

ALASKA LEGAL TITLE SUBJECT/86/2
1803 SCOM 74: SEN. COM. ON INTL. FISH, 1991-92

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 100 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.

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.

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.

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

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 66S: 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.

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.

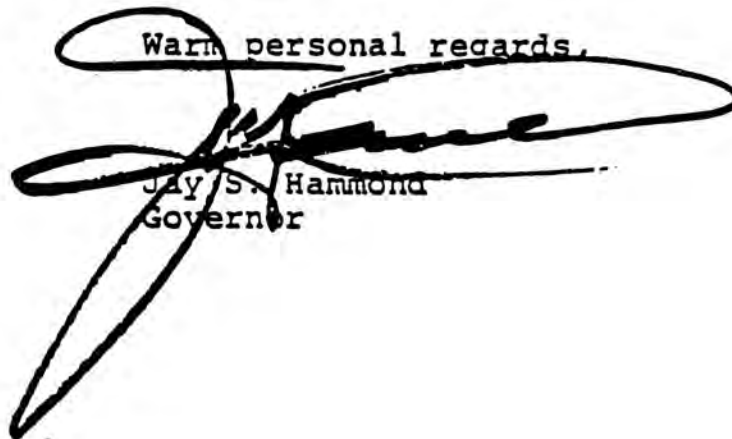
ACE 5437494

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,

A large, stylized handwritten signature in dark ink, likely belonging to Jay S. Hammond, is written over the typed name and title. The signature is fluid and somewhat abstract, with long, sweeping strokes.

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

REFERENCES

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- Roppel, Patricia. 1985. "Alaska's Salmon Hatcheries: 1891 - 1959."

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 *LJ 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	224,678.0	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	45,345.1	198,509.5	89,179.8	537,838.3
Hatchery Fish	18.9	177.1	655.0	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	10,637.6	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	69,081.8	11,440.7	87,928.8
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%	18.06%
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	46,855.9	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%	22.78%

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 (92.058B).

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.

Chile

Chile began salmon farming on a small scale in the 1970s. There was a slow expansion of farming until 1988, when production took a large jump. Approximately 320 private Chilean farms produced 41.8 million pounds of salmon in 1990. Fish farming is Chile's fastest growing economic activity. First coho were farmed; now Atlantic salmon, chinook salmon and salmon trout are being farmed. Chileans are currently developing sockeye and cherry salmon farms. Chile has no native salmon, but the habitat is similar to that of the Norwegian coast and is perfect for their propagation. Chilean firms are experimenting with ocean ranching of salmon, which so far has not proven successful.

Chilean farms produce high quality salmon. Because Chile is a major world fish meal producer, feed costs are low, allowing farmers to lower stock densities in pens, resulting in healthier fish. The major drawback to Chilean farmed salmon success is the distance to major markets. Transportation costs increase the retail price of Chilean fish by as much as \$.75 per pound. However, through superior quality, Chile has obtained strong markets and can compete even in the face of declining prices. Chilean salmon producers have gained markets in the U.S. because of import duties on Norwegian farmed salmon. About 97 percent of Chilean farmed salmon is frozen for market. The Japanese are investing heavily in Chilean salmon farms. Chilean farms are privately owned and they operate with little government regulation or economic intervention. The farmers work together to set prices and quality restrictions.

Other Salmon-Producing Regions

Other regions which artificially propagate salmon are Korea, Iceland, the Faroe Islands, Ireland, Australia, New Zealand, France, Sweden, Finland, Spain and Italy. Korea does some salmon ranching, as does Iceland and New Zealand. The Faroe Islands, Ireland, Iceland, Australia and New Zealand have small and successful salmon-farming operations. The other regions are in the process of developing salmon-farming technology.

I hope this information is helpful to you. If you need further assistance, please don't hesitate to call this agency.

Attachments

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**World Wild and Ranched Salmon Harvest
from Major Fishing Countries and World
Farmed Salmon Productions**

TABLE 1
World Wild and Ranched Salmon Harvest
From Major Fishing Countries
(millions of pounds)

Year	Canada	Japan	U.S.S.R	Alaska	Other U.S.A.	Total*
1980	118.0	284.0		512.0	48.0	962.0
1981	173.0	344.0		611.0	61.0	1,189.0
1982	144.0	314.0		562.0	67.0	1,087.0
1983	164.0	367.0		621.0	31.0	1,183.0
1984	110.0	359.0		660.0	34.0	1,163.0
1985	236.0	460.0		669.0	78.0	1,443.0
1986	228.0	389.0	176.0	606.0	72.0	1,471.0
1987	143.0	397.0		490.0	73.0	1,103.0
1988	191.0	373.0		527.0	80.0	1,171.0
1989	185.0	478.0	173.8	714.0	73.0	1,623.8
1990	191.4	484.0	286.0	678.7	44.4	1,684.5

*Totals may not be accurate due to missing years of U.S.S.R. catch data.

Note: The numbers may not always appear exactly as in the source document.
 These differences are due to rounding and discrepancies between
 original sources.

Sources: Salmon 2000, Alaska Seafood Marketing Institute, March 1991, unless
 otherwise indicated. Canadian data from page 37, Japanese data from
 page 38, U.S.S.R. data from page 17, Alaska and Other U.S.A. data
 from page 35, 1990 Canadian and Japanese data from page 17. 1990
 Alaska and Other U.S.A. data from Bill Atkinson's New Report.

