

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE
1807 SCOMM 74: SEN. SPEC. COMM. ON DOMESTIC & INTL. FISH. 8672
1991-92 24

OPTIONS FOR POSSIBLE CONSIDERATION:

- Working with the public and user groups to develop statewide goals and objectives for the state's entire fisheries enhancement program.
- Directing FRED Division to develop a program to implement these goals and objectives.
- Declaring a moratorium on further hatchery development or increased production until the Legislature's economic cost-benefit studies are complete and a full assessment of the hatchery program can be made.
- Development of a statewide planning process.
- Development of a statewide production plan.
- Requiring FRED to develop a comprehensive annual report that not only compiles production figures from state and PNP facilities, projects, and current management regimes, but also includes future production and management plans.
- Evaluation of the composition and procedures of the RPT to determine if changes in the RPT structure are necessary.
- Expansion of state statutes to require all hatcheries, including state facilities, to comply with a single planning and permitting process, with the same requirements for monitoring and review.
- Widening the scope of RPT review, including recommendations for allocation of enhancement production.
- Providing adequate funding for planning.
- Reviewing the required Management Feasibility Analysis to determine if it needs to be a more comprehensive review.
- As part of permit review and solicitation of state loans, consideration of adding new criteria to show public benefit, including marketability, a detailed cost/benefit analysis instead of a financial feasibility analysis, a more specific indication of the "significant contribution" to be made to the common property fishery, and some kind of environmental assessment.
- Providing concrete direction for the timely performance review of PNP hatcheries and a more workable mechanism for closing or converting hatcheries not making a "significant" contribution to the common property fishery.
- Exempting the alteration, suspension or revocation of an enhancement permit for violations from the Administrative Procedures Act.
- Instituting a regular review process similar to the Canadian model.
- Clarifying Board of Fisheries authority to regulate hatchery production levels.

- Re-evaluation of the policy of giving regional aquaculture associations the preference rights to develop future hatchery sites in the region.

Chapter VII

BIOLOGICAL/GENETIC ISSUES

In November 1991, in Cordova, Alaska, the Prince William Sound Science Center (PWSSC) and the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, convened a group of world-renowned experts to examine "The Biological Basis for Maintaining Strong Co-existing Stocks of Natural and Enhanced Salmon Populations in Alaska." This workshop followed a series of international symposiums on this topic during the past two years. Top fisheries biologists, ecologists and geneticists from the United States, Norway, Sweden, the Soviet Union and Japan were present at the Cordova workshop. As a follow-up to the workshop, the group intends to produce a summary report and list of recommended policies and procedures to be considered by the state of Alaska in managing its wild and enhanced salmon stocks. That report is expected in late February.

The cumulative effect of hydroelectric dams, habitat destruction, overfishing, and large-scale hatcheries has led to the decimation of many wild salmon stocks in Pacific Northwest states. Biologists in states with a long history of hatchery programs are generally less enthusiastic about these programs than biologists in areas such as Alaska and British Columbia with comparatively recent programs. *Although poor hatchery practices can clearly endanger wild salmon populations, scientists do not agree on the extent to which hatcheries with sound practices can co-exist with sustained healthy runs of wild salmon.*

The lack of consensus among scientists largely results from insufficient data and research, and at times, professional bias. Even where information exists, however, it is often subject to conflicting interpretations. To complicate matters, results of specific studies may not be transferable to other areas or salmon species, and year-to-year environmental changes may affect the results of these studies.

THE GENETIC EFFECTS OF HATCHERIES

Most scientists agree that it is essential to have healthy wild stocks to maintain the health and genetic diversity of both wild and hatchery stocks; genetic diversity must be preserved. Scientific knowledge about the genetic impact on wild stocks of hatchery fish, however, is still incomplete. Reduction in the fitness of salmon stocks, to the extent it has been documented, may involve numerous factors. Most scientists agree that hatcheries can complicate mixed-stock fisheries and affect the genetic composition of wild fish stocks. Scientists do not agree on the extent to which genetic changes affect the short- or long-run fitness of wild stocks.

Straying and intermingling of stocks is a major concern to scientists. The extent of straying, the variables involved in imprinting, and the effects of interbreeding are largely unknown. Large-scale ocean ranching appears to set the stage for straying of wild stocks in the harvest areas of enhanced stocks and also for hatchery fish to stray into the natural streams. What impact this has on the genetic diversity of salmon stocks in a given

region is a question that remains to be answered. However, the concern is that intermingling may reduce the fitness of the locally adapted populations.

It is known that the greater the distance between the donor stream or hatchery and the release site, the greater the amount of straying. Many scientists are concerned about the extensive releases at remote sites practiced by many hatchery operations today, with many more planned for the future. They fear that such straying could potentially, in time, destroy genetic diversity -- resulting in a permanent, irreversible loss. Some scientists believe remote releases should be banned altogether. Others believe they should be permitted with stringent controls and careful monitoring.

OCEAN CARRYING CAPACITY

Some scientists suspect that the carrying capacity of nearshore marine waters and the high seas for salmon may be exceeded by large-scale releases of hatchery salmon. A reduction in the average size of salmon was reported throughout the Pacific region in 1991, but various factors may be responsible. Since 95 percent of the growth of salmon occurs at sea, some researchers believe ocean conditions affect the size of salmon more than competition. Much evidence, however, supports the theory of density-dependent growth for some salmon species, although there is considerable debate regarding its occurrence. More information is needed on the effects of predation and competitors.

DISEASE

Few studies document the transmittal of diseases between hatchery and wild salmon, and there is no documentation of such transmittal in Alaska. Where transmittal of a disease by hatchery salmon has been documented, it occurred after fish were transplanted long distances. Hatchery fish appear to be more vulnerable to disease than wild fish because of the stress of hatchery conditions and large concentrations of eggs and fry. Norway has had considerable problems with disease transmitted by farmed salmon that have escaped and mixed with wild stocks.

Active fish pathology laboratories are maintained by the FRED Division in both Juneau and Anchorage. Their basic function is to implement policies and procedures that guard against the spread of fish and shellfish diseases in Alaska. Reviewing fish transport permits in order to reduce the occurrence of disease is a major task of the labs, as is examining each broodstock for disease prior to its use in a hatchery.

STATE GENETICS PROGRAM AND POLICY

The state genetics program is intended to implement policies and procedures that protect and maintain the genetic uniqueness of Alaska's wild salmon stocks in the face of North America's largest salmon enhancement program. The state's fish genetics policy, considered to be one of the most stringent in the world, was last revised in 1985, and will be reexamined and updated this year.

Alaska's genetic policy contains guidelines and restrictions intended to protect the genetic integrity of wild stocks. The *goal* is to maintain adequate genetic variability, ensuring that the enhanced stock will be able to adapt to changing environmental conditions.

Geneticists have two primary concerns in protecting wild stocks and implementing a successful enhancement program. The first is possible genetic impacts due to gene flow between wild or enhanced stocks; the primary concern being, of course, for wild stocks. The second concern is the loss of genetic variation within or among stocks. Both impacts can potentially cause the reduction of total fitness in wild stocks and hatchery broodstocks. These problems are addressed in the policy's three main topic areas: stock transport, protection of wild stocks, and the maintenance of genetic variation.

Since specific knowledge of salmon population genetics and the genetic impacts of salmon enhancement on wild stocks was limited, the 1985 genetic policy was based primarily on information from agricultural genetics and research on other species. As a result, the policy contains guidelines that are rather flexible. The policy suggests that because scientific knowledge is limited, fish transport should be evaluated conservatively. For example, if genetic similarity decreases with distance, arbitrary limits must be set on the distance a stock can be transported. For that reason, the Fish Transport Permit process is the prime regulatory tool in the genetic policy. *ADF&G is attempting to clarify some of the flexible guidelines in the revised policy by incorporating knowledge gained from recent studies of the population genetics of salmonids.*

The genetic policy also acknowledges that all salmon runs are not of equal importance. The effect of a salmon enhancement project depends to some degree on the relative value of the stock that might be impacted. However, the policy says that the concept of "significant stock" only relates to the size of a fish population in the context of local importance and use. A population that would be considered insignificant in size in one region, may be of vital importance in another region.

OPTIONS FOR POSSIBLE CONSIDERATION:

Although a report of recommended management actions resulting from the Cordova workshop is expected in late February, some preliminary options for consideration include:

- Evaluation of how well the current hatchery program protects wild salmon from possible negative effects of hatchery salmon. Such a review would help policy makers determine the risk of various alternatives for the future of Alaska's hatchery program.
- Increasing the amount of genetic monitoring required of hatchery operators, and directing ADF&G to continuously review and analyze resulting data statewide.
- Obtaining consensus about research priorities concerning the interaction of hatchery and wild fish in Alaska, coordinating future studies, and deciding how and when to apply the results of those studies to current management practices.
- Conducting research to define the minimum conditions for imprinting for remote release programs.

- Review of current and future programs for their compliance with the state genetics policy.
- Placing greater emphasis on management concerns in the permitting process in order to protect wild stocks.
- Re-examination of escapement goals in order to maximize wild productivity.
- Increased use of marking and tagging programs to monitor interactions between hatchery and wild populations.
- Policy development to minimize inbreeding and straying, including an evaluation of remote releases.
- Treating a remote release site as a de facto hatchery site in terms of broodstock and hatchery site guidelines, even if all fish are expected to be harvested.
- Identification of genetic population structures to determine what populations are genetically distinct.
- Survey of populations prior to any enhancement activity to provide a baseline for subsequent genetic monitoring. Evaluation of genetic consequences of hatchery production on adjacent populations during phased-in expansion, with production increases halted if adverse impacts are noted.
- Monitoring wild and hatchery stocks to determine extent of straying and intermingling.

CHAPTER VIII

FUNDING OF THE ALASKA SALMON ENHANCEMENT PROGRAM

Sources of funds for the Alaska salmon enhancement program and projects include bond issuances, state general fund appropriations, salmon enhancement tax assessments paid by fishermen, state enhancement loans, and cost-recovery sales of fish.

STATE PROJECT FUNDING

Funding for the operation of the state salmon enhancement program and state project construction, operation, and maintenance has been primarily through state bonds and general fund appropriations to ADF&G, FRED Division. From FY 72 - 92, funding for the FRED Division totalled approximately \$210.3 million, the majority of which was for salmon enhancement. Bond issues totalling \$56.17 million were authorized by the 1976 and 1978 Legislatures, and overwhelmingly endorsed by voters, to fund the construction and operation of hatchery production and other enhancement projects in each region of the state. Of the \$56.17 million in bond issues for FRED enhancement projects, \$50.3 million was spent on hatcheries, while the remainder was used for other enhancement projects. State funding for FRED division construction of state facilities totaled approximately \$24.8 million through FY 92.

FUNDING FOR PRIVATE NON-PROFIT HATCHERIES

Funding for PNP hatcheries is primarily through state loans, the salmon enhancement tax, and cost recovery sales of fish. To a lesser extent, the state has provided grants to some facilities and fishing organizations; these have totalled approximately \$12.3 million.

Since 1977, a significant portion of the funding necessary for the implementation of salmon rehabilitation and enhancement activities by PNP corporations has been provided through the *Fisheries Enhancement Revolving Loan Fund* administered by the Alaska Department of Commerce and Economic Development (DCED), Division of Investments (AS 16.10.500-620). The loan program has gone through several modifications by the legislature, the most recent occurring in 1987. The maximum loan amount available for an individual project is \$10 million at approximately 9.5 percent interest, with a payback period of up to 30 years. According to state statute (AS 16.10.525), payments and accrual of interest on these loans *must* be deferred for 6 to 10 years. Loans for non-regional aquaculture association projects have these same terms with the exception that the loan maximum is limited to \$1 million. Loans are available for the purpose of planning, construction, and operation of salmon rehabilitation and enhancement projects, primarily salmon hatcheries.

The *Salmon Enhancement Tax* (AS 43.76.010-.015) is charged to limited entry permit holders who are members of qualified regional aquaculture associations. State law allows the associations to set enhancement tax rates at either 1 - 3 percent of the ex-vessel value of the salmon catch, subject to the vote of the membership.

Through November, 1991, \$71.0 million has been borrowed by PNP corporations. Approximately \$67.7 million (95 percent) of the \$71.0 million principal balance is currently outstanding. Including state appropriations (\$12.3 million), approximately \$83.3 million has been provided in state loans and grants to PNPs. Another \$46.2 million has been generated through enhancement tax assessments. To date, PNP operators have sold approximately \$70.9 million worth of cost-recovery fish to help pay for hatchery operations. The amount and percentage of funding by category is shown below.

\$71.0 million	35 percent State Loans
\$12.3 million	7 percent General Fund Grants
\$46.2 million	23 percent Enhancement Tax Assessments
<u>\$70.9 million</u>	<u>35 percent Cost Recovery Sales of Fish</u>
\$200.4 million	Total

As can be seen, the private sector has provided over 58 percent of the direct funding for PNP operation and construction through self-imposed taxes and cost recovery sales of fish.

OPTIONS FOR POSSIBLE CONSIDERATION:

- Requiring a more extensive public benefit-cost analysis before providing enhancement loans. This means that a project or facility expansion would not only have to be financially feasible--capable of paying back loans--but also provide net benefits to the public.
- Eliminating the statutory loan repayment deferment requirement on operating loans.

- Development of a mechanism for placing moratoriums on state enhancement loans for increased fish production. Consideration of a moratorium on loans until results of the Legislative Enhancement Program Review economic studies are complete.
- Implementing a requirement for more complete analysis of transfers of the operation of state hatchery facilities that includes factors such as upfront capital costs to state to expand or upgrade facility before transfer is accepted, fisheries management implications, increased need for cost recovery, and the impact on traditional common property fisheries.
- Analysis of the enhancement tax program to determine 1) whether costs are distributed in proportion to benefits, and 2) the impact of a mechanism to allow specific gear groups to opt out of the program or pay in proportion to the enhancement benefits they receive.
- Analysis of increasing the salmon enhancement tax so fishermen who benefit from the program will pay for more of the costs.
- In light of declining state revenues and lower fish prices, development of an auditing mechanism to ensure that annual PNP operating costs, paid by loans, enhancement tax receipts and cost recovery, are "reasonable."
- Development of a requirement that funds provided in treaty agreements for enhancement be used for fish production to the maximum extent possible. In addition, a requirement for a comprehensive feasibility analysis of using enhancement as part of treaty agreements could be considered.

Chapter IX.

ECONOMICS

Note: This section summarizes the economic studies that are currently in progress under contract. The results of these studies are not yet available and, therefore, are not included in this draft. The full chapter on economic studies provides more detailed information on the contracts. The final report will include the results of the economic studies.

The main focus of the review of the economic impact of salmon hatchery production on Alaska salmon prices is to determine:

- whether current levels of Alaska salmon harvests are over- or under-supplied from a world-market perspective, and
- whether increased hatchery production of salmon will lower prices, fishing and processing revenues, and the total net value of Alaska's salmon fisheries.

To answer these questions requires a complete benefit-cost analysis. Initially, the study group reviewed current research and identified specific issues that need additional economic research. Review of available data revealed that there are considerable gaps and insufficiencies in information compiled to date. Proposals were developed for additional research contracts by professional researchers. The proposal was designed with assistance from the Alaska Department of Fish and

Game. Funding for the research contracts was approved by the Legislative Council on November 1, 1991.

Due to time constraints, the research contracts were awarded on a "request for proposal" basis and funded through reimbursable service agreements (RSAs) between the Legislature and the University of Alaska.

The research is divided into five principal components, and is aimed at providing information on Alaska's salmon enhancement programs, and developing models that can be used for evaluating salmon management policy questions.

RESEARCH COMPONENTS

The five principal research components are:

- ***Hatchery Production and Cost Model***

Principal Investigators: Economics Group, Legislative Research Agency, and the ADF&G FRED Division staff
Anticipated Cost: \$0

- ***Biological Population Model***

Principal Investigators: Dr. Jeremy Collie, Juneau Center for Fisheries and Ocean Sciences, Univ. of Alaska, Fairbanks
Anticipated cost: \$10,000

- ***Salmon Demand Model***

Principal Investigators: Dr. Mark Herrmann, Dept. of Economics, Dr. Joshua Greenberg, School of Land Resources Management, Univ. of Alaska Fairbanks
Anticipated cost: \$18,000

- ***Fishing Cost Model***

Principal Investigator: Dr. John Boyce, Dept. of Economics, Univ. of Alaska Fairbanks
Anticipated cost: \$20,000

- ***Combining of Models for Policy Analysis***

Principal Investigators: Drs. John Boyce and Mark Herrmann, Dept. of Economics, and Dr. Diane Bischak, School of Management, University of Alaska Fairbanks
Anticipated cost: \$10,000

Preliminary reports on the research being conducted under these contracts are to be submitted to the Legislature in April, 1992, and the final reports in June, 1992. The remainder of the Legislature's hatchery review project can move forward in the meantime. Information gathering and the formation of some conclusions, options and courses of action, regarding the other portion of the project can be accomplished independent of these economic studies.

It is hoped that research currently being conducted by the Alaska Department of Commerce and Economic Development and the Alaska Seafood Marketing Institute on developing new markets and products for Alaska salmon will also be available and useful to the Legislature in its look at the overall economic picture of Alaska salmon and salmon enhancement.

Chapter X.

MARKETING

As a result of the precipitous decline in Alaska salmon prices in 1991, Governor Hickel formed the Salmon Strategy Task Force to identify the problems facing Alaska's salmon fishing industry and recommend state actions to address these problems. A primary focus of the task force was salmon marketing. The task force recently finalized its recommendations. To avoid duplication with the task force's efforts, it was decided that the Legislative review of the Alaska salmon enhancement program would analyze the economic costs and benefits of the enhancement program and review past state salmon marketing efforts. A summary of the Salmon Strategy Task Force's final recommendations is included (a copy of the Task Force's report is attached).

INTRODUCTION

The Alaska Seafood Marketing Institute (ASMI) was established in 1981 as a quasi-state corporation in the Alaska Department of Commerce and Economic Development (DCED). The institute's statutory responsibilities include:

- To conduct educational, research, advertising, and sales promotional programs to increase awareness of all species of seafood and their by-products that are harvested in Alaska.
- To develop quality specifications to enhance the high quality image of Alaska seafood worldwide, and to adopt recommendations for the handling of seafood from the moment it is caught until it is shipped to the marketplace.
- To prepare market research and product development plans for all species of seafood and their by-products harvested in Alaska.

State statutes prohibit ASMI from favoring any region, product, or processor. For that reason, ASMI uses "generic" marketing campaigns aimed at enhancing the sales of particular "species" of fish or broad product categories (such as canned or frozen) rather than specific products. Also, because it is likely to favor individual processors, ASMI does not promote new products.

