FARMING IN ALASKA:
GAMBLING WITH RESOURCES AT PUBLIC EXPENSE**

**BY
SENATOR DICK ELIASON**

Article submitted for
publication in
special "Comfish" issue
of Kodiak Newspaper
(March 1990)

Alaska should move now to ban commercial finfish farming in the state. Development of a fish farming industry could jeopardize our natural resources, our sport and subsistence fisheries, and our billion-dollar commercial fishing industry.

Stewardship of common property resources is one of the most challenging responsibilities with which Alaska's government is charged. Our state Constitution (Art.VIII, Sec.2) provides, "The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State...for the maximum benefit of its people." As a member of the legislature for nineteen years I can assure you that implementing this policy so that everyone is happy is an impossible task, but it is nonetheless essential to strive for the greatest common good.

The mandate to manage natural resources for the public good is, in itself, ample reason for the legislature to ban fish farming. Even fish farm advocates agree that risks to wild stocks can be minimized but not eliminated, and that the current economic potential for fishfarming is bleak. How can we justify spending public funds to help establish an industry which could bring catastrophe to natural resources and to the state's largest private sector employer?

The small group of individuals pushing for fish farming in Alaska is quick to point out that many countries around the globe are ardently pursuing mariculture, and that Alaska should jump on the bandwagon. Does any one of these other countries boast natural fishery resources on a par with

Alaska's? On the contrary. In most cases, they've either never had significant natural stocks or their fisheries have been decimated by poor management. These countries have little to lose by experimenting with fish farming.

The development of the world's finfish farming industry has been marked by an initial period of very rapid growth, and more recently by severe economic woes including many bankruptcies and the dumping of large quantities of farmed fish on the market at a loss. Farm operations have been established long enough in many places for us to see that the industry is plagued by problems Alaska does not have now, and and does not want.

Critical areas of concern include water quality, siting, and hazards to natural stocks. The degradation of water quality seems impossible for fish farms to avoid. According to a state report done in Washington, one typical fish farm using net-pens produces pollutants "equivalent to untreated sewage from approximately 10,000 persons." Pollutants are also laced with hormones and antibiotics given to the fish; these are believed to pose a serious threat to the public health by producing antibiotic-resistant bacteria in the human food chain. Over time, in a single site, tons of oxygen-demanding waste are produced. Complaints about pollution from salmon farms are cropping up in Ireland, Norway and Canada. Fish farms contributed to the pollution which likely was a key factor in the frightening killer-algae-bloom which destroyed all marine life in its path when it swept

through the North Sea in 1988. Maintaining the quality of the marine environment along our coasts is something in which most Alaskans have a stake.

The location of fish farms has sparked bitter public debate in places like Puget Sound. Even in Alaska a limited number of sites possess the features desirable for fish farms: accessibility, protection from heavy wave action, good flushing action, availability of a fresh water source, a good distance from anadromous fish streams, and so on. Many of these same attributes are desired for other uses: shellfish farms, hatcheries, recreation, boat moorage, residential development, etc. Conflict over siting is inevitable.

Perhaps the most unsettling of the potential dangers of fish farming center around the problems of fish disease, accidental escapement, and genetic intermingling.

These are serious concerns even in Norway, where mariculture is "state of the art" and fish farmers have access to extensive subsidized technical expertise. Fish escaping from pens pose a threat even if the renegade fish are free of disease. Renegade salmon may compete for space in a river inhabited by natural stocks, and inbreeding can weaken the qualities which suit a fish to life in the wild (such as the ability to migrate).

In Norway the escapement of large numbers of fish infected with a deadly disease has threatened wild stocks. Fish biologists there have concluded that disease in farms can lead to higher rates of infection in the vicinity of the net

pens, even if the disease itself already exists in natural stocks. When an exotic disease breaks out in a river inhabited by natural stocks, the entire river must be poisoned to eradicate it; this has happened in the U.S. and in Norway.

Recently the deadly VHS disease erupted again at a hatchery in Washington, and was also detected in wild salmon. The source of VHS is a mystery. But the fact that it never appeared in the U.S. until shortly after the establishment of fish farming, and that two of the three hatchery outbreaks of the disease in Washington have occurred within ten miles of major salmon farms, seems to lead to an apparent connection.

Those advocating fish farming in Alaska claim that all these risks can be minimized with the proper controls, siting guidelines and, of course, adequate funding. Indeed, to allow ANY fish farming, funding would be required for a whole new layer of bureaucracy spanning four departments (DEC, DNR, Fish and Game, and Public Safety), including lab space, state fish pathologists, biologists, and protection officers as well as office personnel.

But no amount of regulation can be effective if enforcement can't be guaranteed -- a costly and virtually impossible task when fish farms would be located in remote places and monitored sporadically. For example how can we prevent a farmer in some isolated bay from releasing diseased fish into the wild to save the huge expense of proper disposal? (Such actions are alleged to be taking place in Norway).