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

TABLE 2
World Farmed Salmon Production
(millions of pounds)

Year	Norway	Scotland	Chile	Canada	U.S.	Japan	Other	Total
1980	9.1	1.3	0.0	0.4	0.9	4.0	0.0	15.7
1981	18.5	2.9	0.0	0.5	1.9	2.5	0.0	26.3
1982	22.6	4.7	0.4	0.9	1.5	4.7	0.0	34.8
1983	37.4	5.6	0.2	0.7	0.8	3.9	0.0	48.6
1984	49.0	8.6	0.2	0.7	2.7	11.0	1.8	74.0
1985	63.0	15.0	1.1	0.9	4.0	14.1	3.9	102.0
1986	100.5	22.7	2.5	2.2	3.0	17.6	7.5	156.0
1987	123.6	27.9	2.6	6.0	5.5	26.8	17.6	210.0
1988	184.0	39.5	6.8	20.0	8.1	36.0	24.6	319.0
1989	252.7	68.2	18.0	38.8	12.3	40.9	48.1	479.0
1990	330.0	77.0	41.8	51.2	16.9	57.2	46.9	621.0

Note: The numbers may not always appear exactly as in the source document. These differences are due to rounding and discrepancies between original sources.

Source: Salmon 2000, Alaska Seafood Marketing Institute, March 1991. Body of the table is the bottom table on page 14, and the totals are from the top table on page 14 with some adjustments to avoid having negative numbers in the Other column.

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

CHAPTER IV. FISHERIES MANAGEMENT ISSUES

The success of the state's enhancement program has made managing Alaska's salmon fisheries more complicated. Much of this research project was initiated by a request from the Board of Fisheries to provide clearer legal and policy direction on the issues of

- managing fisheries for a wild stock priority;
- providing sufficient hatchery returns for broodstock; and
- providing cost recovery fisheries for hatchery operators.

These three issues encompass a number of legal questions and are addressed in Chapter V, Legal Issues. In this chapter a variety of other management issues are discussed.

MIXED-STOCK FISHERIES

A fundamental issue facing fisheries managers is how to control fishing effort in mixed-stock fisheries composed of both hatchery and wild stocks. The predominant management concern is that the weakest stocks will be overfished. In cases in which hatchery productivity is significantly greater than natural stock productivity, wild stocks face the risk of being depleted. In cases where hatchery stocks are smaller, these stocks run the risk of being lost among the wild stocks. Smaller stocks are more likely to be in danger of depletion in mixed-stock fisheries because there is a tendency to optimally harvest the larger stocks before quality declines in terminal fisheries.

The Department of Fish and Game has the constitutional responsibility to conserve and manage wild stocks of salmon for sustained yield. In a wild stock fishery, the conservation responsibility entails maintaining minimum spawning escapement levels for wild stocks. However, when hatcheries are established in wild stock salmon producing areas, the department has additional conservation responsibilities:

- maintaining the genetic diversity of wild stocks as stated in the ADF&G genetic policy;
- maintaining fish health and prohibiting the spread of fish disease; and
- providing sufficient returns of fish to the hatchery to provide for broodstock and cost recovery.

Strict regulations govern the selection of broodstock and the transporting and remote release of hatchery produced fry and smolt, requiring a comprehensive genetic monitoring and permitting process (see Biological Issues chapter).

Because salmon runs occur in a short period of time, field managers rely on early test fisheries or initial fishery performance as the indicators of run strength. When runs of hatchery or wild stocks are weak, commercial fishing effort must be reduced or re-directed. *The ability to determine the strength of various stocks requires some capability to distinguish wild fish from hatchery fish, which increases management costs.*

With large scale hatchery enhancement, ADF&G's Division of Commercial Fisheries is concerned that the additional costs of managing mixed stock commercial fisheries composed of wild and hatchery stocks are not always

accounted for in the planning and operation of hatchery facilities, and fisheries managers are often not given adequate funds to properly manage what can become a very complicated fishery.

It should be noted that the problems posed by mixed-stock fisheries are not new. Almost all Alaska salmon fisheries, composed entirely of wild stocks, had some degree of mixed stocks prior to the development of hatcheries. Prince William Sound, however, is the focus of the Division of Commercial Fisheries' current concern, largely because of the scale of the hatchery operations in the Sound, with hatchery stocks now responsible for over 80 percent of the total pink salmon production.

Managing the fisheries in Prince William Sound has also been made significantly more difficult as a result of the 1989 *Exxon Valdez* oil spill. Certain pink salmon stocks were greatly impacted by the oil spill and require intensive stock-specific management measures in order to protect and rebuild these populations. Additionally, most of the information gathered as a result of the recent influx of oil spill damage assessment funds is still confidential, and not available to the general public.

QUALITY

State law requires that fish returning to hatcheries and sold for public consumption be of comparable quality to fish harvested by commercial fishermen in the area. Prince William Sound is the major focal point for the issue of managing hatchery and wild stocks to optimize quality and marketability.

During the planning process for the Prince William Sound hatcheries, the Basic Management Plans that addressed the harvest of hatchery fish were developed cooperatively by the department and hatchery operators. *Returning adults were to be primarily harvested in terminal areas, thereby minimizing harvest conflicts with wild stocks.* Additional harvest management costs were not considered under this strategy. Initially, fish quality was not an issue as terminally caught fish were of high quality. However, as the program grew, processing capacities became fully utilized, sometimes forcing delays in harvesting terminal fish. Such delays resulted in poorer quality fish, and thus, the demand to harvest fish farther away from terminal areas. The 1989 oil spill also contributed to the concern over quality. The spill delayed harvest of the large 1989 pink salmon run, which resulted in an extremely poor quality pack and a public perception of oil contamination of the fish harvested.