ORGANIZATION

To accomplish its statutory mission, the ASMI organization consists of a board of directors, numerous committees, and a relatively small number of staff. Policy and program direction is set by the 18-member board of directors. The ASMI committee system is extensive with the largest portion being a system of marketing committees. The ASMI executive director is selected by the board of directors and permitted to hire additional staff upon approval of the board. The central staff members include: communications manager, comptroller, quality coordinator, special projects coordinator, and office manager.

ASMI FUNDING SOURCES

A portion of ASMI's funding is derived from a self-imposed seafood marketing assessment. All fish processors who purchase annually \$50,000 or more (ex-vessel value) of seafood pay an

assessment of 0.03 percent of their total purchases. These assessments are collected in the state's general fund and are appropriated annually to ASMI. The balance of ASMI's funding is derived from state general fund and federal appropriations.

Federal funding, which has increased as a result of the Targeted Export Assistance (TEA) program, is restricted to international marketing efforts. *State general fund appropriations and industry contributions are used primarily to fund domestic marketing efforts. Since these are declining, ASMI will have fewer resources for domestic marketing at a time when the domestic market has been identified by analysts as having the greatest potential for increasing sales of Alaska salmon.*

EFFECTIVENESS OF THE ASMI PROGRAM

When ASMI was established, the Alaska salmon industry provided most of the U.S. production and about half of the world production from wild and ocean-ranched salmon stocks. When Alaska was the dominant supplier, the generic marketing of Alaska salmon was relatively effective.

A recent Legislative Audit report evaluated whether there has been an increase in awareness of Alaska seafood since ASMI's inception. The Legislative Audit review of market research provided by ASMI, concluded that increases had occurred in consumers' perception of Alaska seafood. In addition, consumers are more aware of Alaska as a seafood-producing region.

Despite these overall improvements in consumer perceptions and increased consumption of seafood, Alaska has lost a significant share of both the domestic and international salmon markets as a result of the tremendous growth in world farmed-salmon production. The dramatic rise in production and growing acceptance of farmed salmon as a source of fresh salmon represents the single greatest threat to the Alaska salmon market.

A significant problem is the fact that canned salmon production represents 59 percent of all of Alaska salmon sold in retail markets. U.S. per capita consumption of canned salmon declined 60 percent from 1980 to 1989, at the same time that harvests of pink salmon--the majority of which is canned--increased approximately 50 percent.

Analysts who are critical of ASMI's marketing programs maintain that the "generic" approach promotes all salmon, regardless of origin, because Alaska products are not clearly identified in the market. They argue that without brand identification and a quality assurance program to guarantee that Alaska salmon is superior, generic marketing may actually be helping Alaska's competitors.

LABELING OF ALASKA SALMON

A recent *Consumer Reports* article attacking the quality of seafood sold in the United States has caused considerable concern within the Alaska fishing industry. The article illustrates the problem of insufficient labeling of seafood products when sold in retail markets. Alaska does have a statute that requires that any farmed salmon sold in the state must be labeled that it is farmed and is from outside Alaska. The Alaska State Legislature recently requested the Alaska delegation to introduce federal legislation requiring the labeling of all seafood products sold in the United States.

THE SALMON STRATEGY TASK FORCE RECOMMENDATIONS

The Salmon Strategy Task Force finalized its recommendations on January 24, 1992. These included:

Recommendations for Immediate Action. 1) ASMI should develop a budget and strategy for selling the existing inventory surplus of Alaska salmon; 2) processors and fishermen should initiate price negotiations early; 3) The University of Alaska, DCED, and ADF&G should provide the best possible information to fishermen regarding world salmon markets; 4) DCED should review Prince William Sound processing capacity; 5) DCED and the Alaska Commercial Fishing and Agriculture Bank (CFAB) should provide loan extensions as needed.

Mid-Range Recommendations. The mid-range recommendations include actions for product and market development, salmon quality, and marketing, and a review of ASMI's role.

Long-Term Recommendations. The long-term recommendations include the development of a strategic plan to help strengthen the fishing industry and its support sector.

ASMI'S SALMON RECOVERY PROGRAM

One of the recommendations of the Salmon Strategy Task Force is to support ASMI's Salmon Recovery Proposal. According to an ASMI briefing paper, the *goal* of the Salmon Recovery Program is to increase annual per capita U.S. salmon consumption from 1 to 1.5 pounds. The *cost* of the proposal is \$10 million annually for five years, totalling \$50 million. Senator Jones has introduced legislation to appropriate \$10 million to ASMI for domestic salmon marketing efforts during Fiscal Years 92 and 93.

ALTERNATIVE PROPOSALS TO INCREASE MARKETING EFFORTS

Proposed Changes to Alaska Statutes:

A number of pieces of legislation have been introduced to address the salmon marketing problem. The general intent of the legislation is to provide funding for the immediate increased promotion of Alaska salmon and to increase the voice of fishermen in those marketing efforts either through changes to ASMI or creation of a new salmon marketing association. Funding for increased marketing efforts would be provided through temporary marketing assessments.

- Representative Gene Kubina has proposed legislation to create six regional salmon marketing committees and the Alaska State Salmon Marketing Association. Two fishermen from each committee would sit on the association. Funding for marketing efforts would be provided through a 1 percent marketing tax on value of salmon landed.
- Representative Dave Choquette introduced legislation that would expand ASMI's statutes to allow for targeted development of Alaska salmon markets and product development.
- Representative Bill Hudson introduced legislation that would impose a temporary one percent (1%) marketing tax on the value of salmon landed and increase the ASMI Board of Directors by two positions that must be filled by commercial fishermen.

- Senator Dick Eliason introduced a bill that would establish a temporary one percent (1%) salmon marketing tax and a committee within ASMI to provide fishermen with control over how the funds would be expended.

- Representative Cliff Davidson and Senator Fred Zharoff have introduced legislation that would endow the Alaska Fisheries Development Foundation to fund fisheries development research projects.

Development of a Salmon Marketing Council

Under the federal Seafood Promotion Act of 1986, after rigorous fisherman and processor review and approval, a salmon marketing council could be developed to increase the U.S. marketing efforts of salmon.

Marketing Efforts by Groups Such as PWSAC

Recognizing the need to develop markets for their very successful salmon hatchery production program, PWSAC has a Product Development Strategy. In the short-run PWSAC would like to pre-sell all 1992 cost-recovery fish by January 1992, ensure the utilization of all cost-recovery fish, and negotiate one-to-three year contracts for the sale of fish. *The primary marketing obstacle identified by PWSAC is processing capacity for frozen fish.*

OPTIONS FOR POSSIBLE CONSIDERATION:

- Review of the state's role in the marketing of Alaska seafood, and salmon in particular, including a review of the ASMI program.
- Given that ASMI's generic approach to marketing was statutorily established prior to the significant increase in world farmed-salmon production, expansion of ASMI's statutes to reflect changes in world salmon markets. In particular, ASMI's marketing efforts could be expanded to include new product and market development, including targeting and distribution of salmon products at the wholesale and retail levels.
- Providing funding for ASMI's Salmon Recovery Proposal.
- Supporting the Salmon Strategy Task Force's recommendation that ADF&G review the impact of fisheries management practices on fish quality, especially related to the quality of cost-recovery fish harvested in terminal areas.
- Conducting a comprehensive analysis of ASMI privatization including whether 1) privatization would provide greater flexibility and possibly more effective marketing and 2) privatization would result in the loss of control over marketing activities to the detriment of Alaska and Alaska fishermen.
- Encouragement of the development of a national salmon marketing council.

CHAPTER XI.

OTHER ISSUES

A. HATCHERIES AS ENVIRONMENTAL MITIGATION

Hatcheries are sometimes built with the goal of mitigating environmental damage caused by such things as construction of dams and other projects, and water pollution. While the goal of environmental mitigation has been a driving force in salmon hatchery development in the Pacific Northwest, Alaska's hatchery system has been developed for fisheries enhancement, mitigation of the effects of overfishing, and offsetting reductions in fishing quotas due to treaty provisions.

However, Alaska law does contain several provisions regarding use of fisheries enhancement projects as a means of mitigating environmental damage. The primary one is the *Fishways Act* which can require the builder of a dam or other obstruction across a stream containing fish to provide and maintain a fishway or other device for fish passage; pay a lump sum to the state Fish and Game Fund; convey land and fund the construction, maintenance and operation of a fish hatchery, rearing ponds, buildings and other facilities; or agree to provide money to expand, maintain, and operate additional facilities at existing hatcheries.

Since passage of the Fishways Act of 1959, other environmental protection laws and regulations pertaining to fish habitat have been enacted setting water quality standards and regulating the types, locations, and designs of development projects. The *Anadromous Fish Act* (AS 16.05.870) is especially important as it spells out requirements for pre-approval of any projects which could potentially impact fish or fish habitat.

The construction of a fishway or spawning channel is frequently required in Alaska. *Although the state rarely imposes the other provisions of the Fishways Act which require construction of hatcheries or monetary compensation, those provisions encourage modifications in project plans that will avoid the actual stream obstruction and serious risk to fish that would activate the very expensive mitigation measures.*

In other states and countries, where environmental protection measures have not prevented a project from damaging fish habitat, hatcheries have indeed provided enough fish to avoid the total destruction of fisheries. However, *there is growing concern that when natural stocks decline to very low levels, hatcheries may actually cause the further depletion, even to the point of the extinction of natural stocks.* These concerns are further addressed in Chapter VII of this report, Biological Issues.

It is important to consider how the federal Endangered Species Act (ESA) relates to the use of hatcheries for mitigating environmental damage. In the state of Washington, where hatcheries have been used extensively with mitigation as a goal, it is apparent that even very productive hatcheries cannot prevent the federal government from invoking the provisions of the ESA if wild stocks are determined to be endangered. In 1991 several Washington salmon stocks were listed as *endangered* or *threatened* by the National Marine Fisheries Service, which has jurisdiction over endangered species. Decisions regarding two other stocks are pending.

The Washington Legislature is considering legislation to address ESA salmon issues. These include salmon habitat, wild stock protection, tagging of hatchery stocks, and defining *species* or *stocks* of fish.

Declaration of a salmon stock as *endangered* can have enormous impacts on fisheries and local and state economies, even those which are far from the spawning area of that stock.

The ESA sets the parameters within which hatcheries can be used to mitigate environmental damage. *Because of the Act, efforts to mitigate damage through hatcheries can result in the closure of fisheries if the hatcheries contribute to the further depletion of a stock.* A preservation of wild stocks focus is necessary to avoid the impacts of the strict protective measures which can be imposed under the ESA.

In some instances, such as where dams have irreparably destroyed the habitat of a particular salmon stock, a carefully designed hatchery or other enhancement project may represent the only hope for survival of that stock. Thus, *while the ESA serves as a warning against hatchery development that could deplete natural stocks, it also recognizes the potential usefulness of hatcheries in the ultimate survival of an endangered stock.*

The use of hatcheries to mitigate damage must be employed with the understanding that salmon which have been provided *free* and perpetually by nature, are being replaced by salmon that will initially and continuously cost money to produce. This cost, along with the possibility that hatcheries may harm remaining natural stocks, must be realistically evaluated in each case.

OPTIONS FOR POSSIBLE CONSIDERATION:

- Re-evaluation of the state Fishways Act and Anadromous Fish Act in light of the provisions of the federal Endangered Species Act.
- Evaluation of whether specific consideration of potential consequences of the ESA should be required before the commissioner can pre-approve a project (under the Anadromous Fish Act) or approve of mitigation measures (under the Fishways Act).
- Tracking the current and upcoming debate and actions occurring in other areas, particularly the state of Washington, regarding environmental mitigation of damage to fish habitat. Determine the relevance of findings to Alaska.

B. ROLE OF HATCHERIES IN INTERNATIONAL TREATIES

U.S./Canada Pacific Salmon Treaty

After many years of negotiation, the United States and Canada signed a treaty in 1985 regarding the interception of Pacific Salmon. *The primary goals of the treaty were to protect and rebuild depleted salmon stocks, assure the long-term viability of salmon stocks within the jurisdiction of the treaty, and bring equity by providing that each country receive benefits from the fisheries which are roughly commensurate with their respective production of salmon in the treaty area.* Fisheries management guidelines for the region covered by the treaty

(Oregon, Idaho, Washington, Southeast Alaska and British Columbia, Canada) are provided in a series of annexes to the treaty which are renegotiated on a regular basis. The annexes establish baseline-harvest numbers for many areas but the authority over allocation of fish between user groups within specific areas is maintained by the respective states, provinces, and tribes.

In 1983, a tentative treaty agreement was reached, but Alaska fishing groups found the provisions to be unacceptable and the treaty was not signed. Concerns centered on the concessions to be made by Alaska in the treaty. The reduction in the level of chinook salmon that Alaska trollers would be allowed to harvest was especially controversial. Key to the eventual acceptance of the treaty by Alaska was an offer by the U. S. federal government to give Alaska approximately \$20 million for salmon enhancement to help offset impacts of the treaty. *This mitigation money was not part of the negotiated multi-party treaty. It was a separate agreement between Alaska and the U.S. federal government, offered fundamentally as an incentive to Alaska to agree to the treaty.*

Under the terms of the treaty, Alaska hatchery fish caught after 1985 were not to be counted as part of the negotiated quota of allowable catch, and could be taken in addition to that quota. *While everyone involved seemed to understand that the federal mitigation money was intended to replace what the Southeast Alaska fisheries groups had lost in the treaty settlement, the specific purpose of the money was not clearly spelled out at the time of the agreement. This lack of clarity and documentation has caused considerable confusion and controversy over the years.* Initially many fishermen and the Alaska Department of Fish and Game believed that the money was to go towards an annual production goal of 100,000 chinook for the trollers, 1,000,000 chum for the seiners, and 20,000 to 40,000 sockeye for the gillnetters. Although the state appears to have honored the general purpose of salmon enhancement with the mitigation funds, it has not spent the funds in accordance with the most widely-held understanding of the intent for those funds.

The governments of Washington and Oregon have not allocated any funds specifically for enhancement projects related to this treaty. British Columbia instigated a treaty-related enhancement project on the Fraser River, but has since run out of funds to continue it.

A computer model was developed to calculate the allowable catch of each of the parties to the treaty, and to update that quota annually. Information about hatchery-bred fish indicates the health and numbers of the natural stocks for the computer model.

Alaska fishermen agreed to the Pacific Salmon Treaty, despite the sacrifices it required in their allowable catch levels, because of guarantees that increased hatchery efforts and production would result in increases in these allowable catches. For reasons which may have included misunderstandings of original intentions, a lack of clear binding language in the treaty, or ineffectual negotiating at annual sessions to update agreements and re-negotiate treaty annexes, many fishermen are dissatisfied with what the treaty has accomplished. Hatchery efforts funded with mitigation funds have indeed produced salmon, but fishermen, particularly trollers, do not believe they have received the benefits they were promised from that production.

While fishermen may not have seen the specific benefits they had hoped for in the form of increased allowable catches, the state hatchery program has received more funding than it would have had without mitigation funds, and the Alaska Department of Fish and Game has been able to use mitigation money to supplement their budget for projects and personnel which are related directly or indirectly to the goals of the treaty.

Yukon River Treaty

Salmon restoration and enhancement have been discussed as part of the United States/Canada Yukon River salmon negotiations since 1985. The goal of the United States in these talks has been to ensure the long-term health of salmon stocks and assure consistency in harvest for both countries of the Yukon River system.

The U.S. proposal, agreed to by the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Yukon River Drainage Fisheries Association, includes:

- Restoration projects to increase production of transboundary stocks that do not respond to harvest management.
- Fisheries enhancement projects where appropriate, consistent with state genetics and disease policies.
- Planning strategies to allocate and manage restored stocks before the program starts.
- Operational plans for enhancement projects, with protection of wild stock genetic diversity as the paramount concern.

The FRED Division has developed a Yukon Fisheries Enhancement Initiative with its key components being overall design and planning work, expansion of the Clear Hatchery near Nenana, Alaska, and rehabilitation of natural salmon production. The cost of this initiative is estimated to be more than \$13 million.

Fishermen along the Yukon are primarily interested in bringing natural stocks back to historic levels. Rehabilitation projects and protection of wild stocks are their top priorities.

Some biologists believe that supplemental hatchery production on the Yukon River will only further complicate mixed stock fisheries management, and risk the reduction or elimination of small wild stocks. They are also concerned about the risks of genetic dilution of natural stocks, reduced stock fitness, and disease. The Alaska Chapter of the American Fisheries Society is currently considering a resolution to support setting aside the Yukon River drainage as a Wild Stock Management Zone (hatchery-free).

OPTIONS FOR POSSIBLE CONSIDERATION:

- Evaluation of the effectiveness of enhancement as an international treaty component.
- Requirement of a comprehensive feasibility and benefit-cost analysis of enhancement in treaty proposals prior to treaty agreements. Because state agency budgets tend to "benefit" from enhancement agreements, consider contracting these reviews to disinterested third parties.
- Development of an auditing mechanism to determine if enhancement benefits are realized by fishermen impacted by treaty agreements.

C. ENVIRONMENTAL REGULATIONS RELATED TO HATCHERIES

There are a number of environmental considerations involved in the siting, construction, and operation of hatcheries. In addition to the biological and genetics matters associated with the fish and eggs themselves, other environmental protection issues include the siting of hatcheries, their water usage requirements, the effluent they produce, and the disposal of fish carcasses (of broodstock or fish which are excess or diseased).

While Alaska law does not contain many environmental statutes and regulations which are specific to hatcheries, it does have a number of general provisions regarding protection of the environment which come into play during the planning, development, and operation of hatcheries. These include the Anadromous Fish Act which controls and requires approval for any construction projects or other action which might affect "rivers, lakes or streams or parts of them that are important for the spawning, rearing or migration of anadromous fish"; the Fishways Act which requires the construction of a fishway or hatchery construction if a dam or other obstruction will impact the passage of fish (see section on environmental mitigation); plus many laws and regulations about water quality and pollution, protection of genetic purity of fish stocks (see chapter on biology and genetics), fish health inspections (AS 16.05.868), and siting of hatcheries.

A significant environmental protection issue associated with hatcheries is the discharge of waste into public waters. The procedures and permits required of hatchery operators in this regard have been confusing and in a state of flux for several years, but now seem to be headed for some resolution and streamlining. Part of the confusion stems from the fact that both the Federal Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation (DEC) have some jurisdiction in this matter.