More than 70,000 people are employed seasonally in Alaska's seafood industry. They depend on the state to manage fisheries resources for a sustained yield. An average of only 3 people are needed to run the average fish farm. Fish farming has been touted as a fine "Mom & Pop" operation, a family business -- well, maybe if you're a member of the Rockefeller family, because it takes about \$1,000,000 to get started and it's a minimum of two years before you can expect any return on your investment! Financing for ventures in Alaska would likely come from out of state and foreign investors, so even if the industry were able to reap a profit, much of it would not benefit Alaskans. A much better "Mom & Pop" operation is shellfish farming, which has the legislature's full support (and mine), and which is now developing in various parts of Alaska.

Economic diversification and development deserve our support, but it should not be blind support of "anything at any cost." Potential benefits must always be weighed against potential harm. I concur that within human limitations, damage can be minimized in fish farming, but I doubt that adequate adherence to protective measures can be achieved, and I can't see a reason to take any risks when potential benefits are so minuscule.

We can best serve Alaska by responsibly managing our fisheries resources according to sustained yield principles, maximizing returns by controlled harvest and through enhancement efforts, continuing to support the "Americanizing"

and "Alaskanizing" of our fisheries, increasing incentives for shore-based processing, strengthening our marketing and quality assurance/education efforts, and by overall efforts to maintain a healthy marine environment.

The legislature recently received the final recommendations of the Finfish Farming Task Force appointed by Governor Cowper. The report confirms that the potential negative impacts of fish farming on natural stocks cannot to be eliminated, and does not present any evidence that Alaska stands to gain enough to justify taking the risks involved. The report recommends that the legislature act this session to resolve this issue.

To this end I have introduced Senate Bill 397, which would ban commercial finfish farming in Alaska. The current moratorium on fish farming will expire this July, unless action is taken. I hope that the members of the public will make their views known to their elected representatives in Juneau so that the legislature can resolve this issue once and for all.

WISE NATURAL RESOURCE MANAGEMENT DICTATES FISH FARM BAN

by

Senator Dick Eliason

After four years of discussion on the subject of mariculture, the time has come for the Legislature to end the debate and ban commercial finfish farming in Alaska. The current economic outlook for fish farming is bleak, and does not provide any justification for jeopardizing a natural resource base which supports subsistence, sport, and valuable commercial fisheries.

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

Unlike the other states and countries which have pursued fish farming, Alaska boasts a wealth of healthy natural fish stocks. These support a seafood industry payroll in Alaska which in 1988 exceeded \$1 billion; that's more than the combined payrolls of Alaska's other leading industries: oil and gas, tourism, mining and forest products. A fish farm, which costs about \$1 million to get started and takes two years to turn its earliest profit, employs an average of 3 people. Financing for fish farming ventures in Alaska would likely come from investors in other states and nations, with a large share of any profits flowing out of state. Fish farms in other states and in nearby British Columbia have been forced to sell their products at cost due to a glut of farmed

fish on the market, and some have faced bankruptcy.

Profitability is, at best, uncertain.

Unfortunately, nobody can guarantee that our wild fisheries resources would be safe from the risks posed by fish farming. The report submitted to the Legislature by the (non-legislative) Finfish Farming Task Force states that the potential negative impacts of fish farming on natural stocks cannot be eliminated, a finding with which even fish farming advocates reluctantly agree.

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

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

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

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

escapement, and genetic intermingling, all of which have presented genuine problems in Norway, home of the world's most advanced fish farming operations. Despite the advanced technology and massive government subsidies supporting the industry in Norway, masses of diseased fish have escaped from farms and threatened wild stocks. Even when a certain disease exists in wild fish, studies have indicated higher rates of infection near net pens. Renegade farm fish, even if they are free of disease, may constitute a threat by competing for space in rivers inhabited by wild fish, and inbreeding can weaken the qualities which suit a fish to life in the wild (such as the ability to migrate). Rivers in Norway and the U.S. have been poisoned, and their wild stocks exterminated to control outbreaks of exotic disease unknown prior to the advent of fish farming.

These various risks to wild stocks can be minimized, according to fish farm proponents, with proper controls, siting guidelines and adequate funding. The cost of these controls and the attendant layers of bureaucracy would be considerable, and regulations would be ineffective unless accompanied by rigorous enforcement efforts. From Norway to British Columbia there have been documented cases of flagrant violations of regulations, including the release of diseased fish into the wild (sparing the expense of proper disposal) and the improper dumping of diseased carcasses (in one case use of an open trench enabled scavengers to provide a route for the disease into the food chain).

The Legislature has a constitutional mandate to manage natural resources for the maximum benefit of Alaskans. To gamble with these resources at public expense is simply irresponsible. Our stewardship of Alaska's natural resources, her lands, her waters, and her fisheries, involves both development and conservation. The public interest would be best served by our unfailing commitment to managing Alaska's fisheries resources according to sustained yield principles, maximizing returns through controlled harvest and enhancement, providing incentives for shore-based processing, continuing marketing and quality assurance campaigns, and protecting the marine environment from pollution.

The moratorium on fish farming now in place will expire in July of this year. Proposed legislation has been introduced which would ban commercial finfish farming in Alaska. Legislative committees are now taking public testimony on this issue. If the Legislature lives up to its constitutional mandate, Alaska will refuse to flirt with the potential catastrophe which could be brought about by fish farming.

#

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