Early in 1991, the Prince William Sound Aquaculture Corporation (PWSAC) expressed concern about the processing capacity in the Sound given the large forecasted pink return. PWSAC officials began exploring the possibility of bringing foreign processors into the Sound, but their request was denied when state officials and domestic processors insisted that existing processing capacity would be sufficient. A delay in the return of the majority of the run in 1991, large pink salmon runs statewide and overall low prices created a major problem for fishermen, hatchery operators, and fishery managers. To maximize the quality of the harvest, processors and fishermen asked to harvest returning adult pink salmon at the entrance areas to Prince William Sound. Fishery managers were reluctant to do so since at these locations, the wild stocks damaged by the *Exxon Valdez* spill are mixed with non-impacted wild stocks as well as the large returns of hatchery fish. ADF&G feared that harvesting in mixed-stock areas, while maximizing quality, would also jeopardize wild stocks through the risk of being overharvested. As a result, fishing was delayed, and

when it was finally opened, the season turned into a disaster with insufficient processing capacity and large quantities of salmon either being destroyed, or processed and given away.

During discussions at recent meetings of Governor Hickel's Salmon Strategy Task Force (see Marketing chapter), it became apparent that there is no definitive information on how close to their spawning areas salmon can be harvested without sacrificing quality. Some people believe that the concern for quality of terminal-area salmon is created by processors as part of a price-setting strategy. ADF&G has suggested a research project be funded to analyze salmon quality at various distances from their spawning areas in an effort to determine how best to manage fishing effort to produce a top-quality and marketable product.

TAGGING NEEDS

Since hatchery-produced fish often complicate fisheries management, a way to simplify management is to determine the mix of hatchery and wild stocks in a mixed-stock fishery. For most mixed-stock fisheries composed of hatchery fish, an adequate program of tagging, recovery and analysis is required.

The tagging method most commonly used now is the coded-wire tag (CWT). The CWT is typically a 1.0 mm long by 0.25 mm diameter stainless steel wire which has been etched with notches that represent a code of information. The CWT can be injected into the nasal cartilage in salmon smolts. Tags from returning fish are recovered by fishermen and field biologists and sent to a lab in Juneau for analysis. The Juneau lab has extremely poor working conditions, and ADF&G for years has attempted to improve lab conditions and expand its capabilities. In spite of these conditions however, the lab produces quality data.

Scale analysis is another technique that has been used for years to reliably identify the country of origin for salmon in the north Pacific. However, the use of scale analysis has so far not been able to provide the detailed level of information necessary for management of specific fisheries.

Otolith marking is seen as the most viable mass marking technique on the horizon. Otolith bone development provides a daily record of the internal and external forces affecting fish growth beginning at the eyed-egg stage. This growth occurs in rings somewhat similar to the circuli of a fish scale or the rings of a tree. Growth of the otolith is in alternating rings of high and low concentrations of protein calcium carbonate. The optical density of these rings is easily manipulated to make an obvious visible change in structure. One way to do this is by thermal marking - causing a rapid drop or elevation in water temperature. The benefit of otolith marking is that virtually *all* hatchery fish can be marked at the same time.

FRED Division is also actively pursuing genetic stock identification (GSI) research and applications using both protein electrophoresis and deoxyribonucleic acid (DNA) analysis. This approach can be used for a variety of purposes, including measuring the contributions of unmarked but genetically identifiable hatchery fish to commercial fisheries. Biologists are already doing extensive work using this technique on salmon from the Yukon River.

Although otolith marking and GSI hold promise for the future, coded-wire tags will probably always have a place in the state's marking program. The CWT Lab currently supplies information for hatchery and natural stock evaluation, as well as for evaluation of U.S./Canada salmon interceptions. The CWT Lab is a vital link in the in-season management of fisheries in Southeast and Prince William Sound. Using coded-wire tag data, fishery managers are able to take in-season advantage of the hatchery add-on clause of the U.S./Canada Pacific Salmon Treaty. In 1991 the CWT tag lab processed over 76,000 heads, using a large number of seasonal staff because of the short salmon season and the need for in-season hatchery contribution estimates.

The extent of any particular tagging program is determined by funding. The general assumption is that the people who tag the fish pay for the tagging. In the case of hatchery operators, that usually means the state or the PNP operator. However, *the greater expense lies with the recovery and analysis of tags by the state, and the issue of who pays for that portion has never been resolved.* Commercial fisheries managers would like to see more tagging to enable increased management precision. The Board of Fisheries would like to see additional tagging in order to provide information for allocation disputes. Hatchery operators have been reluctant to pay for the recovery and analysis program. This issue has been debated for the past decade and is still unresolved.

At the time of the *Exxon Valdez* oil spill, the hatchery/wild stock assessment program in Prince William Sound was not fully developed nor was the funding for such a program in the Commercial Fisheries Division's base budget. As a result, the program was unable to assess the oil spill damage or provide the stock-specific information needed to protect and restore damaged pink salmon stocks. Fortunately, Natural Resource Damage Assessment funds provided ADF&G with sufficient resources to assess the population level response of Prince William Sound pink salmon to the oil spill. However, once oil spill funds expire, additional state money will be needed if a stock-specific harvest management program is to be implemented and maintained.