It appears that both EPA and DEC have been fairly lenient about requiring the various waste disposal permits that have technically been required. Even so, there have been very few complaints or problems regarding hatchery impacts on water. Hatcheries do discharge effluent which may contain organic fish waste, as well as some disinfectants or other chemicals used to prevent or control disease, but generally they discharge only very small amounts of pollutants. *However, recent developments necessitating the disposal of large numbers of fish carcasses have raised the subject of waste disposal monitoring.* These developments include 1) a joint decision by the Federal Food and Drug Administration and the Alaska DEC in 1990 that the carcasses of hatchery broodstock (mature fish used for the taking of eggs and milt) should no longer be sold for canning for human consumption, and 2) the recent huge returns of fish, particularly in Prince William Sound, which have resulted in the inability of hatcheries to sell large numbers of their "cost-recovery fish." Both of these developments demonstrated the need to establish procedures for hatcheries to dispose of large numbers of fish carcasses.

The federal Clean Water Act prohibits the point source discharge of pollutants by any person into the waters of the United States, except in compliance with the terms and conditions of a National Pollutant Discharge Elimination System (NPDES) permit issued by EPA. *Under federal regulations, discharges of concentrated aquatic animal production facilities require NPDES permits.* The regulations identify the annual level of production and feeding of a facility to require an NPDES permit, but also leaves to the EPA the discretion to require the permit of any facility it deems to be a significant contributor of pollutants.

In a January 1991 letter to all hatchery operators in Alaska, the EPA explained these requirements and noted that even if the regular operations of a hatchery did not fall under the NPDES permit guidelines, a permit would be required if the operator planned to dispose of fish carcasses in the water. It further explained that fish processors who dispose of greater than 1000 pounds of waste per day may be covered by the "Authorization to Discharge Under the National Pollutant Discharge Elimination System for Alaska Seafood Processors" general permit (the GP), and that for the purposes of carcass disposal, the EPA was willing to cover hatcheries under the same GP. The letter explained that this "greatly simplifies the administrative process and reduces the time frame in which a NPDES permit is obtained." The letter ended by asking that hatchery operators notify the EPA of their plans for fish waste disposal prior to the 1991 season.

In April 1991, the Anchorage EPA office sent another letter to all hatchery operators stating that many of the responses they had received to the January letter had raised a number of issues to be considered. Since resolving these issues is likely to take some time, the EPA established an interim policy to allow the hatcheries to operate and to provide for environmental protection in the interim period. The letter goes on to lay out three conditions under which the disposal of whole fish carcasses would be permissible. The criteria include 1) the depth of water where discharge may occur, 2) a requirement of pre-approval of the discharge site by EPA, and 3) a requirement that the skipper of the discharge vessel maintain records of each discharge occurrence, its location, and the date.

Alaska is currently operating under the interim criteria spelled out in the EPA's April 1991 letter. Many hatcheries, particularly state-run hatcheries, have submitted their applications for the NPDES permits to EPA. However, the EPA considers these state hatcheries to be minor dischargers and has agreed to turn over to the state the authority for permitting and monitoring of their waste discharge. EPA has forwarded copies to DEC of all the NPDES permit applications they have received from hatchery operators, and has asked that the state implement a hatchery waste permitting process.

Under current state law, hatchery effluent is covered under the DEC waste disposal permit statute (AS 46.03.100). DEC reports that few hatcheries apply for this permit but DEC has been comfortable with the situation, and has made permitting hatcheries a low priority, since hatcheries generally handle effluent in a manner that maintains acceptable water quality standards.

DEC has drafted a "General Waste Disposal Permit for Fish Hatchery Discharges," to be issued to hatcheries to fulfill the state waste permit requirement. Once the state has officially adopted this permit, hatchery operators will obtain waste permits only from DEC under the operating agreement between DEC and EPA. This state permit would in effect fulfill both state and federal waste permit requirements. This centralization and consolidation should simplify the permitting and reporting processes for hatchery operators, ensure more compliance, and improve uniformity in the monitoring and information available.

The state's draft permit contains a provision stating that the permit is effective until a specified date, "unless superseded before that time by a state certified EPA permit." This statement is included in order to provide for any potential situation in which EPA might require an NPDES permit, which would then supersede the state permit. The draft permit contains specific language regarding discharges, carcass disposal, drugs, chemicals and medications, operational, monitoring and reporting requirements, and so on. It lacks specific language to address disposal of diseased fish or eggs but other general provisions

in the permit, or language in the hatchery operational permits from ADF&G may sufficiently provide for that circumstance.

Despite the lack of clear regulations and enforcement, and the confusion over federal and state requirements, there have been very few problems reported regarding such things as hatchery waste disposal in Alaska. Even during the situation in Prince William Sound during the 1991 season when processors would not buy many of the hatchery fish that later had to be dumped, both DEC and EPA report that their agencies worked very closely with the hatcheries to devise and carry out plans for large-scale carcass disposals, and things went quite smoothly. The Alaska Departments of Fish and Game and Environmental Conservation, and the federal Environmental Protection Agency, generally believe that for this aspect of environmental protection, current laws are adequate.

Other environmental issues related to hatcheries are covered in this report in the chapters on Biology and Genetics, Planning and Permitting, and Environmental Mitigation. The topics covered in those chapters appear to raise more serious and complex environmental concerns and questions, and need more extensive review, than the more direct environmental protection regulations discussed here.

OPTIONS FOR POSSIBLE CONSIDERATION:

- Encouraging DEC and EPA to coordinate waste disposal permitting requirements to the extent possible.
- Ensuring that adequate direction is provided in regulation regarding the disposal of any diseased hatchery fish.

D. USE OF ENHANCEMENT AS TOOL FOR ECONOMIC DEVELOPMENT

The state's financial support of hatchery production and other enhancement efforts has focused primarily on Southeast Alaska, Prince William Sound, Cook Inlet, and Kodiak. However, fisheries enhancement is increasingly being viewed in other rural areas of the state as a tool for local economic development. Potential benefits from enhancement activities include the increased number of jobs, the potential for attracting processors or other value-added businesses to the region, as well as increased harvest for fishermen.

In some cases, the regions interested in enhancement for economic development have small, localized commercial fisheries based on local stocks of fish which in many cases are depleted, and which local residents would like to see replenished. In other areas of the state, residents are interested in the potential of creating entirely new fisheries. For many rural areas of the state, fisheries development represents the most viable -- and in many cases, perhaps the only -- opportunity for economic development.

Some of the projects being discussed and planned include:

- Sikusilaq Springs Hatchery.* Residents of Kotzebue Sound are meeting with a planning core group that includes ADF&G, the National Park Service, and the Northwest Arctic Borough to develop increased production proposals as part of a basic management plan for this small state hatchery located on the Noatak River.

A regional aquaculture association will probably be established in 1992, and a comprehensive salmon plan for the region should be completed in 1993.

- ***Yukon Enhancement Initiative.*** Residents of the Yukon River area are organizing an aquaculture association and seeking legislative funding so that regional enhancement planning can be reactivated and expanded. A draft comprehensive salmon plan could be completed by the fall of 1992. Enhancement efforts are also being considered as part of the U.S./Canada Yukon River treaty negotiations.
- ***Western Alaska.*** Feasibility studies are underway for potential fisheries enhancement projects in the Nelson Island/Chevak area. Local villages and the Bering Sea Fishermen's Association are contributing to the effort, with additional funding requested from the Bureau of Indian Affairs and the National Coastal Resources Research and Development Institute. Although there are no natural runs currently, fishermen in this region are interested in developing salmon returns in streams that are ice-free year round.
- ***Norton Sound Economic Development Initiative.*** Under this proposal, developed in February 1991, FRED Division is providing technical support in developing a fisheries enhancement program at Elim, including stream rehabilitation and a possible hatchery.
- ***Port Graham Salmon Development Project.*** The goal of this pink salmon development project is to create a local village economy based on high quality value-added salmon products. The goal of the hatchery is to produce fish for the processing plant.
- ***Kake Nonprofit Fisheries Corporation.*** This southeast Alaska community proposes to expand its Gunnuk Creek Hatchery with the express goal of contributing to the economic development of the village. Kake has historically been a fishing village, but in recent years saw logging replace fishing as the major form of employment in the community. Logging is now on the decline, and the village wishes to expand its fishing industry.

It should be noted that these enhancement proposals are subject to the same concerns and conflicts generated by enhancement projects elsewhere in the state. The continued interest in enhancement and in hatcheries however, should be a prime reason for addressing the issues highlighted in other chapters.

OPTIONS FOR POSSIBLE CONSIDERATION:

- Evaluation of how much weight to give the need for local economic development when considering a new hatchery permit application.

E. IMPORTANCE OF HATCHERIES TO SPORT FISH

While the Senate Special Committee on Domestic and International Commercial Fisheries initiated the Legislative Review of Alaska's Fisheries Enhancement Program to evaluate the contribution of the program to commercial salmon fisheries, the role of the program in

sport fisheries warrants attention. This section summarizes information provided by a FRED Division report attached to this chapter.

Many projects in the statewide enhancement program produce fish, primarily chinook, coho, pink, sockeye, and chum salmon, steelhead, rainbow trout, grayling, and Arctic char, that are highly valued by sports fishermen. Fish targeted for sport fisheries are released in over 350 locations around the state. Many of the projects operated by the FRED Division are entirely dedicated to improving recreational fishing opportunities.

Sport fishing has been growing in Alaska as evidenced by the increase in the number of licensed anglers from 1977 (200,000 total license sales) to 1990 (425,000 total license sales). This dramatic increase in sport fishing participation can be attributed to many factors, including changes in population, real per capita income of residents and non-resident visitors, and the opportunities for quality sport fishing experiences. A major component of a high quality fishing experience, especially for resident anglers, is the probability of catching a fish during the fishing experience (called the harvest per angler day). According to ADF&G, the economic value of fishing experiences are directly related to higher harvests per angler day. The statewide enhancement program has been a key factor in maintaining and augmenting these harvests despite increasing fishing effort.

The statewide salmon enhancement program has grown to the point of supporting a significant portion of total sport and commercial fishing harvests. For example, total 1990 recreational harvests of salmon, trout, grayling, Arctic char, and steelhead was approximately 1.3 million fish. The enhancement program is estimated to have contributed 28 percent of the harvest. State facilities provided 73 percent of the enhanced harvest while PNPs provided 27 percent.

According to recent studies completed by the ADF&G, sport fishing provides significant economic benefits in Alaska.

OPTIONS FOR POSSIBLE CONSIDERATION:

- If the Legislature initiates an on-going enhancement program review similar to Canada's, include sport as well as commercial aspects of the program in order to achieve a more comprehensive perspective.
- Increasing the sport fish license fees to pay for a portion of the enhancement projects that benefit recreational fisheries.
- Encouraging Congress to increase Dingle-Johnson funds provided to Alaska to support increasing sport fishery enhancement and rehabilitation efforts.

F. CONTRIBUTION TO SUBSISTENCE FISH

In addition to commercial and sport fisheries, there is increasing demand for the state's enhancement program to provide fish for subsistence and personal use fisheries.

Sikusuiq Hatchery on the Noatak River provides a substantial number of chum salmon for subsistence gillnets in Kotzebue Sound and on the Noatak. Subsistence users in southern Southeast harvested 5,000 sockeye salmon produced from the McDonald Lake

fertilization project. Production from the Klawock Hatchery, located on Prince of Wales Island, is extensively used by subsistence fishermen.

OPTIONS FOR POSSIBLE CONSIDERATION:

- If the Legislature initiates an on-going enhancement program review similar to Canada's, include subsistence and personal use as well as commercial and sport fishing aspects of the program in order to achieve a more comprehensive performance report.

G. ENHANCEMENT OF OTHER SPECIES

In addition to its work on such sport fish species as grayling, rainbow trout, and arctic char, FRED Division is also exploring king crab rehabilitation in a cooperative effort with Kodiak fishermen and the Kodiak Island Borough. Additional funding is being requested from the Alaska Science and Technology Foundation in order to examine shellfish rehabilitation projects in other countries and states.

Currently, research and production of non-salmon species is done almost entirely by the FRED Division. If private entities became interested in taking on such efforts, statutory changes would be required since the entire PNP program is based on salmon production.

OPTIONS FOR POSSIBLE CONSIDERATION:

- Amending statutes to allow the private sector to enhance non-salmon species.
- Taking action to encourage the production of non-salmon species.

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CHAPTER II. HISTORY AND DEVELOPMENT OF HATCHERIES IN ALASKA

See the attached memorandum from Linda J. Snow of the Legislative Research Agency, regarding "Legislative History of Alaska's Fish Hatchery Program."

Alaska State Legislature

Legislative Research Agency



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July 31, 1991

MEMORANDUM

TO: Senator Richard I. Eliason, Chairman
Senate Special Committee on International and Domestic Fisheries

FROM: Linda J. Snow *L. J. Snow*
Legislative Analyst

RE: Legislative History of Alaska's Fish Hatchery Program
Research Request 91.296

You asked us to review the legislative history of Alaska's salmon hatchery program and to assess legislative intent regarding several current program issues. This memorandum has two sections. The first reviews the development of the hatchery program. The second addresses 12 specific questions about probable legislative intent.

Few relevant legislative records exist from the early 1970s, the formative years of Alaska's hatchery program.¹ We examined the few committee files and hearings records, as well as other available documents. Also, we interviewed several key players in the development of the hatchery program, including former Representative Terry Gardiner; former Senators Bob Palmer, Chancy Croft, Clem Tillion and Kay Poland; Bob Roys, former director of the Fisheries Rehabilitation, Enhancement and Development (FRED) Division within the Alaska Department of Fish and Game (ADF&G); Dr. Mike Kaill, former private nonprofit coordinator for the FRED Division; and Dr. William J. McNeil, a former biologist with the U.S. National Marine Fisheries Service (NMFS).

Attachment A presents a list of all legislation introduced in the Alaska Legislature concerning Alaska's hatchery program from 1959 to 1990.

¹Alaska's salmon hatchery program involves salmon ranching, where salmon eggs are hatched, reared to a juvenile stage, and released into the natural waters of the state. Salmon farming involves hatcheries also, but Alaska does not allow salmon farming in the state. Therefore, in this report, all reference to Alaska's hatchery program refers to salmon ranching, not salmon farming.

DEVELOPMENT OF ALASKA'S HATCHERY PROGRAM

The development of Alaska's hatchery program was an evolutionary process. Prior to statehood, several attempts at hatchery production of salmon were undertaken by the federal government and by private industry. These attempts proved largely unsuccessful, as hatchery technology was crude and undeveloped. In the late 1960s, Alaska was faced with the crisis of a severely depleted commercial salmon fishery, which wrought economic hardships for fishermen, fish processors, and others who depended indirectly on the fishing industry. The state legislature took the lead in revitalizing Alaska's commercial salmon fishery. The development of Alaska's salmon hatchery program was a crucial component in that revitalization. Generally speaking, this development had three phases. Initially, the legislature established state-owned and state-operated hatcheries and research programs. Then the emphasis shifted to encouraging the private sector to participate in hatchery development and operation. As the nonprofit hatcheries grew in number and scale of operation, the legislature turned its attention to the problems of economic viability and improved methods of hatchery funding.

A recurrent controversy underlies the development of Alaska's hatchery program. Although during initial development of the program in the early 1970s it was unknown if salmon hatcheries would be successful in Alaska, many people--including fishermen's groups and processors--believed that because the fishery was already depressed, there was nothing to lose by a failed attempt to propagate fish by means of hatcheries. The legislature seemed enthusiastic about the program, apparently more so than professional fishery biologists, who perhaps feared the unknown biological and management problems associated with pell mell development of hatcheries. Such questions as genetic intermingling, disease, and habitat competition were raised, and the legislature understood that the venture was not without biological risks. However, the depression of the fishery was an immediate and pressing economic problem. The legislature decided to proceed, but with an eye toward protecting the wild stocks. It was hoped that potential problems could be solved or at least mitigated by reasonable precautions, such as regional management plans and careful siting of hatchery facilities to segregate hatchery and wild stocks.

Hatchery Development Before Statehood

By the late 1800s commercial salmon fishing was a major industry in Alaska. The fishing industry was not regulated, and it became evident that the huge catches were beginning to deplete the salmon runs. There was concern about sustaining the resource, and fish hatcheries were viewed as a possible solution. The first salmon hatchery in Alaska was built by several fish processors at Karluk Lagoon on Kodiak Island in 1891. Technology was new and expertise lacking, and consequently this and other early private hatcheries proved largely unsuccessful. In 1900, federal regulations were adopted that required fish processors to build hatcheries capable of releasing four times as many fish as the company processed in a year. The regulations were not enforced. In 1905, the U.S. Bureau of Fisheries built the first government

hatchery in Alaska. Beginning in 1906, the bureau instituted a federal tax credit for fish processors with hatcheries in order to encourage this type of enhancement.

Despite the operation of private and government hatcheries, depletion of the salmon runs continued. In 1915, the U.S. Bureau of Fisheries office in Alaska made an unsuccessful attempt to have Congress buy out all private hatcheries in Alaska. Franklin Roosevelt closed all government hatcheries in 1932 after the Commissioner of the Bureau of Fisheries declared that they had been a "complete waste of public funds." Only one private hatchery remained in operation, and it closed in 1936. Between 1932 and 1951, the U.S. Bureau of Fisheries approached the problem of depleted salmon runs by imposing regulations on fishermen in order to decrease the commercial catch, not by encouraging artificial propagation of salmon. During this time a few experimental hatcheries were started. The federal government built an experimental hatchery at Little Port Walter on Baranof Island in 1939, which stressed research on salmon biology, rather than fish production.

A territorial department of fisheries was established in 1949. Policy makers again looked to artificial propagation as a tool to sustain the fishery. The availability of king and coho salmon for sport fishing was increased by lake stocking and transplanting. Salmon enhancement research continued at the Little Port Walter facility. In 1952, the Deer Mountain hatchery near Ketchikan was built, and in 1953, the Kitoi research station on Kodiak Island became operational. When Alaska achieved statehood in 1959, the U.S. National Marine Fisheries Service was developing a fish culture research lab at Auke Bay near Juneau.

State-Operated Hatchery Program

Salmon runs in Alaska had been declining rapidly since 1936, and were in a state of depression during the 1960s and 1970s. The 30-year consecutive high average annual commercial harvest (1945 to 1975) was 83,300,000 fish, compared to an average annual harvest of 45,108,000 fish between 1960 and 1975, and an average annual harvest of 23,111,000 fish between 1973 and 1975. This dramatic drop in commercial salmon harvest prompted state action. Although the state Department of Fish and Game had been involved on a small scale with enhancement of the sport fishery, and with research and experimental hatchery production of salmon for the commercial fishery, the legislature sought to consolidate and expand the programs despite possible risks to Alaska's natural salmon runs.

By 1968, public concern about the depressed fishery was high, and the progress of hatchery programs in other states and countries was being watched with interest. A general obligation bond authorization for \$3,000,000 to build state hatcheries was passed by the legislature, and overwhelmingly approved by the general public that year.

In 1969, Alaska received \$900,000,000 from the sale of oil and gas leases on the North Slope. The legislature realized the potential of the future income

Senator Eliason

July 31, 1991

Page 4

from oil production. It decided to channel some of the public income from nonrenewable resources (oil and gas) into development of renewable resources to provide a long-term source of employment and economic activity. The salmon resource was an obvious candidate for this long-term investment.

The basic idea behind the state hatchery program was to supplement the existing wild salmon stocks in the state with hatchery fish which would be available for harvest by commercial, sport and subsistence fishermen. Past fish runs indicated that the carrying capacity of the Alaska coastal salmon habitat was at least 150 million salmon. As there were only about 30 million fish in Alaska waters in the early 1970s, the legislature looked to a goal of producing 100 million salmon for a healthy fishery. Although some interest groups suggested depleting the wild stocks and replacing them with hatchery fish, the legislature preferred to protect the wild stocks to preserve the resource base. In the early days of the hatchery program, technology was unproven in Alaska and no one really knew for sure whether the experiment would work. Thus, the legislature did not want to expose the wild stocks to undue risk.

In 1970, HB 777 and HB 778 were introduced that would create and fund a long-range fisheries research and enhancement program within the Department of Fish and Game. Research functions existed within the department, but these bills sought to consolidate and expand the functions into a long-range program. These bills died in the House Resources Committee, but resurfaced later in the session as HB 828 and HB 829. The purpose of the program was to "...use funds realized by the state from nonrenewable resources to advance the orderly and long-range development of the state's fisheries, a renewable resource." There was controversy over the form of the program--should a long-term working fund be established, or should the program be evaluated and funded yearly? While the program enjoyed strong legislative support, the Alaska Department of Fish and Game (ADF&G) opposed it because some of its biologists felt that large-scale hatchery development should await scientific evidence that hatchery and wild salmon could safely coexist in the offshore and nearshore environments. House Bills 828 and 829 did not pass out of the Senate Resources Committee.

On May 28, 1971, SSSB 107 was signed into law (AS 16.05.092), creating a Division of Fisheries Rehabilitation, Enhancement and Development within the Department of Fish and Game. The division had four main responsibilities: 1) develop and maintain a state plan for long-range fishery rehabilitation, enhancement and development; 2) encourage private investment in the development and use of Alaska's fishery resources; 3) insure the perpetuation of Alaska's food resources; and 4) make an annual report to the legislature. No long-term funding mechanism was established by this legislation.

The poor fishing season in Bristol Bay in 1968 reinforced the legislature's interest in means to increase economic returns to Alaska's commercial fishermen. One such proposal was limiting entry of new fishermen so that the level of capitalization could be stabilized. Eventually, an amendment to Article VIII, Section 15 of the Alaska Constitution was approved by public vote in 1972. Section 15 originally stated "No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State."

The amendment added "This section does not restrict the power of the State to limit entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture." In 1973, legislation implemented limited entry in the commercial salmon fishery with the long-term goal of increasing economic returns to commercial fishermen.

In 1973 and 1974, the United Fisherman's Association (UFA) was formed, organizing commercial fishermen at the state level for the first time. Fishermen's groups such as UFA were a driving force behind Alaska's salmon hatchery programs.

Movement Toward Private Nonprofit Hatcheries

With the limited entry program in place, legislators felt more confident about expanding the hatchery program because the economic benefits of a rehabilitated fishery resource would not be dissipated among an ever-increasing number of fishermen. At this time, legislators were coming to the view that the private sector would be more efficient than the government in the operation of hatcheries. Also, nongovernmental hatcheries had much to recommend them from the perspective of public finance issues: the operation of private hatcheries could be funded from the harvest of returning fish and from tax assessments on the fishermen who had access to the hatchery production, thus shifting the cost of the facilities from the shoulders of the general public to the people who derived benefits directly from them. Thus, the next stage of the hatchery program was one of encouraging fisheries organizations to build and operate private nonprofit hatchery facilities.

By 1974, the FRED Division had several stream enhancement and stocking programs underway, as well as hatchery incubation and salt water rearing tests in several locations around the state. Several new hatcheries were in the planning stages at this time. A 1974 bond issue was authorized putting most of \$10,500,000 into capital improvements for state hatchery facilities. The concept of authorizing private nonprofit (PNP) corporation hatcheries took the form of law also in 1974 and was developed and refined over the next several years (AS 16.10.375 - 470). The legislature estimated it would take \$400 million to build up the entire fishery resource to a healthy level. It envisioned \$200 million for state hatcheries coming from state funds, with the additional \$200 million for private nonprofit hatcheries coming from other sources (fisheries groups, private foundations, and possibly federal grants). For the most part, there was great enthusiasm about the prospect of PNP hatcheries from fishermen's groups, education centers, Native corporations, and the legislature itself.

In these early years, little was known about the life cycle of wild salmon or the interaction between wild and hatchery fish. Concerns about adverse biological consequences from this interaction were expressed often by state and federal fishery management agencies. However, the legislature was preoccupied with the economic depression of the fishing industry. While biological

concerns were known to framers of hatchery legislation, such matters seemed overly speculative and hypothetical in the face of cries for relief from coastal communities. The sense of urgency felt by legislators, and their frustration with what they seemed to perceive as hand-wringing and foot-dragging by the department biologists, is expressed well in a 1975 letter from Representative Oral Freeman to Governor Jay Hammond (Attachment B). Representative Freeman bemoans the caution and reluctance of the biologists, who were worried about such things as the "unfavorable changes in the genetic composition of some wild salmon...stocks." To this, Representative Freeman remarked: "Governor, I'm sure that proper 'genetics' of salmon are important. However, I'll wager that if our fishermen have to make a choice between salmon with the wrong 'genetics' or no salmon at all they'll not worry that much about the salmon's parents or where he came from."

The biologists' preference for rehabilitating wild stocks over the propagation of hatchery stocks was also alluded to during the Aquaculture Policy Study Group meetings in late 1978 and 1979. It was suggested by Chairman Gardiner that the both state and federal fishery management agencies approached the problem of fisheries development from the point of view of the "resource," while the legislature approached it from the point of view of the "people" (excerpt of the minutes in Attachment C).

In 1976, Alaska legislation was passed creating regional aquaculture associations responsible for the regional planning and coordination of salmon enhancement activities. The legislation provides:

"Sec. 16.10.380. REGIONAL ASSOCIATIONS. (a) The commission shall assist in and encourage the formation of regional associations for the purpose of enhancing salmon production. A regional association is qualified if the commissioner determines that

(1) it is comprised of associations representative of commercial fishermen in the region;

(2) it includes representatives of other user groups interested in fisheries within the region who wish to belong; and

(3) it possesses a board of directors which includes no less than one representative of each user group that belongs to the association.

(b) In this section "user group" includes, but is not limited to, sport fishermen, processors, commercial fishermen, subsistence fishermen, and representatives of local communities."

The legislature felt that comprehensive planning on the regional level, primarily careful hatchery site selection, would help mitigate potential

problems such as intermingling hatchery and wild stocks. Also in 1976, another bond issue was authorized and publicly approved, making most of \$29,205,000 available for capital improvements to state hatchery facilities.

Economic and Funding Issues

As the PNP hatchery program developed and hatchery technology progressed, it became evident that the costs of developing viable salmon hatcheries were far greater than initial expectations. Legislative focus fell on the economic viability of the program and on expanded methods of funding PNP hatchery development. New methods of financing construction and operation of PNP hatcheries were sought.

In 1974, AS 16.10.450 was amended to read that proceeds from the sale of salmon or eggs by a PNP hatchery could be applied to debt retirement as well as operating costs. Prior to 1974 there was no state funding available for PNP hatcheries. Funds became available through the Renewable Resources Development Fund established in that year. Additional state loans for construction of private nonprofit hatcheries became available when a 1975 bill was passed expanding the commercial fisheries loan program to include hatcheries. The following year, a separate fisheries enhancement loan program was established.

The 1976 legislation which created the Fisheries Enhancement Loan Program also gave authority to regional aquaculture associations to assess a fisheries enhancement tax of between two and three percent on the sale of salmon in established areas. Although Alaska has no private, for-profit hatcheries, private, nonprofit corporations independent of regional aquaculture associations have developed hatcheries in cooperation with regional salmon enhancement plans. These independent PNP hatcheries, sometimes called "mom and pop" hatcheries by ADF&G, are funded in the same manner as regional association hatcheries except that they have no authority to assess a regional salmon enhancement tax.

In 1977, legislators grappled further with the problem of financing private, nonprofit hatcheries. Building a hatchery requires a substantial capital outlay. It may take six to ten years (depending on the salmon species propagated) before a hatchery might expect viable fish returns which can be sold to cover operating costs and debt service. The initial loan program required the operators to provide 25 percent of the capital cost of the hatchery before loan approval. Although the law allowed qualified regional associations to assess a tax of up to three percent on the sale of salmon in their area, this assessment could not cover both the 25 percent of capital costs required to obtain a state loan and the operating costs of the hatchery.

The 1977 legislation (HB 264, §§ 2 - 19 Ch 154 SLA 1977) created a Fisheries Enhancement Revolving Loan Fund within the Department of Commerce and Economic Development. The conditions for obtaining loans were relaxed, requiring only "sufficient financial resources to insure the establishment of an equity

position in the project equal to ten percent of the loan within six years or less." House Bill 264 also gave regional associations the power to form regional salmon enhancement authorities, but this section was repealed in 1988. This bill also established property tax exemption status for the authorities on land used for salmon enhancement and made state matching grants for organization and planning (50/50) available to qualified regional associations.

Another general obligation bond authorization was approved in 1978. This issue was for \$26,965,000 for capital improvements to state hatchery facilities. The Commercial Fisheries and Agriculture Bank was also created in 1978. Although this institution did not directly benefit hatchery programs in the state, it did provide sources of credit for development of Alaska's fisheries businesses.

Also in 1978, HB 638 was introduced by Representative Haugen which would have added a new section to AS 16.10 which stated: "Sec. 16.10.480. TERMINATION DATE FOR APPLICATIONS FOR PERMITS. No application for a [private nonprofit hatchery] permit under secs. 400 - 470 of this chapter may be received by the department [of Fish and Game] after the effective date of this Act." The bill was later withdrawn by the sponsor. This bill would have stopped the development of the PNP hatchery program and indicates that not everyone in the legislature supported the program.

In 1979, after much legislative debate, a law was passed which allowed the granting of special harvest area entry permits to PNP hatchery operators. Chapter 64, SLA 1979 added a new section to AS 16.43 which reads "Special Harvest Area Entry Permits. (a) In addition to entry permits, interim-use permits, and educational permits, the [limited entry] commission may issue special harvest area entry permits to holders of private, nonprofit hatchery permits issued by the Department of Fish and Game under AS 16.10.400 - 16.10.475." The legislation also established that the permits are good for one year, renewable and nontransferable. Prior to enactment of this legislation, PNP hatchery operators were not allowed to harvest their own brood stock or cost recovery fish; they had to hire permitted fishermen to harvest these fish.

A general obligation bond issue of \$7,718,800 for state hatchery facility improvements was authorized in 1980. Also during that legislative session, the structure for imposing mandatory salmon enhancement taxes on the fishermen of specific regions was refined, prompted by a lawsuit challenging the constitutionality of the system established by SB 689 in 1976 (it represented an illegal delegation of the state's taxing authority). The new legislation required approval of the tax by a majority of the members of the qualified regional association which is to be taxed, and it involved payment of the tax to the state, which reimbursed the collections to the regional association.

In 1981, the Alaska Seafood Marketing Institute was established to spearhead Alaska's seafood promotion and marketing efforts. Also during that session, a House Concurrent Resolution (HCR 16) died in the Senate Resources Committee

without a hearing. This resolution states "BE IT RESOLVED that the Alaska State Legislature respectfully requests the governor, through the Department of Fish and Game, and the Board of Fisheries to provide for broodstock for fisheries rehabilitation and enhancement projects from already depressed fish stocks." It suggested that the priority for management of the fishery be shifted from wild stocks to hatchery stocks in the event of a depressed fishery.

In 1983, SB 156 passed the legislature allowing the lease, sale or grant of state hatchery facilities to qualified PNP hatchery permit holders. The bill reflected concern about the cost to the general fund of state-operated hatcheries, as well as the pervasive feeling that private nonprofit management was more efficient. It was vetoed by Governor Sheffield because he felt the question needed further analysis. Also, Governor Sheffield stated in his veto letter that the Attorney General felt there were possible constitutional problems with "granting" or other transfer of public property for other than public purposes. In 1988, SB 140 (Ch 14 SLA 1988) passed which allowed the state to contract the operation of state hatcheries to a nonprofit corporation, with preference given to qualified regional aquaculture associations located in the region where the hatchery is located. With this legislation, the state retains ownership of the hatcheries and passes the operation onto nonprofit corporations, thus avoiding the possible constitutional problems apparent in SB 156.

House Bill 38, sponsored by Representative Taylor in 1987, would have established limits on the dollar amount of state loans outstanding to regional aquaculture associations and independent private, nonprofit hatchery operators. The bill was later withdrawn by the sponsor. Senate Bill 410 (Ch 152 SLA 1988) passed in 1988, which exempted all broodstock and cost recovery fish from salmon enhancement taxes, and SB 62 (Ch 33 SLA 1989) which passed in 1989, allowed an additional one percent salmon enhancement tax to be levied under certain circumstances.

CURRENT HATCHERY PROGRAM

Currently, the FRED Division operates 16 hatcheries throughout the state and private, nonprofit corporations operate 21 hatcheries (including regional associations and independent corporations). Ownership and management of these facilities are changing as budget cuts have prompted the state to give control of some of their hatcheries to PNP corporations (through sales, leases and management contracts). FRED Division facilities saw returns of 6.3 million hatchery-reared fish in 1990, while PNP facilities saw returns of 42.3 million. Hatchery fish represented about 24 percent of Alaska's commercial salmon harvest in 1990. The FRED Division also maintains two pathology labs, one genetics lab, one limnology lab, and a coded-wire tag processing lab. The FRED Division also provides technical and management assistance to PNP hatcheries. FRED Division hatcheries tend to emphasize research while PNP facilities are more narrowly focused on production for the commercial fishery. The FRED Division is also concerned with the production of sport fish species

and with the experimental farming of oysters, mussels, scallops, abalone, clams and aquatic plants.

The attached table (Attachment D) presents fiscal year capital and operating appropriations as well as bond authorizations for state-operated hatcheries and administration of the FRED division from FY 68 through FY 92.² To date, a total of approximately \$208 million has been appropriated for operating expenses of the state hatchery program. Cumulative capital appropriations during the same time period have reached a total of \$41,334,600. Also, \$77,388,800 in bond authorizations have been approved, most for hatchery construction and improvement.

Attachment E presents a table of cumulative PNP hatchery funding from the 1990 FRED annual report to the legislature. Through December 31, 1990, private, nonprofit corporations have borrowed \$51,310,503 in state funds for capital construction, and \$19,762,723 in state funds for hatchery operations. They have also received \$42,219,711 from salmon enhancement tax assessments and \$13,644,040 from the sale of cost recovery fish during the same time period. At least \$30,509,323 of state funds has gone to PNP hatcheries in the form of grants and contracts between 1974 and 1990.³

LEGISLATIVE INTENT

This section addresses 12 questions about the legislative history of the hatchery program. The sketchy and incomplete documentation of the legislative history makes the answers to some of these questions elusive and ambiguous. However, a general response to each question is provided.

Did the legislature foresee management conflicts (in mixed stock fisheries or between gear groups) over the requirement of hatcheries to capture a sufficient number of returning salmon for broodstock and, in the case of PNPs, cost recovery?

Early in the development of the hatchery program there is no indication the legislature foresaw conflicts developing among user groups (gear groups), nor did we find evidence of anticipated conflicts over excessive escapement requirements for cost recovery. Perceived conflicts had mainly to do with competition and interaction between natural and hatchery-produced salmon.

²This table does not include supplemental appropriations or reappropriations, nor special appropriations for special projects (e.g., additional money to complete construction of the Snettisham hatchery) or appropriations to agencies other than the FRED Division.

³This information was obtained from the FRED division and the Governor's Office of Management and Budget grants tracking system.

Senator Eliason
July 31, 1991
Page 11

However, later in the development of the program, potential *management* problems may have been foreseen. House Concurrent Resolution 8, which became Legislative Resolve 71, SLA 1977 (Attachment F) states: "BE IT RESOLVED by the Alaska State Legislature that the State of Alaska is committed to a fisheries management policy that encourages and promotes the coexistence of healthy hatchery and wild stocks of salmon, and to implement this policy the Department of Fish and Game, through regional planning teams, shall initiate planning to meet the potential conflicts which may arise from the harvest of hatchery and wild salmon stocks so that the wild stocks are adequately protected;" This passage seems to indicate that by 1977 management conflicts were foreseen and that the legislature expected ADF&G to handle them in favor of the wild stocks.

During a 1979 House Resource Committee hearing on HB 48, Bob Roys, director of the FRED Division from 1971 to 1982, stated that the division didn't anticipate PNP hatcheries operators becoming powerful enough to influence fish and game management policy in favor of their broodstock and cost recovery needs over the escapement needs of the wild stocks. He felt there were adequate safeguards in the program to prevent this kind of pressure on management from PNP hatchery operators.

Did the legislature discuss how or why wild stocks were to have priority over hatchery stocks?

According to Terry Gardiner, wild stocks had priority over hatchery stocks for genetic reasons. Wild stocks were genetically superior and contained a diverse gene pool which was needed to sustain the species. In the early years of the program, the legislature was not sure that the hatchery program would work, so there was concern about the risk of losing the wild stocks and their gene pools on a failed experiment. The legislature saw hatcheries as a tool to supplement the wild stocks, not replace them.

Bob Roys recalls that a statutory preference for wild stocks was urged by Rick Lauber, a lobbyist for several fish processing organizations. The processors felt that if fish and game management protected the wild stocks, then it didn't matter if the hatcheries worked or not.