FRED Division is informing hatchery operators that new increments of hatchery production will be permitted with a requirement that the operator pay for tagging and analysis. Whether or not to require that of existing production is being debated. Some people, including some members of the Board of Fisheries, advocate for a requirement that all hatchery production be categorically tagged and analyzed. However, existing operations have permits that do not require tagging. These operations were planned, permitted and funded without accounting for tagging their costs. It is likely that imposing a tagging requirement on permitted facilities would be subject to legal challenge.

Another issue, however, is whether an all encompassing tagging requirement is necessary. In some cases, a multi-year tagging study to show migration patterns and run timing would be sufficient. In other cases, where tagging is intended for in-season management, a large tagging program would need to be maintained. Not all hatchery production results in complicated, mixed-stock fisheries that would necessitate extensive tagging, and would even be used. Although CWT data has been supplied to Prince William Sound fisheries managers on a daily and weekly basis for the past two years, it has yet to be used for in-season management.

OPTIONS FOR POSSIBLE CONSIDERATION:

- Development of a state policy on managing mixed-stock fisheries composed of hatchery and wild stocks.
- Requiring hatchery production to have tagging, recovery and analysis programs. This could range from a blanket requirement for all production to site-specific requirements.
- Development of a policy regarding funding for tagging, recovery, processing and analysis.
- Funding a study to analyze salmon quality at various distances from terminal streams to determine the effect of fishery management effort on product quality and marketability.
- Direction to the Board of Fisheries on how to factor managing for quality into fisheries management plans.
- Funding research and development of new tagging and marking techniques suitable for mass marking.
- Clarifying the roles and uses of tagging--for biological information, allocation, or management purposes.
- Expanding tagging and stock identification studies of wild fish stocks for the purpose of comparing wild and hatchery stocks.

CHAPTER V. LEGAL ISSUES RAISED BY BOARD OF FISHERIES

In a May 6, 1991 letter to Senate President Richard Eliason, Fisheries Board Chairman Michael R. Martin stated the following:

In managing fisheries that involve hatchery raised salmon, the Board of Fisheries has encountered problems due to ambiguities in the current Alaska statutes. These problems commonly arise when the management of hatchery stocks conflicts with either the health of wild stocks or with the opportunity of fishermen to harvest wild stocks. Essentially, the statutes are not clear on the status of wild stock management.

State statutes are also not clear about the state's duty to provide fish for hatchery broodstock and cost recovery, and about hatcheries' obligations to contribute to the common property fisheries. We perceive that the development of state policy toward hatcheries may create a conflict of interest. On the one hand, the state manages fisheries as a common property resource for the benefit of all user groups. On the other hand, the state loans money to hatcheries with the expectation that the hatcheries will receive enough fish to be able to repay these loans.

While Chairman Martin went on to note other concerns,¹ *an overriding problem for the board appeared to be the perceived statutory ambiguities which lead to difficulty in resolving conflict between wild stock protection and broodstock/cost recovery.*

ALASKA STATUTES AND ADF&G REGULATIONS

The board was created "for purposes of the conservation and development of the fishery resources of the state . . ." (AS 16.05.221 (a)). In order to carry out that charge, the board may "adopt regulations it considers advisable in accordance with the Administrative Procedures Act (AS 44.62)." (AS 16.05.251(a)).²

¹/These included potential changes to the statutes relating to regional salmon plans (AS 16.10.375), regional associations (AS 16.10.380), and definition of various words and phrases used in Title 16.

²/AS 16.05.251 (b) lists the purposes for which the board may exercise this power, including

- . . . (2) establishing open and closed seasons and areas for the taking of fish;
- (3) setting quotas, bag limits, harvest levels, and sex and size limitations on the taking of fish;
- (4) establishing the means and methods employed in the pursuit, capture and transport of fish; . . .
- (6) classifying as commercial fish, sport fish, personal use fish, subsistence fish, or predators or other categories essential for regulatory purposes;

The board has adopted a number of regulations relating to private nonprofit hatcheries. Codified at 05 AAC 40.005 - 05 AAC 40.900, they include: delegating to the commissioner the authority to specify gear type and fishing periods for hatchery cost recovery; requiring hatchery permit holders who harvest salmon to comply with fish purchaser reporting requirements; allowing hatchery permit holders who harvest salmon for broodstock exemptions from the salmon "waste" statute and the regulations concerning "closed waters" and vessel area registration; designating special harvest areas; procedures for permit application, application review, public hearings, review and determination, and reconsideration; establishing regional comprehensive planning teams and procedures to be followed by them; prohibiting permit transfers; requiring hatchery management plans, inspections, and performance reviews; establishing criteria for the sale of surplus salmon eggs.

A number of these regulations contain references to wild stock protection.³ However, any regulation may be successfully challenged in court if it falls outside the statutory authority granted to the state agency that adopted it,⁴ or if it conflicts with other statutes,⁵ or the constitution.

The statutes governing the private nonprofit hatchery system are AS 16.10.375 - AS 16.10.470. They provide for: regional salmon plans; regional associations; criteria for the issuance of hatchery permits; public hearings prior to permit issuance; permit conditions; criteria for permit alteration, suspension or revocation; board regulation authority; department assistance and cooperation for permit applicants and holders; salmon egg sources; salmon egg sales; hatchery inspection; and an annual report to the department by permittees.

There are only two direct references in statute to the protection of wild stocks from harm due to hatchery operations. The first, AS 16.10.400(g) ("Permits for salmon hatcheries"), provides:

During the development of a comprehensive plan for a region, no permit may be issued for a hatchery unless the commissioner determines that such an action would

(7) watershed and habitat improvement, and management, conservation, protection, use, disposal, propagation and stocking of fish;

(8) investigating and determine the extent and effect of disease, predation, and competition among fish in the state, exercising control measures considered necessary to the resources of the state;

(9) prohibiting and regulating live capture, possession, transport, or release of native or exotic fish or their eggs; . . .

(12) regulating commercial, sport, subsistence, and personal use fishing as needed for the conservation, development, and utilization of fisheries...

AS 16.05.251(b).

³/See e.g., 5 AAC 40.005 (c) (segregation of hatchery fish from natural runs), 5 AAC 40.170 (2) (regional planning team review of hatchery permit application to determine extent of wild stock protection),

⁴/See, Beran v. State, 705 P.2d 1280 (Alaska App. 1985)

⁵/Id.

result in substantial public benefits and would not jeopardize natural stocks. (emphasis added)

The second, AS 16.10.420(10) ("Conditions of a permit"), states:

The department shall require, in a permit issued to hatchery operator, that . . . a hatchery be located in an area where a reasonable segregation from natural stocks occurs, but, when feasible, in an area where returning hatchery fish will pass through traditional salmon fisheries.

The board is concerned that these statutes require the department to make a judgment concerning the potential harm to wild stocks only prior to the issuance of a hatchery permit; the inference being that once a judgment is made and a hatchery permit is issued, there is no statutory "protection" for wild stocks that are jeopardized by hatchery-related dangers arising after a permit is issued.⁶ This raises the possibility that a management regime which protects wild stocks to the detriment of hatchery operations would conflict with existing statutes that indicate the state should manage hatchery fish for broodstock and cost recovery.

An additional concern, not raised in Chairman Martin's letter, is whether the state constitution requires that hatchery fish be managed for broodstock and cost recovery.

RECENT LEGAL OPINIONS

Hatchery Fish and "Sustained Yield"

Article VIII, section 4, of the Alaska Constitution states:

Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial users.

The Alaska Supreme Court has stated that wild salmon, while they are in the natural waters of the State, "belong" to the State. Metlakatla Indian Community, Annette Island Reserve v. Egan, 362 P.2d 901, 914-915 (Alaska 1961). Because wild salmon belonged to the State while in our waters, they are subject to Article VIII, Section 4, of the Constitution, and thus must be managed on the sustained yield principle. Whether hatchery-reared salmon share the same status is less clear, and has been the subject of disagreement among attorneys who have recently written on that issue. The issue is important in the context of Chairman Martin's concerns because if hatchery fish must be managed on the sustained yield principle, that implies the Board of Fish *must* manage fisheries to provide hatcheries with broodstock, and possibly cost-recovery fish, even if the board does not believe that to be in state's best interest.

In an August 1990 letter to Alaska Department of Fish & Game Commissioner Don Collinsworth, Assistant Attorney General Steve White concluded that the Department of Fish & Game and the Board of Fish had the legal authority, and were in fact directed by law, to manage fisheries so that salmon hatcheries receive broodstock and cost recovery fish for their operations. He based these conclusions in part on the assumption that the

⁶/See Martin letter, p. 2.

law, to manage fisheries so that salmon hatcheries receive broodstock and cost recovery fish for their operations. He based these conclusions in part on the assumption that the above quoted section of the Alaska Constitution mandates that hatchery fish be managed in the same manner as wild stocks. Two other attorneys, George Utermohle of the Legislative Affairs Agency's Legal Services Division, and Juneau attorney Michael Stanley, later called that assumption into question. Sometime after that, Anchorage attorney A. William Saupe analyzed the three prior opinions and concluded that Mr. White's initial assumption was correct.⁷ What follows is a summary, extracted from the four opinions, of the arguments on both sides of the question of whether sustained yield management requirement of art. VIII, sec. 4 of the Alaska Constitution applies to hatchery-raised fish.

First is the issue of "ownership." On its face, sec. 4 of art. VIII applies only to resources "belonging" to the state. Are hatchery-raised fish in that category? Stanley and Utermohle argue that they may not be.

Stanley points out that the framers of the Alaska Constitution did make distinctions between resources "occurring in their natural state" and those that are "subject to intensive culture," at least for the purpose of exempting the latter from the requirements of art. VIII, sec. 3 (the "common use clause").⁸ Because humans play a substantial role in the growth and development of hatchery fish, Stanley reasons that they may not be the "natural resources" the drafters of article VIII had in mind.

George Utermohle points to the fact that the legislature, when it created the private nonprofit hatchery system, used the following language (AS 16.10.440(a)) to provide for the common use of hatchery fish:

Fish released into the natural waters of the state by a hatchery operated under AS 16.10.400 - 16.10.470 are available to the people for common use and are subject to regulation under applicable law in the same way as fish occurring in their natural state until they return to the specific location designated by the department for harvest by the hatchery operator.

Utermohle finds the above language significant in a number of respects: first, while the statute provides for the common use of hatchery fish, it is silent as to state ownership and makes no mention of sustained yield; second, the fact that hatchery fish are to be treated "in the same way" as fish occurring in their natural state "until they return to the specific location. . ." suggests that the legislature did not consider them a common property resource belonging to state, but merely felt they should be treated as if they were until they returned to the hatchery for harvest; finally, Utermohle suggests that the provision for harvest by the hatchery operator indicates "some lingering private property interest in the hatchery fish by the hatchery," another indicator that these fish may not "belong" to the state for purposes of the sustained yield section of art. VIII.