Both Terry Gardiner and Bob Roys felt that the protection of wild stocks would be brought about through management via regional planning teams and through careful placement of hatcheries to minimize interference with wild salmon runs. In a mixed stock fishery, the harvest would allow for appropriate escapement of wild stock, without regard for escapement requirements of hatchery stock. Legislative Resolve 71, SLA 1977 (Attachment F) also speaks to the priority in managing for the wild stocks in a mixed stock fishery.

Did the legislature foresee competition between wild and hatchery stocks for ocean graze, stream bed nesting areas, or other habitat?

Whereas the issue of ocean graze is mentioned in the record, there is no evidence that the possibility of overgrazing was considered a serious issue. For example, Phil Daniels of the United Fishermen of Alaska mentioned the subject of grazing in testimony at a House Resources Committee hearing on HB 264 on March 7, 1977. He stated that Japan, Washington, Canada, Russia and Korea were all far ahead of Alaska in hatchery production. Whereas Alaska released six million smolts in 1976, Japan released one billion. At a 1976 conference in Japan which he attended, limits on available graze in the North Pacific ocean was discussed. Mr. Daniels felt that Alaska was in a bad position to negotiate for graze rights because we lagged far behind the rest of the pacific rim in hatchery production. Thus, the competition the legislature may have foreseen for ocean graze was between our fish and fish from other countries, not between hatchery and wild stocks.

According to Terry Gardiner, legislators assumed there was plenty of room in the North Pacific Ocean to graze all of Alaska's hatchery fish. The environment had at one time supported 150 million salmon from Alaska. At the time these programs were being instituted, there were about 30 million fish coming from Alaska's streams and rivers, so there was room for at least 100 million more.

The legislature intended the hatchery program to utilize barren and unproductive streams, thereby minimizing competition for habitat with wild stocks on the spawning grounds.

Did the legislature foresee possible intermingling and/or genetic deterioration of wild stocks from hatchery stock influence?

Everyone acknowledged the possibility of adverse genetic impact. However, legislators were willing to take risks posed by the theoretical possibility of genetic degeneration of wild stocks.⁴ According to former Senator Bob Palmer, genetic intermingling was a concern of the opposition to the hatchery program, not a concern of the legislature. According to former Senator Clem Tillion, the legislature expressed concern about genetics early in the program, but the people who wanted to mass produce salmon politically outweighed the people who wanted to be extra cautious about the intermingling of salmon stocks. The

⁴According to Dr. William McNeil, biologist with the National Marine Fisheries Service in the 1970s, genetics was just beginning to become an issue as Alaska's hatchery program got underway. Dr. McNeil also chaired the Alaska Fisheries Council for many years. This council was established through the Governor's Office and dealt with many issues involving the evolving hatchery program. Several members of the legislature sat on this council, and it appears to have been a legislative forum for many of these issues.

legislature later funded a fish pathology and genetics laboratory for the FRED Division.

The legislature was aware that Alaska wild stocks of salmon stray from stream to stream, but were willing to risk the consequences in order to restore the strength of the salmon resource. To avoid genetic intermingling, hatchery operators tried to place hatcheries where there were no natural runs of salmon. Any eggs incubated at a stream site came from the local brood stock, or from a stock in the local area.

An unidentified legislator at a 1974 Senate Resources hearing of HB 830, the bill which established private nonprofit hatcheries, said he had lunched with 15 federal fisheries biologists who expressed concerns about the intermingling of wild and hatchery stocks (genetic problems). The biologists felt the problems would be small if only barren streams were used for hatchery facilities. The hearing participant also stated that federal and state biologists couldn't seem to agree among themselves about how serious genetic intermingling could be.⁵ By then, the state had already placed some hatcheries on producing streams. Bob Roys, director of the FRED Division testified at the same hearing that there would be no problem with intermingling if barren streams are used. They currently had wild stocks from different streams intermingling together and it was not a major concern.⁶ He said he'd "rather have the problem of too many fish than not enough." The ADF&G controls where eggs are sold and transferred to avoid the intermingling of stocks.

Did the legislature consider limiting hatchery production because of: 1) adverse impacts on wild stocks; or 2) adverse impacts on salmon market prices?

We found no discussion in the legislative record that hatchery production should be restrained to a predetermined level, for either biological or economic reasons. While the legislature was presumably prepared to take whatever corrective measures were necessary in the face of persuasive evidence that the hatchery program was causing serious biological problems, there appears to have been no discussion of establishing a ceiling on the production of fish from hatcheries.

⁵Fish which survive well in a hatchery environment have different characteristics from fish which survive well in the wild. Hatchery fish need to adapt well to the stress of being raised in crowded incubators and rearing pens, and they must adapt to eating manmade food for the first stages of their life. These characteristics are not necessary, nor desirable in wild stock.

⁶In a recent interview, Bob Roys stated that genetic intermingling was mentioned in legislative hearings, however, no one had adequately defined wild and hatchery stocks. When 80 percent of the gene pool is harvested, the species is altered. Thus our wild stocks are altered by man and may not be considered wild.

Senator Eliason
July 31, 1991
Page 14

There also appears to have been no contemplation of imposing a ceiling on the production of hatchery fish to support market prices. According to Terry Gardiner, salmon stocks were so depressed in the 1970s that there was no thought given to the possibility of oversupply.

Jack Milnes from the Southern Southeast Regional Aquaculture Association presented a possible scenario for enhancing the salmon runs in Southeast Alaska at a 1977 House Resources Committee hearing for HB 264. He discussed returning salmon to the previous level of 38,000,000 from the current 8,000,000. He goes on to say "At current prices of \$6.00 per adult chum salmon, the increased value for the 30,000,000 adults would be \$180,000,000. Everybody hopes the price will hold or inflate in time." Bob Palmer stated that the legislature knew the price of salmon would come down because of foreign production, so they felt inspired to produce even more fish to make up for the lower price. Clem Tillion told us that the legislature did not anticipate dependence on hatchery salmon by Alaska's commercial fishermen, and if adverse impacts on salmon market price were suspected by any legislators, it was not a widespread feeling, for they did not take steps to be able to limit production if that occurred.

Did the legislature consider the question of property rights to ocean-ranched salmon?

Consensus is that the legislature had always intended that the fish from PNP hatcheries belong to the common property fishery until such time as they return to the hatchery, and then they belong to the hatchery for broodstock and cost recovery. Testimony by Senator Dick Eliason at a 1975 Senate Resources Committee hearing on SB 180 indicates that the initial concept of a private hatchery system considered profit-making corporate ownership. However, a profit-making corporation might advance a claim to exclusive ownership of everything it produced. Thus, it was felt that private, nonprofit ownership of hatcheries would be more consistent with the concept of publicly owned hatchery fish. This opinion is echoed by former Representative Terry Gardiner.

At a March 7, 1977 House Resources Committee hearing, Jack Milnes, executive director of Southern Southeast Regional Aquaculture Association testified; "I wish to recognize the fact that these are common property fish, that they belong to the state of Alaska and to the people of Alaska and therefore they should be protected by the representatives of the people of the state of Alaska." At a 1979 Senate Resources Committee hearing on HB 48, Don Clockson, an attorney with Alaska Legal Services discussed the question of ownership of hatchery fish. In his testimony, he asked "When are fish no longer common property fish?" He felt that constitutionally, they were considered to be common property at all times. Consequently, it appears there was never any question that hatchery fish were common property of the people of the state while in Alaska waters, and they may or may not be the property of the PNP hatchery operator at the hatchery, but that he is allowed to harvest a sufficient number for broodstock and cost recovery.

Did the legislature consider what "substantial public benefits" (contribution to the public fishery) hatcheries were supposed to make (percentages)?

We found no record of a discussion or definition of the actual contribution to the public fishery expected from PNP hatcheries. Presumably there was an expectation that cost recovery and broodstock requirements would not divert a significant number of fish from the open access harvest.

During a 1974 Senate Resources Committee hearing on HB 830, an unidentified hearing participant stated that it was assumed 50 to 70 percent of PNP hatchery fish would be available for harvest by commercial, sport and subsistence fishermen, and that 50 to 30 percent would go to the hatchery operator for brood stock and cost recovery. In a recent interview, Terry Gardiner recalled that the legislature was content to allow the contribution to the common property fishery to be determined on regional and fishery basis by ADF&G commercial fisheries management.

Did the legislature consider a conflict of interest by the state when managing for cost recovery to hatcheries with state loans?

No such possibility was contemplated by the legislature in the early days of the program. As stated by Phil Daniels in a 1974 Senate Resources Committee hearing on HB 830, fishermen were initially asking the state for permission to put their own money into building up the resource. The initial concept was that PNP hatcheries would not require state funds, but would be built and operated with money from the fishermen, with additional funds from private foundations, and possibly federal grant monies. As the program evolved, state funds were used. In a recent interview, Dr. Bill McNeil stated that as he recalled, the legislature had lots of oil money to spend in the early days of the hatchery program, and it was not concerned about payback. The legislature was attempting to establish a resource base which would help sustain the state in the future.

However, as the state increased its financial stake in the PNP hatcheries, concern about the repayment of loans also increased. For example, SB 830 (Ch 111 SLA 1974) authorized the sale of salmon and salmon eggs by hatcheries for debt retirement. During a March 7, 1977 House Resources Committee hearing on HB 264, Committee Chairman Terry Gardiner suggested that the legislature eliminate voluntary enhancement tax assessments on fishermen and require

⁷According to Herman Savikko, ADF&G commercial fisheries division, escapement to the hatchery, and therefore, contribution to the common property fishery, is determined on an individual hatchery basis. Fishery biologists who manage regional commercial fisheries do so with information from hatchery operators about how much escapement of hatchery stock is needed, just as they know how much escapement is needed for wild stocks from different streams and watersheds.

Senator Eliason
July 31, 1991
Page 16

mandatory assessments because it would give the state more security about receiving loan payments.

In a recent interview, Clem Tillion stated that the state avoided the conflict of interest by separating management and loan functions. Fishery management was undertaken by the Department of Fish and Game, and the loans were managed by the Department of Commerce and Economic Development. The ADF&G did not want control of the loan program. According to Bob Roys, many times the management of the fishery went in the reverse direction, and resulted in PNP hatcheries not receiving enough fish for cost recovery purposes.

In 1981, the House Resources Committee presented HCR 16. This resolution (Attachment G) requested that the governor, the Board of Fisheries and ADF&G manage the fishery such that hatcheries would receive their broodstock even if the fishery were depressed. The resolution discusses, and falls just short of asking for, management for cost recovery. The resolution died without a hearing in the Senate Resources Committee.

Did the legislature consider under what conditions a PNP hatchery permit might be revoked?

We could find no evidence of any legislative discussion on the revocation of PNP permits. The consensus of our interviewees is also that there was no legislative discussion of the subject. Former Representative Terry Gardiner recently stated that ADF&G was not in favor of PNP hatcheries, and that the legislature was very careful of their wording when requiring that PNP permits be issued for fear that ADF&G would sabotage the intent. However, nothing specific was mentioned about the conditions under which a PNP permit might be withdrawn. It was an administrative matter. According to Bob Roys, the legislature left the matter of withdrawing PNP permits up to the commissioner of the Department of Fish and Game. Conditions of a permit were set by regulation, and no real ADF&G policy evolved. Very few PNP permits have been revoked to date.

Did the legislature consider PNP hatcheries would have to borrow state funds to pay operating costs?

At the outset of the PNP hatchery program, the legislature did not contemplate the use of state funds. The original idea was for PNPs to be built and operated with money from fishermen's associations and grants from private foundations and the federal government. However, as the program evolved, it became evident that the development and operation of hatcheries was more expensive than initially thought. The need for state funds, first for construction, and then later for hatchery operations, was answered with state loan programs developed for those purposes.

In a recent interview, Terry Gardiner stated that the funding situation evolved over time. The first bill was one page and stated that PNP hatcheries

Senator Eliason
July 31, 1991
Page 17

were legal. As time passed, the scale of the program changed. PNP hatcheries had no collateral to borrow from banks, and the enhancement tax assessments were not enough to cover the escalating capital and operating costs. During a March 7, 1977, House Resources Committee hearing on HB 264, Terry Gardiner presented an amendment to the bill which would change AS 16.10.510 (1) (under "Powers and duties of the commissioner") acknowledging the need for PNP hatcheries to borrow funds for operation from the Fisheries Enhancement Revolving Loan Fund. The new language stated "(1) make loans to permit holders under sections 400 - 470 of this chapter, including those holders issued permits before the effective date of this Act for the planning, construction and operation of hatchery facilities;"

Did the legislature consider direct employment in hatcheries as a goal of PNP hatchery development?

The primary goal of the PNP hatchery program was to produce fish for the commercial, sport and subsistence fisheries and create jobs in those industries. Economic development through direct employment in hatcheries may have been a secondary goal, especially in independent "mom and pop" operations. In a recent interview, Terry Gardiner stated that the answer to this question depended on who you were. This was not a goal if you were a fisherman. Some legislators may have considered direct hatchery employment as a goal, but it was not a primary goal. During a Senate Resources Committee hearing in 1974, the question was asked what will PNP operators get out of the program that will make them want to open a hatchery? The answer was "...jobs."

In Chapter 59 SLA 1979, "An Act Relating to Salmon Enhancement," under Section 1. Findings and purpose, subsection (9)(b) states "It is the purpose of AS 16.10.375 - 16.10.620 to provide for continuing efficient aquaculture development in the coastal and interior regions of the state and in a manner which equally affects and benefits all persons similarly situated and to encourage development of small, private, nonprofit hatcheries that may provide important benefits to the state through increased employment, educational training, and research opportunities."

Did the legislature indicate that one goal of hatchery development was to even out yearly catches of salmon?

The objective of Alaska's salmon hatchery program was to increase the total number of harvestable fish, not to produce fish in any kind of cyclical pattern that sought a consistent level of fish from year to year.

I hope this information is helpful to you. If you have further questions, feel free to contact this office.

Attachments

ATTACHMENT A
Alaska Legislation Dealing with Fisheries Enhancement

ALASKA LEGISLATION DEALING WITH FISHERIES ENHANCEMENT

(Legislation which became law is in italics)

- 1959 - *Ch 94 SLA 1959 (HB 201): Required the building of hatcheries or fishways as mitigation for damage to streams.*
- 1968 - *Ch 227 SLA 1968 (HB 357): Authorized the state to issue \$3,000,000 in general obligation bonds for construction of hatchery facilities (after approval through popular election).*
- 1970 - *HB 778 (HB 777 - appropriation bill to fund HB 778): Established a long-range fisheries research, rehabilitation and development program. Died in House Resources.*
 - *HB 828 (HB 829 - appropriation bill to fund HB 828): Reworked HB 778 and 777. Controversy developed over whether to create a long-term fund to fund the program, or whether to have it justified each year for legislative appropriation. Died in Senate Resources.*
- 1971 - *Ch 113 SLA 1971 (SB 107): Established the Division of Fisheries Rehabilitation, Enhancement and Development in the Department of Fish and Game. Approved no long-term funding mechanism.*
- 1972 - *SB 16: Established a Fisheries Rehabilitation, Enhancement and Development Investment Fund/Working Fund (\$100,000,000). Died in Senate Resources.*
- 1973 - *Ch 79 SLA 1973 (HB 126): Established the regulation of entry into Alaska's commercial fisheries.*
- 1974 - *Ch 111 SLA 1974 (HB 830): Established the private nonprofit hatchery program and the corresponding permitting system.*
 - *Ch 130 SLA 1974 (HB 673): Established a Renewable Resources Permanent Fund and Development Fund for capital and operating expenditures for the rehabilitation, enhancement and development of renewable resource programs. (Repealed in 1984.)*
 - *Ch 133 SLA 1974 (HB 475): Authorized the state to issue \$10,500,000 in general obligation bonds, mostly for capital improvements to state hatchery facilities (after approval through popular election).*
- 1975 - *Ch 128 SLA 1975 (SB 181): Related to loans for the construction of hatchery facilities. (Forerunner to the fisheries enhancement loan program).*
 - *Ch 97 SLA 1975 (SB 180): Established that the Department of Fish and Game will provide technical and advisory assistance to private nonprofit hatchery permit holders and applicants.*

ALASKA LEGISLATION DEALING WITH FISHERIES ENHANCEMENT

Page 2

- 1976 - Ch 161 SLA 1976 (SB 688): Established Regional Associations and required a regional salmon enhancement plan.
- Ch 190 SLA 1976 (SB 689): Established the Fisheries Enhancement Loan Program. Also authorized regional aquaculture associations to assess fishery enhancement taxes on the sale of salmon in established areas.
- Ch 214 SLA 1976 (HB 615): Authorized the state to issue \$29,205,000 in general obligation bonds for capital improvements to state hatchery facilities (after approval through popular election).
- 1977 - Ch 154 SLA 1977 (HB 264): Related to fisheries enhancement loans, regional salmon plans, fisheries enhancement revolving loan fund, and creating Regional Salmon Enhancement Authorities.
- Legislative Resolve 71 (HCR 8): Stated Department of Fish and Game's policies for managing hatchery and wild salmon stocks.
- HB 252: Established a Fisheries Enhancement Revolving Loan Fund. Died in House Finance.
- SB 39: Companion bill to HB 264, which became Ch 154. Died in Senate Finance.
- SJR 49: Expressed support for the "National Aquaculture Organic Act of 1978."
- 1978 - Ch 140 SLA 1978 (SB 618): Authorized the state to issue \$26,965,000 in general obligation bonds for capital improvements to state hatchery facilities (after approval through popular election).
- Ch 159 SLA 1978 (HB 763): Established the Commercial Fishing and Agriculture Bank to provide sources of credit for development of Alaska agriculture and fishing businesses.
- HB 638: Established a termination date for receipt of application for private nonprofit hatchery permits. (Would have effectively stopped any future PNP hatcheries.) Died in House Resources.
- HB 669: Established hatcheries in the Anchorage area. Died in House Resources.
- HB 710: Related to the issue of general obligation bonds. Companion bill to SB 618 which became Ch 140. Died in House Finance.