In his lengthy memorandum to PWSAC President John McMullen, attorney A. William Saupe disagreed with the arguments made by Stanley and Utermohle that the sustained yield clause may not apply to hatchery fish.

⁷/Copies of the four legal opinions are attached to this memorandum.

⁸/Art. VIII, sec. 3 provides: "Common Use. Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for their common use."

Initially, Saupe relies on legislative history to refute the "ownership" argument. He quotes this passage from a Legislative Research Agency memorandum by Linda J. Snow (July 31, 1991) to Senator Eliason:

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 Clocksin, 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 to be considered common property fish 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 they be allowed to harvest a sufficient number for broodstock and cost recovery.

(Emphasis his).

Saupe also relies on certain portions of the commentary of the Committee on Resources of the Alaska Constitutional Convention. The first concerns the common use clause:

Game fish, wildlife, fisheries, and water are recognized as belonging to the state so long as in a natural state. These resources are subject to a private right only when they have been acquired or utilized as provided by law. (emphasis his).

Saupe asserts that this passage indicates the framers' belief that fish reserved for common use "belonged" to the state. Because hatchery fish are reserved for common use by AS 16.10.440 (a), Saupe reasons that they must be owned by the state and be subject to the sustained yield principle.

The second commentary is the sustained yield clause itself:

Sustained yield is recognized as a principle applicable to the administration of plant and animal life subject to the immediate authority of the state. (emphasis his).

Because hatchery fish are subject to the authority of the state by AS 16.10.440(a), Saupe reasons, they are subject to the sustained yield clause.

This conclusion, he asserts, "also comports with common sense" because

[i]f they did not belong to the State, it could not reserve hatchery fish for use by others without paying for them. Moreover, if the mere expectation that a hatchery will later be allowed to harvest some unidentified fraction of the returning fish constitutes an ownership interest in all of its fish, then every other limited entry permit holder could be said to have the same "lingering property interest," leading to the false conclusion that none of the fish in Alaska's waters ever belong to the State or are subject to the sustained yield principle of management.

A more reasonable interpretation of these related statutory and constitutional provisions is that, once released, hatchery fish become like wild stocks in every legal respect. They belong to the state, are reserved to the people for common use and must be managed for sustained yield. . .

Saupe, pp. 10-11.

However, even if the state "owns" the hatchery fish, it does not automatically follow that the state must manage those fish on a sustained yield basis. As George Utermohle notes, the drafters of our constitution chose to make sustained yield requirement subject to "beneficial uses". The commentary on Article VIII, Natural Resources, at page 98, states:

This principle [sustained yield] is qualified in terms of "the highest beneficial public use" in recognition of its not being in the public interest to preserve certain parasitic or predatory organisms destructive of more beneficial plant and animal life.

And, during the debate on the sustained yield clause, Delegate Riley explained:

. . . we have in mind no narrow definition of "sustained yield," as is used for example, in forestry, but the broad premise that insofar as possible a principle of sustained yield shall be used with respect to administration of those resources which are susceptible of sustained yield, and where it is desirable. For example, predators would not be maintained on a sustained yield basis. (Alaska Constitutional Convention Proceedings, p. 2451.)

Utermohle argues that:

The delegates understood that the concept of preferences among beneficial uses would allow the state to make reasoned decisions to prefer certain renewable resources over other renewable resources to achieve a more beneficial public purpose. The authority to establish preference among beneficial uses may permit the state to harvest hatchery fish without providing for a sustained yield from the hatchery, provided that those who have vested rights in hatchery fish are compensated for those rights that are taken by the state.

The ability of the state to establish preferences among beneficial users is reflected in AS 16.10.430(b) which allows the commissioner of Fish and Game to terminate the operation of a hatchery in the best interests of the public, if the adverse effects of the operation of the hatchery are irreversible and cannot be mitigated. (Utermohle memo, pp. 3-4.)

Saupe, on the other hand, argues that AS 16.10.430(b) is not merely a reflection of the state's ability to establish preferences among beneficial uses but is in fact the only basis upon which a hatchery permit may be terminated. He also argues that the contribution made by PWSAC to the growth of the commercial fishing industry in Alaska demonstrates its beneficial use to the state, and that "short of the extreme situation envisioned by AS

14.10.430(b) it is hard to conceive how denial of a reasonable hatchery harvest in favor of other beneficial uses could achieve a greater public purpose." Saupe memo, p. 14.

It is unfortunate that our supreme court has never defined "sustained yield," much less taken up the question whether hatchery raised fish must be managed on that principle. Suffice to say that knowledgeable people disagree on this issue and it would probably take a constitutional amendment to guarantee an unassailable legal conclusion one way or the other.

No one would seriously argue that the preservation of wild stocks is not a "beneficial use" of the fishery resource, and there apparently is a concern that managing hatchery fish for broodstock and cost recovery may, in some instances, be harmful to that beneficial use. The difficulty with such a conclusion is that it probably raises more questions than it answers. How significant must the harm be? Can it be clearly substantiated? Is not the continued health and development of hatchery raised fish also a "beneficial use" of the resource?

As the above arguments, conclusions and questions demonstrate, there is no clear answer to the question whether there is a constitutional mandate that hatchery fish be managed on a sustained yield basis. That is not to say, however, that the legislature should not exercise its constitutional law making authority in this area. As Chairman Martin's letter makes clear, the Board of Fisheries is struggling with statutory ambiguities, and the board is obviously looking for legislative action.