ALASKA LEGISLATION DEALING WITH FISHERIES ENHANCEMENT

Page 3

- HB 808: Related to the certification of independent fishery biologists to inspect Alaska hatcheries. Died in House Resources.
- HB 821: Special appropriation for a chum hatchery near Kotzebue Sound. Died in House Finance.
- 1979 - *Ch 59 SLA 1979 (HB 359): Better defined royalty assessments and the powers of the Board of Fisheries relating to PNP permits. Establishes Regional Associations as service areas.*
- *Ch 64 SLA 1979 (HB 290): Established special harvest area entry permits.*
- HB 48: Established special harvest area entry permits. Died in House Resources. Re-emerged as HB 290 in rules and became Ch 64.
- 1980 - *Ch 14 SLA 1980 (HB 948): Special appropriation of \$900,000 for the Department of Transportation and Public Facilities to complete construction of Snettisham hatchery.*
- *Ch 91 SLA 1980 (HB 691): Authorized the state to issue \$7,718,800 in general obligation bonds for capital improvements to state hatchery facilities (after approval through popular election).*
- *Ch 154 SLA 1980 (HB 969): Refined and defined salmon enhancement taxes. (Inspired by a lawsuit against mandatory assessments of salmon enhancement taxes.)*
- SB 344: Related to the issuance of general obligation bonds for hatchery improvements. Companion bill to HB 691, which became Ch 91.
- HB 777: Expanded fisheries enhancement loans to include lake fertilization and habitat improvement. Died in House Finance.
- HB 924: Supplemental appropriation of \$30,000 to operate the division of Fisheries Rehabilitation, Enhancement and Development. Died in House Finance.
- HB 971: Extended repayment time (from 25 to 30 years) and length of time to establish ten percent equity position (from six to ten years) for fisheries enhancement loans. Died in House Finance.
- 1981 - *Ch 106 SLA 1981 (HB 198): Established the Alaska Seafood Marketing Institute for the promotion and marketing of Alaska seafood.*
- HCR 16: Requested the Department of Fish and Game to manage for hatchery broodstock recovery. Died in Senate Resources.

ALASKA LEGISLATION DEALING WITH FISHERIES ENHANCEMENT

Page 4

- SB 268: Special appropriation of \$115,000 for a hatchery near Bethel. Died in Senate Resources.
- SB 269: Special appropriation of \$50,600 for a hatchery in the Yukon Kuskokwim area. Died in Senate Resources.
- HB 389: Companion bill to SB 269. Died in House Finance.
- HB 390: Companion bill to SB 268. Died in House Finance.
- HB 471: Special appropriation of \$25,000,000 to the Fisheries Enhancement Revolving Loan Fund. Died in House Finance.
- HB 479: Redefined the jurisdiction of regional salmon enhancement plans. Died in House Resources.
- HB 480: Forbid hatcheries without state permits and profit-making hatcheries. Died in House Resources.
- 1982 - *Ch 32 SLA 1982 (HB 472): Increased the maximum amount for a private nonprofit hatchery loan from \$6,000,000 to \$10,000,000.*
- HB 664: Allowed the conversion of hatchery construction loan to long-term loan and other changes. Died in House Resources.
- 1983 - SB 156: Allowed sale, lease or grant of state hatcheries to regional associations or other approved hatchery operators. Vetoed by the governor.
- HB 393: Allowed qualified private, nonprofit hatchery permit holders to operate (lease) state hatcheries. Companion bill to SB 156. Died in House Resources.
- 1984 - Nothing introduced.
- 1985 - *Legislative Resolve 22 (HJR 38): Requested continued fishery enhancement activities in the Kenai National Wildlife Refuge.*
- *Ch 79 SLA 1985 (SB 78): Made changes to the fisheries enhancement revolving loan fund and established a special account to fund foreclosure expenditures.*
- 1986 - Nothing introduced.
- 1987 - HB 38: Established limits on the dollar amount of state loans outstanding to private nonprofit hatchery owners and regional associations. Withdrawn by the sponsor.

ALASKA LEGISLATION DEALING WITH FISHERIES ENHANCEMENT

Page 5

- 1988 - *Ch 14 SLA 1988 (SB 410): Allowed the operation of state hatcheries by contract.*
- *Ch 152 SLA 1988 (SB 494): Exempted broodstock and cost recovery fish from salmon enhancement tax. Also repealed AS 16.10.600 - 620 on Salmon Enhancement Authorities.*
- 1989 - *Ch 33 SLA 1989 (SB 62): Allowed the levy of an additional one percent salmon enhancement tax under certain circumstances.*
- *House Resolve 7 (HR 11): Encouraged Exxon to fund salmon enhancement to mitigate the Exxon Valdez oil spill.*
- *Senate Resolve 11 (SR 16): Companion resolve to House Resolve 7.*
- *SB 84: Clarified language in Ch 152 SLA 1988 regarding salmon enhancement tax exemption. Died in House Resources.*
- *SB 290: Gave salmon hatcheries the first priority to receive water released by state-owned hydroelectric projects. Died in Senate Rules.*
- *HB 291: Companion bill to SB 290. Died in House Resources.*
- 1990 - *Ch 36 SLA 90 (HB 85): Established changes in accounting procedures for the fisheries enhancement revolving loan fund.*

ATTACHMENT B
1975 Letter from Representative Oral Freeman
to Governor Jay Hammond and Response
RE: Alaska's Hatchery Program

December 1, 1975

Honorable Jay Hammond
Governor of Alaska
Juneau, Alaska

This letter is prompted by recent News reports of your having appointed a "Fisheries Task Force" to study ways of reviving our depressed Fishing industry. Since I may, or may not, have an opportunity for input into that committee and my belief that the makeup of the committee precludes recommendation of one action I consider necessary for a start toward resolution of our Fisheries problems, I'd like to make the following comments to you directly.

First, I'd like to assure you that I lay no claim to any expertise on fishing or fisheries problems. I've been an Alaskan resident for the past thirty years. The first five years of my residency I was a commercial fisherman. The main thing I learned during that five years was how little I knew about fishing.

I was an early and ardent supporter of Statehood for Alaska. One reason was because of my conviction that Alaskans could do a better job of controlling and managing our fisheries than was being done by the U.S. Fish and Wildlife Service.

During the first years following Statehood I made excuses for the management policies of the Alaska Dept. of Fish and Game because, I reasoned, the things they should be doing cost money and the new State didn't have that much money. With the advent of the nine hundred million dollar lease sale in the north I hoped the Dept. would come to life and start making progress with the problem of our declining salmon fishery.

Nothing happened.

Again I made the excuse that it takes a little time to get going in a new direction.

Although I had begun to harbor some serious doubts, my real disillusionment finally came about in the 1973 session of the legislature.

At that time I was a member of the House Finance Committee. The late Representative Hillstrand was at that time Chairman of House Finance.

ACE 5437490

Mr. Hillstrand, recognizing the need for some kind of constructive action, appointed a special sub-committee from members of the Finance Committee, charged with concerning themselves with the problems of Fisheries Rehabilitation, Enhancement and Development. In other words the so-called F.R.E.D. programs.

I was a member of that sub-committee.

Being members of the Finance Committee, obviously our greatest contribution would be in proposing funds for worthwhile projects within the F.R.E.D. Division.

As you well know, membership on the Finance Committee requires long hours of work. The sub-committee did its regular work during the day then came back at night, many nights, and met with the Commissioner of Fish and Game and ten or fifteen members of his staff.

All of this effort was non-productive. We were unable to help. Unable to help for the simple reason that as far as the top management of the Dept. of Fish and Game was concerned--they simply do not believe in Fisheries Rehabilitation, Enhancement, and Development.

I know this may sound a bit harsh, and I want to point out this is my personal opinion. But, a majority of my colleagues on the committee came to the same conclusion.

I'll never forget one particular phrase used by the Commissioner of Fish and Game during the meetings, and that was "the most economical way to produce fish is to properly manage the wild stock".

No one in his right mind would argue with that. The point is that we were not there to discuss the value of proper management. We were there to try to assist with the F.R.E.D. program. As far as I can remember, we received no hints, no clues of any kind, how we, as members of the Finance Committee, could help or assist them with the F.R.E.D. programs.

It would seem to me that sixteen years of following a strict "Management" philosophy in our Fisheries has proved a dismal failure.

I'll admit there are other contributing factors, some of them beyond the State's control. One of course is that the Federal Government has allowed foreign fleets to lay off our shores and harvest Alaska's fish. American foreign policy, which quite often seems to me to be more "foreign" than "American" has and still is using our Fisheries as a pawn in the diplomatic game with little or no regard for Alaskan interest. I

think it is reasonable to assume that sometime in the near future we will have a two hundred mile limit, and possibly other improvements. But even with this, simple "management of the wild stock" will not be enough. If we are to rehabilitate our fisheries we are going to have to give mother nature a hand. We are going to need a change in philosophy and direction. We must get out of the old "management only" groove. We must have more than just "grudging" support for innovative approaches. It is my honest opinion that this will never come about with the prevailing philosophy of the present management of the Department.

Please believe me when I say that I have no "ulterior" motive, no desire to question the honesty, integrity, or devotion to duty of the Commissioner of Fish and Game. I simply believe that the direction and philosophy to which the management is so dedicated is wrong. Further, I don't believe it is going to change.

Fisheries Rehabilitation, Enhancement, and Development programs are working in other states, in Canada, and in Japan. They'll work for Alaska if given a fair chance. I don't believe they're getting that chance.

I may be unfair, but, it seems to me the top people in Fish and Game never miss an opportunity to downplay or belittle F.R.E.D. programs or proposals. Let me quote some excerpts from a recent article: "In its attempt to rejuvenate its failing salmon runs, Alaska is plunging headlong into a hatchery program that is causing concern to Fisheries Scientists". Or take this one from the same article: "...the committee warned that lack of genetic planning in the artificial propagation program could result in unfavorable changes in the genetic composition of some wild salmon and trout stocks. Haphazard attempts to enhance salmon stocks by transplanting eggs, juveniles or adults from one area to another should be avoided until critical evaluations are made".

These quotes are from an article in "Alaska's Seas and Coasts", published last April, but, to me, the strange thing is that I heard the Commissioner of Fish and Game make the same argument three years ago when we tried to talk about F.R.E.D. programs.

Governor, I'm sure the proper "genetics" of salmon are important. However, I'll wager that if our fishermen have to make a choice between salmon with the wrong "genetics" or no salmon at all they'll not worry that much about the salmon's parents or where he came from.

If you'll check the record I'll predict that you'll find that nearly every rehabilitation project now in existence was pushed and promoted, not by the top management of the Dept. of Fish and Game but by some individual legislator. I'm saying that almost without exception, every rehabilitation program outside the laboratory had to be forcibly pushed down the throat of the Department's top men.

ACE 5437492

It is my belief that there is no problem facing the State of Alaska that commands more interest and sympathy from the State Legislature than that of Fisheries. The Legislators want to do something to solve the problem. The trouble is that they don't know what to do. Obviously the responsibility for planning, guidance, and direction, as well as suggestions, should come from the "experts" in the Dept. of Fish and Game. This is not being done. Wanting to do what needs to be done and being unable to get any help from the people whose responsibility it is to furnish that "expertise" is terribly frustrating. I'm well aware that this situation in our Fisheries is something you inherited from the former Governor, likewise he from the former Governor, etc., etc. For the last sixteen years nothing has changed, the same approach, the same disastrous results, a steady decline in our fishing industry. Something has to be done and you, and only you, have the power to remove or replace a person in such a policy-making position. As you well know this last fishing season was a disaster in the District I represent. A lot of good people who depend on our fisheries for a livelihood, people who are not only my constituents but my good friends, are going to become economic "basketcases" if the people who bear the ultimate responsibility don't get off their backsides and make an all out effort to turn this situation around. I sincerely believe that you, as the state's Chief Executive, are in a position to get us started in the right direction.

I submit that the prevailing philosophy is not going to change as long as he is in control, that if we continue to concentrate on "management" and "management" only, soon there will be nothing left to "MANAGE".

I'm suggesting that the present Commissioner of Fish and Game be thanked for his years of devoted duty and removed from a policy-making position--that he be replaced with some qualified person with a new and different approach. I'm suggesting that such a replacement be hired solely on qualifications without regard as to what part of the world he, or she, might come from. Governor, it is my honest opinion that until this is done all the "Task Forces" you could possibly appoint will bring about no improvements in our Fisheries.

Respectfully,

Representative Oral Freeman
Election District 1
Ketchikan, Alaska

(Retyped copy of Rep. Freeman's letter, by permission)

ACE 5437493



STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

December 8, 1975

The Honorable Oral Freeman
Alaska State House of
Representatives
2743 3rd Avenue
Ketchikan, Alaska 99901

Dear Representative Freeman:

Thank you for your letter of December 1, expressing your concerns over the present state of our salmon resources and your recommendation that the present Commissioner of the Department of Fish and Game be replaced. Be assured that I am familiar with the issues you raise and share your concerns for the future of our fishery resources.

Because of my belief in the potentials offered by an aggressive fisheries rehabilitation and enhancement effort, I have assigned the review and coordination of such a program to my Chief of Staff, Mr. Bob Palmer. As you know, Mr. Palmer was in large measure responsible for initiating such a program during his tenure in the State Senate. It is my understanding that some significant changes in this program have taken place as a result. Rather than detail these changes, I suggest that you meet with Mr. Palmer after your arrival in Juneau for the legislative session. I am sure you will be pleased with the progress we have made.

As you know, all commissioners serve at the pleasure of the Governor. However, the legislation splitting the Board of Fish and Game into separate boards, which was passed by the Legislature last session, also speaks to the removal of the commissioner. It provides a mechanism by which either board can send a resolution to the Governor requesting the removal of the commissioner. Such a mechanism certainly meshes with my philosophy that the management of our fish and game resources should be removed at least a half step from the political arena. In addition, this mechanism implies a degree of legislative intent in this regard. Consequently, I would be most reluctant to replace the commissioner without a resolution from either board.

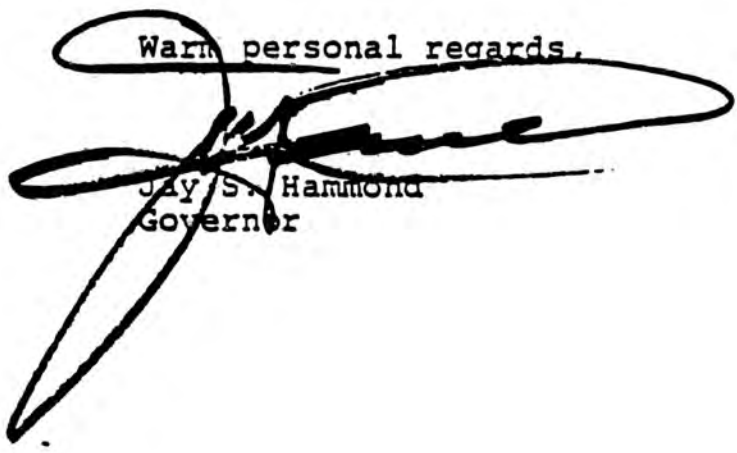
ACE 5437494

December 8, 1975

In closing, I would like to clarify any misunderstanding about the charges given to the Fisheries Economic Impact Task Force which I recently appointed. Basically, their charges deal with the economic stress placed on our fishermen as a result of poor seasons, rather than to "revive our depressed fishing industry". Certainly, these two issues are closely related and both are being actively worked on by members of this Administration.

Oral, I greatly appreciate your apprising me of your concerns, and I am hopeful that we will have the opportunity to discuss them in greater detail while you are in Juneau for the legislative session.

Warm personal regards,



Jay S. Hammond
Governor

ACE 5437495

ATTACHMENT C
Excerpt from October 4, 1978 Meeting of the
Aquaculture Policy Study Group Minutes

RECONVENE 11:30 a.m.

Upon reconvening, John Sund proposed the following goal statement for the study group:

A healthy salmon industry, paying its own way, providing employment, return on investment, and pleasure in recreation (sport fishing), by the year 2000.

PROPOSED
GOAL
STATEMENT

Referring to "paying its own way," Mr Sund advised that prior to 1968, the salmon industry was the greatest state revenue producer. Since that time, the greatest revenue has come from the oil industry. He further advised that the Group should discuss whether "paying its own way" should include regulation of the industry.

Concerning "providing employment," Mr. Sund advised that such employment involves one of the functions of government which is to provide that which people do not provide for themselves.

Mr. Sund stated that he hoped that by analyzing aquaculture, the group could come up with reasons why and how it could function concerning what should be done for the future, including statutory changes if necessary, creation of new entities, and/or destruction of outdated entities.

Dr. Burkette advised that he believed the group should approach aquaculture problems from the direction of a resource industry and couch its goal statement in those terms. Chairman Gardiner then asked group members if they wished to view the salmon industry from a resource or a people oriented outlook, adding that he tends to look from a people point of view while the Department takes the resource viewpoint. Dr. Burkett stated that the Department views aquaculture from the philosophy of a healthy resource; nothing else is involved. Armin Koernig advised that in the early days of Alaska, no attention was paid to the resource itself but rather to the economic income of the industry. He felt the committee should attempt to effect a well balanced resource that is a social/economic industry as well. Bob Simpson advised that National Marine Fisheries prefers to see salmon runs enhanced rather than enhancing the industry.

IS AQUA-
CULTURE
RESOURCE
OR PEOPLE
ORIENTED

BOTH
RESOURCE
AND SOCIAL
ECONOMIC
INDUSTRY

Jack Milnes read Article VIII of the Alaska State Constitution, concerning natural resource policy, advising that the Constitution makes clear that use of the resource be directed toward the people.

CONSTITUTION
ON RESOURCE

Suggestion was made by Barbara Sorensen that language be included within the goal statement to cover processing within the industry, advising that processing has not heretofore been addressed by state policy.

SHOULD
PROCESSING
BE INCLUDED
IN GOAL
STATEMENT

Further suggestion was made that provision for subsistence fishing be included within the statement, and Mr. Sund advised he had no objection to the inclusion of subsistence. He further stated that he believed the group needed a statement set within a time frame in order to produce a definite goal against which the group can measure accomplishments.

GOAL STATE-
MENT TO
INCLUDE
SUBSISTENCE

Dr. Burkett objected to the proposed statement asking when it was decided the group should have such a statement, what the advantages to having one are, and who decided to effect such a statement. Chairman Gardiner advised that the decision had been made at the previous meeting of the group when Dr. Burkett and Mr. Sund were directed to come up with a goal statement. Mr. Sund formulated the wording and put it before the group. Dr. Burkett advised that he assumed the goal statement was going to be tabled as a possible area of pursuit. Dr. Kaill advised that he thought the purpose of the group was statutory clarification, and Armin Koernig attested to the need for a goal statement from which the group could work forward.

OBJECTION
TO GOAL
STATEMENT

A brief discussion followed concerning whether or not there was need for a goal statement, after which the committee recessed for lunch.

LUNCH RECESS 12:05 p.m.

RECONVENE 1:40 p.m.

Discussion resumed concerning the need for a group goal statement, and Dr. Kaill proposed language providing for "optimum yield for the state salmon fisheries," advising that such a goal doesn't really mean anything until the group gets down to its real objectives.

KAILL,
GOAL
LANGUAGE

Sandy Somerville advised that he believed a goal statement to be useful to the extent it would acknowledge that there is both a social and economic system at work here as well as a biological function. It would acknowledge conflicting economic, social, and biological needs, although the resources and needs would vary from region to region. Value judgments would be made by each region to determine how it will proceed in developing its resource, remembering that these economic, social, and biological needs are at odds, and each region must determine what is most important and what comes first. The group must design a process for reconciling competing goals.

SOMERVILLE,
SOCIAL,
ECONOMIC
BIOLOGICAL
CONFLICT

GROUP MUST
ESTABLISH
PROCESS FOR
RECONCILING
COMPETING
GOALS

Mr. Sund read a section from the letter of intent formulating the study group, advising that the directive covers a lot of ground. He further stated that he believed the group could very easily agree on a goal, but he would prefer to have goal areas broken down and measurable against time.

Mr. Somerville suggested that assignments be made for developing goals in economic, social, and biological areas, advising that he felt the Alaska Department of Fish and Game would be in conflict with some of the guidelines the group might establish, adding that the group would have to get a consensus in each separate area. Mr. Sund advised that he would try to include all these areas in his statement citing as an example of Department action the Bristol Bay closure; a biological decision made without regard to economic or social results. He added that he did believe it necessary to set some statement down on paper in order to determine a realistic method for attaining the goal. Mr. Somerville stated that the question would remain as to where the checks rest, who makes the decision to intervene in action taken in the industry, who invests authority to integrate regional plans and reconcile competing interests.

Chairman Gardiner attested to the problem of different types of fishermen fishing the same area within differing time frames, advising that the Department has no method for evaluating its decisions. There should be some guidelines such as those governing Canadian and American catches.

PROBLEM
DIFFERENT
GEAR
FISHING
SAME
AREA

Mr. Somerville advised that regional plans should make very clear statements of goals in a region where economic, social, and biological needs conflict. They would also define management goals, and goals for economic sharing of the income. The group must acknowledge that it understands the competition between these needs. Chairman Gardiner advised that he felt favorably toward Mr. Somerville's suggestion.

Jack Milnes advised that the goal statement is already in the Constitution of the State, stating that what the group must do is determine how to interpret the Constitution, adding that he was not addressing aquaculture but salmon restoration. Legislature has already been used in this area but it has not sufficiently defined functions. The group needs to start with some specific interpretations of what it is going to do.

Dr. Burkett raised a question concerning the area encompassed by the group, advising that some of the previously discussed problem areas are the responsibility of the Regional Planning Teams. He further advised that in the course of operation, goals can change and flexibility is needed, adding that concerning the people and many areas involved, he believed goal determination should be set at the regional level.

SHOULD
GOALS
BE SET BY
REG. PLANNING
TEAMS

Mr. Sund spoke to problems with Regional Planning Teams arising from the fact that they are composed of half volunteer participants (fishermen, etc.) and half paid participants (employees of the Alaska Department of Fish and Game), advising that he didn't believe the power to function could be given these people without funding. Apparently funding is provided through Fish and Game which poses a problem in that getting funding out of Fish and Game has proven to be a "disaster." He advised that if the state is going to push responsibility on the Regional Teams, it is going to cost approximately \$100,000 to \$200,000 per year, per region (approximately \$1,000,000 statewide).

FUNDING FOR
REG. PLANNING
TEAMS

Chairman Gardiner advised that Regional Planning Teams would be discussed at a later time and directed group attention back to the pending agenda.

Dr. Kaill furnished group members his Overview of Policy and Procedures Manual (copy attached to these minutes), advising that such policies have tried to deal with genetic problems of natural versus hatchery salmon.

POLICY &
PROCEDURES
MANUAL
OVERVIEW

ATTACHMENT D
FRED Division Operating, Capital and
Bond Authorizations FY 68 - FY 92

Legislative Appropriations and Bond Authorizations for Alaska's Hatchery Program, FY 68 - FY 92

Fiscal Year	Operating Appropriations	Capital Appropriations	Bond Authorizations
1968			3,000,000
1969			
1970			
1971			
1972	1,023,400		
1973	1,130,300	50,000	
1974	1,418,200	1,698,400	
1975	2,089,300	1,633,800	10,500,000
1976	3,188,800	387,600	
1977	4,368,500	1,691,500	29,205,000
1978	4,695,000	1,089,300	
1979	9,063,900	1,315,500	26,965,000
1980	8,094,200	178,000	
1981	9,611,200	7,298,000	7,718,800
1982	10,378,400	5,928,000	
1983	12,286,900	845,000	
1984	12,932,000	1,138,600	
1985	14,808,800	5,871,400	
1986	15,619,300	2,714,000	
1987	15,225,800	1,377,800	
1988	14,557,700	386,000	
1989	15,330,900	335,000	
1990	15,600,600	1,211,700	
1991	17,487,900	1,185,000	
1992	18,925,400	5,000,000	
TOTAL	\$207,836,500	\$41,334,600	\$77,388,800

Note: This table does not include supplemental appropriations, reappropriations, special appropriations for special projects, or appropriations to agencies other than the Division of Fisheries Rehabilitation, Enhancement and Development in the Department of Fish and Game.

Source: Session Laws of Alaska, 1967 - 1991.

Prepared by the Legislative Research Agency, July 1991 (91.296A).

ATTACHMENT E
Cumulative State Loans and Enhancement Funds
Returned to Associations and Annual Fish Sales
for 20 PNP Hatcheries as of December 31, 1990
taken from
FRED 1990 Annual Report to the
Alaska State Legislature

Table 12.1. Cumulative state loans and enhancement funds returned to associations (through December 31, 1990), and annual fish sales for 20 private nonprofits (PNP) hatcheries (through Dec. 31, 1990).

Region/Corporation (number of permits)	State	Loans	Cumulative Enhancement Funds Generated through Assessments, Returned to Associations via Contract	Estimated Revenue From 1990 Sales of Fish Returning to Special Harvest Areas
	For Capital Construction	For Operations		
SOUTHERN SOUTHEAST				
Southern Southeast Regional Aquaculture Association-SSRAA (3)	\$9,093,000.00	\$2,848,942.00	\$13,820,467.21 (note 1)	\$1,180,692.00
Alaska Aquaculture, Inc.-AAI (1)	\$1,091,985.00	\$2,303,208.00	N/A	\$21,499.30
Meyers Chuck Aquaculture Association-MCAA (1)	\$10,000.00	\$0.00	N/A	N/A
NORTHERN SOUTHEAST				
Northern Southeast Regional Aquaculture Association-NSRAA (3)	\$2,724,265.00	\$1,638,496.00	\$7,895,083.89 (note 1)	\$1,253,052.38
Armstrong-Keta, Inc.-AKI (1)	\$1,733,645.00	\$2,015,500.00	N/A	\$350,934.30
Burro Creek Farms, Inc.-BCF (1)	\$51,500.00	\$332,875.00	N/A	\$606.00
Douglas Island Pink and Chum Inc.-DIPAC (3)	\$9,171,000.00	\$3,821,000.00	N/A	\$68,366.00
Kake Nonprofit Fisheries Corp.-KNFC (1)	\$1,500,724.00	\$1,632,060.00	N/A	\$101,328.93
Sheldon Jackson College-SJC (1)	\$362,254.00	\$61,370.00	N/A	\$0.00
Tlingit and Haida Fisheries Development Corp.-THFDC (0)	\$1,464,000.00	\$89,860.00	N/A	N/A
PRINCE WILLIAM SOUND				
Prince William Sound Aquaculture Corp.-PWSAC (3)	\$19,475,419.00	\$1,085,500.00	\$8,019,732.53 (note 2)	\$8,005,445.08
Valdez Fisheries Development Assoc.-VFDA (1)	\$3,193,830.00	\$3,250,543.00	N/A	\$2,614,413.59
COOK INLET				
Cook Inlet Regional Aquaculture Assoc.-CIAA (2)	\$1,438,881.00	\$683,369.00	\$9,301,544.64 (note 2)	\$47,703.19
KODIAK				
Kodiak Regional Aquaculture Assoc.-KRAA (1)	\$0.00	\$0.00	\$3,182,883.56 (note 2)	\$0.00
STATEWIDE TOTALS	\$51,310,503.00	\$19,762,723.00	\$42,219,711.83	\$13,644,040.77

note 1: 3% mandatory assessment tax collected from commercial fishermen.

note 2: 2% mandatory assessment tax collected from commercial fishermen.

ATTACHMENT F
Legislative Resolve 71 SLA 1977
HCR 8
RE: Protection of Wild Stocks

Original sponsor: Haugen

Offered: 4/7/77
For Today's Calendar

1 IN THE HOUSE

BY THE RULES COMMITTEE

2 CS FOR HOUSE CONCURRENT RESOLUTION NO. 8 am

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TENTH LEGISLATURE - FIRST SESSION

5 Relating to the study of hatchery and wild
6 salmon stock harvest and the comparative
7 economics of salmon hatchery construction
8 and operation.

9 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

10 WHEREAS the nonprofit salmon hatchery program was established by the
11 Legislature in 1974; and

12 WHEREAS the express legislative intent was to ". . . authorize the pri-
13 vate ownership of salmon hatcheries by qualified nonprofit corporations for
14 the purpose of contributing, by artificial means, to the rehabilitation of
15 the state's depleted and depressed salmon fishery. . ."; and

16 WHEREAS the program is to be administered in a manner ". . . without
17 adversely affecting natural stocks of fish in the state. . ." and in a manner
18 ". . . which allows reasonable segregation of returning hatchery-reared salmon
19 from naturally occurring stocks"; and

20 WHEREAS the nonprofit salmon hatchery program was subsequently amended
21 in 1976 to allow for the creation of regional associations for the purpose of
22 salmon fishery enhancement and gives qualified associations preference to
23 hatchery permits from the Department of Fish and Game; and

24 WHEREAS the state can make loans to regional hatchery associations in
25 the amount of \$3,000,000 maximum per loan to regional associations and
26 \$300,000 maximum per loan to other hatchery permit holders; and

27 WHEREAS the voters of Alaska approved the construction of state-owned
28 hatchery and rearing facilities in the amount of \$24,565,000 in the 1976
29 general election; and

1 WHEREAS there has not been a comprehensive analysis of the relative cost
2 to the state of the state-owned hatcheries and the private nonprofit hatch-
3 eries; and

4 WHEREAS these state-owned facilities will be located in Southeastern
5 Alaska, Bristol Bay, Cook Inlet, Kodiak, Prince William Sound, and the Alaska
6 Interior; and

7 WHEREAS the locations of these state-owned hatchery facilities are in
8 the general proximity of present and potential future private nonprofit
9 salmon hatchery facilities; and

10 WHEREAS both the state and private hatchery facilities will release
11 salmon into the common property fishery; and

12 WHEREAS private hatchery fish will be subject to the common property
13 fishery along with the naturally occurring salmon runs in Alaska; and

14 WHEREAS it is the stated policy of the Alaska Department of Fish and
15 Game that "if complexities arise in managing mixed stocks, including both
16 hatchery fish and wild fish, it will be state policy to manage the collective
17 resource in a manner that favors protection of the wild stocks."; and

18 WHEREAS the proper management of this multi-stock fishery is of vital
19 importance to the people of Alaska in light of the importance of the salmon
20 fishery to the economic welfare of a significant portion of the state's
21 population;

22 BE IT RESOLVED by the Alaska State Legislature that the State of Alaska
23 is committed to a fisheries management policy that encourages and promotes
24 the coexistence of healthy hatchery and wild stocks of salmon, and to imple-
25 ment this policy the Department of Fish and Game, through the regional
26 planning teams, shall initiate planning to meet the potential conflicts which
27 may arise from the harvest of hatchery and wild salmon stocks so that the
28 wild stocks are adequately protected; and be it

29 FURTHER RESOLVED that the Alaska Fisheries Council study the comparable

1 salmon hatchery cost to the state for both capital and operational costs for
2 state-owned hatcheries and private nonprofit hatcheries; and be it

3 FURTHER RESOLVED that the Department of Fish and Game and the Alaska
4 Fisheries Council report their findings and recommendations to the Second
5 session, Tenth Legislature.

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ATTACHMENT G
HCR 16, 1981
RE: Management for Broodstock

Introduced: 4/3/81
Referred: Resources

1 IN THE HOUSE

BY THE RESOURCES COMMITTEE

2 HOUSE CONCURRENT RESOLUTION NO. 16

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 Relating to broodstocks for fisher-
6 ies rehabilitation and enhancement.

7 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

8 WHEREAS the people of the state have approved \$78,000,000 in bond
9 issues for the construction of hatcheries in the state; and

10 WHEREAS the Department of Fish and Game, division of fisheries rehabili-
11 tation, enhancement and development, with an annual budget of \$10,000,000,
12 has been established for the sole purpose of fishery rehabilitation enhance-
13 ment, and development; and

14 WHEREAS the fisheries enhancement loan program has been established to
15 support an active, private, nonprofit hatchery program; and

16 WHEREAS private associations have expended thousands of volunteer hours
17 and have invested millions of dollars of state loans in hatchery programs;
18 and

19 WHEREAS the loan money must be paid back to the state through revenues
20 derived from the capture and sale of returning fish; and

21 WHEREAS hatchery programs and the rehabilitation and enhancement of
22 state fisheries require adequate supplies of broodstock eggs; and

23 WHEREAS fisheries management agencies, specifically the division of
24 commercial fish and the Board of Fisheries, have not been given clear direc-
25 tion regarding the allocation of fishery stocks to provide the necessary
26 broodstock eggs for the hatchery programs and for rehabilitation, enhance-
27 ment, and development of the fisheries; and

28 WHEREAS many of the fish stocks are in a depressed condition and have
29 been depressed for some time; and

1 WHEREAS a fishery rehabilitation and enhancement program cannot be
2 effective unless, in many cases, the initial broodstock eggs are taken from
3 an already depressed fish stock; and

4 WHEREAS, due to the difficulty in obtaining adequate broodstock eggs,
5 many state and private facilities, worth millions of dollars are empty; and

6 WHEREAS fisheries enhancement loan repayments are dependent on the
7 capture and sale of returning fish and the lack of broodstock eggs to in-
8 crease the number of returning fish will cause loans to be in default;

9 BE IT RESOLVED that the Alaska State Legislature respectfully requests
10 the governor, through the Department of Fish and Game, and the Board of
11 Fisheries to provide for broodstock for fisheries rehabilitation and enhance-
12 ment projects from already depressed fish stocks.

ATTACHMENT H
References

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CHAPTER III. PRODUCTION POLICIES AND TRENDS IN ALASKA AND WORLDWIDE

See the attached memorandum regarding "Overview of World Commercial Salmon Production" by Linda J. Snow of Legislative Research Agency.

Alaska State Legislature

Legislative Research Agency



130 Seward Street, Suite 218
Juneau, Alaska 99801-2196

Phone: (907) 465-3991
Fax: (907) 463-3351

February 7, 1992

MEMORANDUM

TO: Senator Richard Eliason, Chairman
Senate Special Committee on International and Domestic Fisheries

FROM: Linda J. Snow *L. Snow*
Legislative Analyst

RE: Overview of World Commercial Salmon Production
Research Request 92.058 [REVISED]

You asked for information about world commercial salmon production (harvest). In particular, you asked for an overview of world production of farmed salmon, wild salmon and ranched salmon, and information about trends and policies of the major salmon-producing countries.

SUMMARY

World salmon production over the last decade has been characterized by a decline in wild salmon stocks and an increase in hatchery-bred (ranched) and farmed salmon production.¹ Farmed salmon production nearly doubled between 1988 and 1990, increasing from about 310 million pounds to over 600 million pounds. Commercial salmon catch increased only slightly during that time. In 1990, farmed salmon made up about 27 percent of world salmon production. The increased supply of salmon on the world market lowered the price of the fish. Lower salmon prices and rising operating costs have brought economic hardship to salmon-farming operations worldwide, although many farms remain competitive. Recent trends indicate a slight reduction of farmed salmon production. Lower prices have also adversely impacted commercial salmon-fishing operations worldwide.

¹In this memorandum, the term "ranched" salmon refers to salmon which are hatched in a hatchery facility and released into the ocean, regardless of whether they are harvested by the common property fishery or harvested as private property.

OVERVIEW OF WORLD COMMERCIAL SALMON PRODUCTION

This section begins with an assessment of the sources of data available about worldwide commercial salmon production. It is followed by a brief statistical overview of wild, ranched and farmed salmon production worldwide.

Data Sources

Commercial salmon production reporting takes place in many countries around the world. However, there is no uniformity in the recordkeeping and statistical reporting among the various countries. Some countries report live weight of fish, while others report cleaned weight. Some estimate production by sampling commercial landings, while others compile comprehensive catch statistics from all vessels. Different units of measure may be used in reporting (i.e., numbers of fish, pounds of fish, metric tons of fish), and rounding errors may occur in converting from one unit of measure to another. Reports are prepared for different time periods (i.e., calendar year vs. fiscal year). Some sources report preliminary estimates which may or may not be revised. Sometimes statistics gathered within the same agency are not consistent because reporting requirements and techniques have changed from year to year. Thus, we have not only found it difficult to obtain comparable international data, we have also found inconsistent data reported by different government entities for the same national salmon production.

To make the best use of available worldwide salmon production data, we used two criteria in our selection of data for this report. First, we obtained data from the primary source, or as close to the primary source as possible. Second, we used the same source for the data when possible to be consistent. We obtained the data in Table A from the Department of Fish and Game, Division of Fisheries Rehabilitation, Enhancement and Development (FRED) and Division of Commercial Fisheries, the primary source. We obtained the data in Table B from the *Bill Atkinson's News Report*, a respected industry news letter which discusses developments in world fish markets. Table B is a compilation of data from the United Nations Food and Agricultural Organization (FAO), and from *Salmon 2000*, produced by the Alaska Seafood Marketing Institute. Tables 1 and 2 (attached) were taken from *Salmon 2000*, produced by the Alaska Seafood Marketing Institute. Tables 1 and 2 are composites of several tables in that document. Inconsistencies may be visible between the tables used in this report; however, the basic trends in salmon production are apparent from the data.

Statistical Overview

Salmon production includes the harvest of wild and hatchery-bred (ranched) fish and the harvest of farmed fish. All species of Atlantic and Pacific salmon are ranched, and Atlantic salmon and the coho and chinook varieties of Pacific

salmon are farmed. Many countries which ranch salmon do not distinguish between ranched and wild fish in their statistics of commercial harvests.

Alaska's government hatchery salmon program tags a large percentage of hatchery-bred fish before their release into the ocean. Thus, when recovering tags from commercially caught salmon, a reasonably accurate estimate of the number of hatchery-bred fish caught in the commercial fishery can be made.