Allocating for Broodstock and Cost Recovery

As noted earlier, assistant attorney general Steve White concluded that the board and the department are authorized and directed by law to allocate fishery resources for broodstock. He also concluded that the board has the authority, but is not required, to manage for cost recovery. White memo., p. 7. Going a step further, Mr. Saupe reached the conclusion that the board and the department must manage for both broodstock and cost recovery. Saupe memo., p. 16. In reaching their conclusions, White and Saupe both rely on the notion that hatchery fish must be managed on the principle of sustained yield, discussed above, and on the a number of statutes and court decisions which point to legislative approval for such activity.

As noted above, the board is to provide for "the conservation and development of of the fishery resources of the state." AS 16.05.221(a). The Alaska Supreme Court, in Kenai Peninsula Fishermens Coop Ass'n v. State, 628 P. 2d 897, 903 (Alaska 1981), defined "conservation" as "controlled utilization of a resource to prevent its exploitation, destruction or neglect." Steven White argues that, since managing for broodstock helps to perpetuate the fishery resource (i.e., prevents its "exploitation, destruction or neglect"), managing for broodstock is analogous to managing for escapement of wild fish. Therefore, the board has the power to adopt regulations that will provide for hatchery broodstock. White memo., p. 2.

Saupe argues that, in addition to the constitutional mandates, managing for broodstock is required by AS 16.10.443, which states:

Department assistance and cooperation. (a) Before and after permit issuance under AS 16.10.440 - 16.10.470, the department shall make every effort, within the limits of time and resources, to advise and assist applicants or permit holders, as appropriate, in the planning, construction, or operation of salmon hatcheries.

Saupe concludes that, because broodstock recovery is essential to hatchery operations, and the department is required to assist in hatchery operations, any regulation or action of the department that denies broodstock recovery would be invalid as inconsistent with the above-quoted statute. Saupe memo., p. 15.

Whether the board has the authority to manage for cost recovery is less clear than it is for broodstock. The board does have the authority to allocate fish to various user groups.⁹ However, private nonprofit hatcheries are not specifically designated in law as a user group. Nevertheless, Steve White has concluded that private nonprofit hatcheries could be considered a "subgroup" of commercial users. Because the Alaska Supreme Court has upheld the board's power to allocate among subgroups (e.g., drift gillnetters and set gillnetters),¹⁰ White concludes that the board could make a valid allocation to hatchery operators as a "subgroup."¹¹

Michael Stanley, on the other hand, argues that the statutory definition of "commercial fishing" leads to a different conclusion. AS 16.05.940(5) states:

the taking, fishing for, or possession of fish, shellfish, or other fishery resources with the intent of disposing of them for profit, or by sale, barter, trade, or in commercial channels . . .

Stanley asserts that hatchery operators do not sell cost recovery fish "for profit." He does acknowledge that cost recovery sales may be "in commercial channels," but argues that a reading of that phrase broad enough to include hatchery operators would also have to include other users, such as salmon derby operators. The inference he makes is that the legislature did not intend hatchery operators to be included in either definition, and therefore hatchery operators cannot be allocated to as a subgroup. Stanley also points to the statutory definition of "commercial fisherman," AS 16.10.940 (5), which states that they are "individuals," meaning natural persons and not corporations.

Saupe, on the other hand, argues that cost recovery is essential to sustain hatchery yields and to promote aquaculture, two requirements of the state constitution.¹² He also points to a number of statutes which he believes evince a legislative mandate for cost recovery. Principal among these is AS 16.10.450 (a), which provides:

⁹/See AS 16.05.251(e).

¹⁰/Meier v. State, 739 P.2d 172, 174 (Alaska 1987)

¹¹/White op., p. 3.

¹²/Along with the sustained yield requirement already discussed, Saupe relies on art. VIII, sec. 15, which states:

No Exclusive Right of Fishery. No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State. This section does not restrict the power of the state to limit entry into any fishery for the 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 the State. (emphasis added).

Sale of salmon and salmon eggs by hatchery. (a) Except as otherwise provided in a contract for the operation of a hatchery under AS 16.10.480, a hatchery operator who sells salmon returning from the natural waters of the state, or sells salmon eggs to another hatchery operating under AS 16.10.400 - 16.10.470, after utilizing the funds for reasonable operating costs, including debt retirement, expanding its facilities, salmon rehabilitation projects, fisheries research, or costs of operating the qualified regional association for the area in which the hatchery is located, shall expend the remaining funds on other fisheries activities of the qualified regional association.

Also cited by Saupe as evidence of the legislature's mandate for cost recovery: AS 16.43.420 (Limited Entry Act provision allowing sale of fish caught under special harvest area entry permit); AS 16.10.430 (b) (allowing a holder of a terminated hatchery permit to harvest salmon during the termination period); AS 16.05.020 (requiring the commissioner of Fish & Game to "improve and extend" the fish resources of the state in the interest of the state's economy and general well-being).

Restricting Hatchery Output

The Saupe memorandum also discusses the authority of the board to restrict individual hatchery output. Based in part on Linda Snow's legislative history memorandum, and in part on a review of the board's authorizing statute, Saupe concluded that there is "little or no basis for regulation of hatchery output by the board." Saupe memo., p. 28. He asserts that AS 16.10.440 (b), which allows the board to amend the terms of a hatchery permit,¹³ speaks only to regulation of harvest, not production. Saupe memo., p. 30.