Table A gives number of pounds of commercial salmon harvested in Alaska by species and by hatchery and wild fish, from 1980 through 1990. The hatchery contribution to the commercial harvest has become increasingly important, amounting to nearly 23 percent of the commercial catch in 1990. Although the contribution of hatchery harvest for each species has grown, the contribution of hatchery-bred pink salmon is the most significant at over 45 percent of the 1990 commercial pink salmon harvest.

Table B presents the world commercial salmon harvest for the years 1985 through 1990. The table lists commercial salmon catch by species for United States, Canada and Japan, as well as worldwide farmed production. United States statistics include the Alaska harvest. The farmed salmon category includes production from all countries which farm salmon. The "other" category includes salmon commercially caught by countries not listed separately, such as Korea, U.S.S.R., and Poland. Although commercial salmon catch fluctuated between 1985 and 1990, it appears that the increase in worldwide salmon production during that time is due to an increase in farmed salmon production. According to this data source, farmed salmon harvest increased from about 159 million pounds in 1985 to over 600 million pounds in 1990.

Tables 1 and 2 (attached) present some detailed country information for commercial salmon production. This information was taken from *Salmon 2000*, by the Alaska Seafood Marketing Institute. Table 1 presents worldwide harvest of wild and ranched salmon for 1980 through 1990. Note that only three years worth of Soviet commercial salmon catch are reported.

Table 2 presents worldwide farmed salmon production for 1980 through 1990. According to the source, farmed salmon production has increased dramatically from 15.7 million pounds in 1980 to 621.0 million pounds in 1990. Norway is the world's largest farmed salmon producer, harvesting 330.0 million pounds in 1990, over half the worldwide production.

TABLE A
Hatchery and Wild Salmon Commercial Harvest in Alaska, 1980 - 1990
(In thousands of pounds)

	Chinook	Sockeye	Coho	Pink	Chum	Total
1980 Commercial Harvest						
Wild Fish	11,478.3	186,842.7	21,845.2	209,492.9	70,852.2	500,511.3
Hatchery Fish	521.7	157.3	154.8	7,507.1	147.8	8,488.7
Total Harvest	12,000.0	187,000.0	22,000.0	217,000.0	71,000.0	509,000.0
Hatchery Contribution	4.35%	0.08%	0.70%	3.46%	0.21%	1.67%
1981 Commercial Harvest						
Wild Fish	14,963.2	234,678.0	25,630.8	228,186.8	98,850.9	592,309.8
Hatchery Fish	36.8	322.0	369.2	15,813.2	149.1	16,690.2
Total Harvest	15,000.0	225,000.0	26,000.0	244,000.0	99,000.0	609,000.0
Hatchery Contribution	0.25%	0.14%	1.42%	6.48%	0.15%	2.74%
1982 Commercial Harvest						
Wild Fish	15,981.1	188,822.9	45,345.0	198,509.5	89,179.8	537,838.3
Hatchery Fish	18.9	177.1	855.0	20,490.5	820.2	22,161.7
Total Harvest	16,000.0	189,000.0	46,000.0	219,000.0	90,000.0	560,000.0
Hatchery Contribution	0.12%	0.09%	1.42%	9.36%	0.91%	3.96%
1983 Commercial Harvest						
Wild Fish	14,962.7	304,080.1	25,423.0	176,128.7	77,351.9	597,946.5
Hatchery Fish	37.3	919.9	577.0	16,871.3	1,648.1	20,053.5
Total Harvest	15,000.0	305,000.0	26,000.0	193,000.0	79,000.0	618,000.0
Hatchery Contribution	0.25%	0.30%	2.22%	8.74%	2.09%	3.24%
1984 Commercial Harvest						
Wild Fish	11,852.1	220,523.7	42,846.7	260,732.8	92,040.0	627,995.2
Hatchery Fish	147.9	1,476.3	1,153.3	15,267.2	11,960.0	30,004.8
Total Harvest	12,000.0	222,000.0	44,000.0	276,000.0	104,000.0	658,000.0
Hatchery Contribution	1.23%	0.67%	2.62%	5.53%	11.50%	4.56%
1985 Commercial Harvest						
Wild Fish	12,646.6	218,305.3	45,033.4	260,585.5	74,452.1	611,022.9
Hatchery Fish	353.4	2,694.7	1,966.6	43,414.5	8,547.9	56,977.1
Total Harvest	13,000.0	221,000.0	47,000.0	304,000.0	83,000.0	668,000.0
Hatchery Contribution	2.72%	1.22%	4.18%	14.28%	10.30%	8.53%
1986 Commercial Harvest						
Wild Fish	10,837.6	191,159.2	42,973.1	231,847.2	86,419.8	563,036.9
Hatchery Fish	362.4	4,840.8	3,026.9	27,152.8	11,580.2	46,963.1
Total Harvest	11,000.0	196,000.0	46,000.0	259,000.0	98,000.0	610,000.0
Hatchery Contribution	3.29%	2.47%	6.58%	10.48%	11.82%	7.70%
1987 Commercial Harvest						
Wild Fish	11,434.7	209,697.0	21,462.3	89,918.2	66,559.3	399,071.4
Hatchery Fish	565.3	5,303.0	1,537.7	69,061.8	11,440.7	87,928.6
Total Harvest	12,000.0	215,000.0	23,000.0	159,000.0	78,000.0	487,000.0
Hatchery Contribution	4.71%	2.47%	6.69%	43.45%	14.67%	16.06%
1988 Commercial Harvest						
Wild Fish	9,276.3	177,420.0	31,737.1	131,921.2	103,906.5	454,261.0
Hatchery Fish	723.7	7,580.0	1,262.9	44,078.8	17,093.5	70,739.0
Total Harvest	10,000.0	185,000.0	33,000.0	176,000.0	121,000.0	525,000.0
Hatchery Contribution	7.24%	4.10%	3.83%	25.04%	14.13%	13.47%
1989 Commercial Harvest						
Wild Fish	9,296.7	253,818.3	27,840.0	246,819.3	50,790.5	588,564.9
Hatchery Fish	703.3	8,181.7	2,160.0	104,180.7	7,209.5	122,435.1
Total Harvest	10,000.0	262,000.0	30,000.0	351,000.0	58,000.0	711,000.0
Hatchery Contribution	7.03%	3.12%	7.20%	29.68%	12.43%	17.22%
1990 Commercial Harvest						
Wild Fish	9,041.7	291,493.6	28,537.8	145,284.9	48,855.9	521,214.0
Hatchery Fish	958.3	17,506.4	4,462.2	119,715.1	11,144.1	153,786.0
Total Harvest	10,000.0	309,000.0	33,000.0	265,000.0	58,000.0	675,000.0
Hatchery Contribution	9.58%	5.67%	13.52%	45.18%	19.21%	22.76%

Note: Data includes "cost recovery" harvest, but does not include "broodstock" harvest.

Sources: Alaska Department of Fish and Game, Division of Fisheries Rehabilitation, Enhancement and Development, and Division of Commercial Fisheries.

Prepared by the Legislative Research Agency, February 1992 (92.058A).

TABLE B
World Salmon Commercial Harvest, 1985 – 1990
(in millions of pounds)

Species	1985	1986	1987	1988	1989	1990
United States						
Sockeye	235.9	211.6	227.1	189.6	271.2	321.9
Pink	319.7	269.0	169.8	167.5	363.8	264.6
Chum	92.6	86.0	86.0	134.5	63.9	70.5
Coho	52.9	59.5	39.7	46.3	41.9	44.1
Chinook	26.5	30.9	39.7	46.3	37.5	22.0
Total United States	727.5	657.0	562.2	584.2	780.4	723.1
Canada						
Sockeye	70.5	66.1	33.1	26.5	75.0	81.6
Pink	83.8	63.9	59.5	70.5	68.3	57.3
Chum	52.9	55.1	22.0	66.1	19.8	37.5
Coho	19.8	26.5	17.6	15.4	19.8	24.3
Chinook	13.2	8.8	11.0	13.2	11.0	11.0
Total Canada	240.3	220.5	143.3	191.8	194.0	211.6
Japan						
Fall Chum	330.7	310.4	282.7	308.2	350.3	363.8
High Seas Fishery	224.9	164.5	124.7	85.7	114.5	78.9
Total Japan	555.6	474.9	407.4	393.9	464.8	442.7
Farmed						
Atlantic	133.4	147.5	248.0	358.0	464.1	474.0
Pacific (Coho & Chinook)	25.6	39.0	62.2	89.9	104.7	127.9
Total Farmed	159.0	186.5	310.2	448.0	568.8	601.9
Other	265.3	0.0	0.0	110.0	80.5	76.3
TOTAL	1,947.6	1,538.9	1,423.1	1,727.9	2,088.6	2,055.6

Sources: Taken from Bill Atkinson's News Report. Original sources listed as United Nations Food and Agricultural Organization (U.S., Canada and farmed data) and Alaska Seafood Marketing Institute, Salmon 2000 (world totals).

Note: The original table was in metric tons.

Prepared by the Legislative Research Agency, February 1992 (#2.0588).

POLICIES AND TRENDS OF MAJOR SALMON PRODUCING COUNTRIES AND REGIONS

The countries and regions which commercially harvest the largest quantities of wild and hatchery-bred ranched salmon are the United States (Oregon, Washington and Alaska), Canada (British Columbia), Japan and the U.S.S.R. Other areas have experimented with salmon ranching, but as yet produce few fish. Major salmon-farming industries are located in Norway, Scotland, Chile, U.S. and Japan. Iceland, the Faroe Islands, Ireland, Australia, New Zealand and France also farm salmon but are not considered major producers. The following overview presents a brief description of current trends in salmon production in the major producing countries and regions.

United States

Alaska's commercial salmon catch accounts for about 90 percent of U.S. commercial salmon harvest. Washington, Oregon and California have commercial chinook and coho fisheries, and Washington and Oregon state governments engage in salmon ranching. Private companies farm salmon commercially in Washington, Maine, Oregon, Minnesota and Idaho. Most U.S.-produced farmed salmon comes from farms in Washington and Maine. Experimental salmon farms are operating in Hawaii and California, but no substantial commercial harvest of the salmon has yet occurred.

In 1990, the Alaska commercial catch of salmon was 675 million pounds. Of that catch, about 23 percent was hatchery-bred salmon. Hatchery pink salmon made up over 45 percent of Alaska's commercial pink catch in 1990, while hatchery sockeye salmon made up only slightly over 5 percent of Alaska's commercial catch. Alaska has no salmon-farming operations.

Commercial salmon catch in Washington has dropped from 68.6 million pounds in 1985 to 36.1 million pounds in 1990. The Washington state government operates about 50 salmon hatcheries, which produce nearly 60 percent of the state's commercial salmon catch (about 21.7 million pounds in 1990). The hatcheries produce mostly chinook and coho salmon, but some chum, pinks and sockeye are hatchery-bred as well. Although the program is expanding slightly, very few new hatchery facilities are being developed. The Washington state government attempts to manages its fisheries to protect the wild stocks, and the hatcheries are meant to enhance and not replace the natural runs. Washington has some profitable private salmon farms, but several had financial trouble last year when algae blooms killed many fish.

Oregon's commercial salmon catch fell dramatically in 1990. The five-year average commercial salmon harvest (1986 - 1990) was 11.9 million pounds. The 1990 harvest was only 5.2 million pounds. Oregon produces 69 percent of its commercial coho catch in 34 state-owned hatcheries and one privately owned hatchery. Ranched fish make up about 25 percent of the coastal chinook commercial catch, and 85 percent of the Columbia River kings caught commercially are from hatcheries. Oregon also hatches and releases some chum

and pink salmon. The state hatchery program has undergone slight expansion recently, funded by federal money. The Oregon Department of Fish and Wildlife attempts to manage the state fishery to minimize negative impact on wild stocks, and hatchery fish supplement the natural runs.

Canada

British Columbia (B.C.) is the only Canadian province with a substantial commercial salmon fishery. The 1990 catch of 191.4 million pounds was slightly higher than the five-year average (1986 - 1990) catch of 187.7 pounds. In recent years, B.C. hatcheries have produced about 12 to 16 percent of the salmon commercially caught off Canada's west coast (between 25 and 34 million pounds in 1990). No new government hatcheries have been built in the past five years. The Canadian government spends about \$40 million (Canadian dollars) per year for B.C. hatchery operation. British Columbia hatcheries concentrate on chinook and coho salmon; they produce very few pink salmon. Between 20 and 30 percent of the chinook and coho catch is hatchery-bred, and 12 to 16 percent of the sockeye and chum catch is from hatcheries. The government management policy favors wild stocks, and hatcheries are for enhancement, not replacement, of the natural runs.

All Canadian salmon farms are privately owned and operated. Canadian farms produced 51 million pounds of salmon in 1990, nearly one-quarter the amount of commercially caught Canadian salmon on the market. New Brunswick, Newfoundland, Nova Scotia and Quebec all engage in Atlantic salmon farming. There are about 89 farms, most of which are located in New Brunswick. In Canada's Atlantic region, expansion has slowed because the government has limited the number of licenses for farms. British Columbia began farming in 1972, and in 1984, private Norwegian companies began investing in Canadian farms. Norwegian investment now amounts to about one-third the value of all B.C. salmon farms. Recent financial trouble due to lower prices for farmed salmon and increased operations costs has contributed to several bankruptcies of farms in B.C. However, Canadian farmed salmon is increasingly filling the U.S. market niche vacated by Norwegian farmed salmon, which is high priced due to the recent implementation of U.S. import duties. Thus, the economic future of Canadian farmed salmon looks good. British Columbia farms produce mostly chinook and Atlantic salmon, but production of farmed coho is developing. The B.C. government began to take a hand in the regulation of farms and research and development of farming technology in 1989 to help foster rapid development. Canadian farms anticipate production of 145 million pounds by the year 2000.

Japan

Commercial catch of salmon by Japanese fishermen has historically come from two fisheries, the high seas drift net fishery, and the coastal set net fishery. Japan has worked to be self-sufficient in supplying its country's demand for salmon. As the high seas fishery became increasingly unprofitable due to

political and environmental pressures, the Japanese government decided to supplement the coastal fishery with hatchery production. The coastal set net fishery now supplies about half the Japanese salmon demand.

Japan has a very ambitious and successful hatchery program. The national government operates its own hatcheries, and subsidizes private ones. In 1980, 58 percent of the commercial fall chum catch off the coast of Japan was hatchery-bred fish. Today, about 85 percent of the coastal catch (about 309 million pounds in 1990) is bred in hatcheries. Japanese hatcheries produce chum, pink, cherry and sockeye salmon. The number of salmon hatcheries in Japan is still increasing. In the Hokkaido area, only about 1 percent of the salmon is wild; the rest are hatchery chums. In the Honshu area, about 80 percent of the chum catch is hatchery reared. There are no longer any native chinook or sockeye salmon in Japanese waters, and few native pink and cherry salmon.

As the high seas catch declines, salmon imports have risen to meet Japanese demand for salmon. The Japanese are experimenting with fish farming to further supply their markets and decrease national reliance on imports. Private firms are developing floating coho farms and experimenting with chinook and Atlantic salmon farms. Farmed salmon production in Japan has increased to 57.2 million pounds in 1990. Farmed coho that cannot be sold fresh are salted rather than frozen.

U.S.S.R.

Information about historic commercial salmon catch by the U.S.S.R. is difficult to obtain. The first Soviet hatcheries were built on Sakhalin Island, with one or two on the Amur River. The Japanese developed hatcheries on the southern part of Sakhalin Island while they occupied that area in the early 1900s. The Soviets inherited those hatcheries when Japan ceded south Sakhalin to the U.S.S.R. after World War II. The Soviets are currently expanding hatchery operations to the Kamchatka Peninsula. They intend to increase hatchery production to bring commercial catch from about 375 million pounds to 661 million pounds. Soviet fishery policy does not mandate protection of wild salmon stocks. Movement of stocks and the possibility of genetic intermingling does not seem to concern the Soviet government.

Soviets are experimenting with salmon farms, although little production has resulted. Perestroika has caused some reorganization of the Soviet fishing industry, and Soviet companies have entered into international joint ventures which will allow them access to new salmon fishing areas in the north Pacific. Recent political developments in the Soviet Union may slow advancements in the fish propagation field in that country in the immediate future.

Norway

Norway's historic wild run of Atlantic salmon has been severely depleted from over fishing. The country began farming Atlantic salmon in the 1960s, and production has increased rapidly since then. In 1990 there were approximately 790 privately owned farms in Norway, providing half the world supply of farmed salmon, and 14 percent of the world supply of salmon. Norway exports about 85 percent of its farmed salmon. The Norwegian government has supported the salmon farming industry through loans, research and technical assistance and regulation. Government policy has limited the size of private farms, and the number of farms a company may operate, and thus has encouraged exportation of salmon-farming technology.

The phenomenal growth of farmed salmon production in Norway and other countries has altered the economics of the world salmon market. As the supply of fresh salmon on the world market increased, the price fell, and some farms became unable to meet their production costs. The Norwegian government is now encouraging a slowdown in farmed salmon production and has placed a cap of approximately 286 million pounds for 1991, down from 330 million pounds in 1990. In recent years, Norwegian firms have been accused of flooding the market with farmed salmon. A quasi-governmental industry organization has begun buying excess production and freezing it for future sales (about 88 million pounds in 1990). Private Norwegian farming companies are now investing heavily in salmon farms in Scotland, Canada, the U.S. and Chile. The U.S. has recently imposed an import tariff (anti-dumping and countervailing duties) on Norwegian farmed salmon, which ranges from about 15 percent to 32 percent, depending on the exporting company. The duty has decreased U.S. imports of Norwegian farmed salmon to about ten percent of U.S. fresh Atlantic salmon imports, compared to 61 percent of U.S. imports in 1989. Canadian and Chilean farmed salmon imports to the U.S. now supply the markets lost to Norwegian fish.

Scotland

Scottish production of farmed Atlantic salmon has been steadily increasing since the early 1980s. Scotland has about 290 farms in sheltered areas along the coast which produced 77.0 million pounds in 1990, second only to the production of Norwegian farms. Half the production is exported. Currently, Scottish farms are experiencing financial difficulties as costs are up and salmon prices have fallen. Seven farming companies in Scotland went bankrupt last year. This year there is a decrease in smolt production. Farms have also seen increasing losses from disease recently. Only two of three fish are surviving until harvest, a 10 percent decline in survival from recent years. The British government has been supportive with financing and is currently helping with a re-evaluation of the market for Scottish farmed salmon.