As to whether the board can set regional production limits, such as by capping the hatchery sockeye output in Prince William Sound to maintain historical levels relative to Bristol Bay sockeye production, Saupe is not as sure. However, he does suggest that the board's authority to regulate propagation and stocking¹⁴ is a "very slender thread from which to hang an unprecedented, statewide regulatory program of production allocations." He also asserts that serious practical and policy problems would arise when the board attempts to allocate between regions of the state.¹⁵

¹³/AS 16.10.440(b) allows the board to amend "the terms of the permit relating to the source and number of salmon eggs, the harvest of fish by hatchery operators, and the specific locations designated by the department for harvest."

¹⁴/AS 16.05.251(7)

¹⁵/Saupe memo., p. 31-32.

CONCLUSIONS

This chapter illustrates some of the ambiguities in Alaska law relating to the authority of the Board of Fisheries to manage hatchery fish and leads to several conclusions:

1. There is no specific statutory mandate directing the board to give wild stocks preferential management treatment relative to hatchery raised fish.
2. The Alaska Constitution may require that hatchery fish be managed to allow for broodstock and cost recovery by the hatcheries, but that requirement may be invalidated by a determination that the sustained yield of hatchery fish is not as "beneficial" a "use" of the fishery resource as that of protecting the health of the wild stocks.
3. Existing statutes appear to allow the board to allocate to hatcheries fish for broodstock, but are less clear as to the authority for cost recovery.
4. Existing statutes are not clear on the board's authority to restrict hatchery production on a local or regional basis.

OPTIONS FOR POSSIBLE CONSIDERATION

- *Placing a wild stock priority into state statutes; or alternatively, making the status of wild and hatchery stocks of equal priority, or leaving the statutes ambiguous.*
- *Clarifying in state statutes whether or not the Board of Fisheries is required to provide for hatchery broodstock or for cost-recovery fisheries.*
- *Clarifying the Board of Fisheries' authority to restrict hatchery production.*

Attachments
to Chapter II.

LETTER FROM
BD. OF FISHERIES

May 6, 1991

The Honorable Richard Eliason
President
Alaska State Senate
P.O. Box V
Juneau, AK 99811

Dear President Eliason:

This letter is in response to a request by the Senate Resources Committee and the Special Senate Fisheries Committee when Board of Fisheries members appeared before the committee in March. We appreciated the opportunity to sit down with the committee and discuss items which will improve the board's ability to serve the people of Alaska.

In managing fisheries that involve hatchery raised salmon, the Board of Fisheries has encountered problems due to ambiguities in the current Alaska statutes. These problems commonly arise when the management of hatchery stocks conflicts with either the health of wild stocks or with the opportunity of fishermen to harvest wild stocks. Essentially, the statutes are not clear on the status of wild stock management.

State statutes also are not clear about the state's duty to provide fish for hatchery broodstock and cost recovery, and about the hatcheries' obligations to contribute to the common property fisheries. We perceive that the development of state policy toward hatcheries may have created a conflict of interest. On one hand, the state manages fisheries as a common property resource for the benefit of all user groups. On the other hand, the state loans money to hatcheries with the expectation that the hatcheries will receive enough fish to be able to repay these loans.

The board has the following comments on the existing statutes:

1. AS 16.10.375 Regional Salmon Plan. Should new language require a review or synthesis of the regional plans to give a statewide perspective on hatchery production?

President Richard Eliason
May 6, 1991
Page Two

2. AS 16.10.380 Regional Associations. One of the great strengths of the regional associations is the representation of all user groups on their boards of director. However, the PNP's have no such requirement. Should all hatcheries and enhancement activities in a region be under the control of the regional associations?

Should state laws apply to all hatcheries and enhancement activities in Alaska and not just private non-profit hatcheries? Other activities that might be covered include state-owned hatcheries, regional hatcheries, and the U.S. Fish and Wildlife Service, the U.S. Forest Service, and the National Marine Fisheries Service. Should all these activities be included in the Regional Comprehensive Plan?

Should the role of the regional associations be to coordinate region wide production and allocation subject to biological review by the Regional Planning Team and allocative review by the Board of Fisheries?

Given an expanded role for the regional associations, should their means and levels of funding be re-examined by the legislature?

3. AS 16.10.400 Permits for Salmon Hatcheries. The legislature should re-examine (g) of this section: "During the development of a comprehensive plan for a region no permit may be issued for a hatchery unless the commissioner determines that such an action would result in substantial public benefits and would not jeopardize natural stocks."

The first ten words of this section, "During. . . region . . .", suggest that once the plan is completed, the prohibited actions could be allowed. Perhaps this wording should be deleted. Also, we believe that there should be more specific grounds and procedures for terminating hatchery permits after they have been issued.

President Richard Eliason
May 6, 1991
Page Three

Legislators should note that 5 AAC 40.860 provides generic standards for performance review of hatchery success in producing smolt from broodstock. There are no statutory standards, however, for performance review of hatchery contribution to common property fisheries. If a hatchery cannot demonstrate that it is providing "substantial public benefit", is the state required to continue to provide for returns to the hatchery for broodstock or cost recovery purposes?

In this subsection, "substantial public benefit" is not clearly defined. The board recommends that the legislature consider linking the number of eggs taken as broodstock or the number of smolt released by a hatchery to that hatchery's required contribution to the common property fisheries.

The board may contribute to clarifying "substantial public benefit" by requiring the marking of hatchery fish. While we believe that the board has the authority to require this, it would be helpful to have this authority specifically provided by statute. Should the cost of implementing a marking program be borne by the producers of hatchery fish or by the state?

The last five words of this subsection, ". . . would not jeopardize natural stocks", is one of only two places (the other is AS 16.10.420(10)) which declares that it is the legislature's intent that the conduct of the entire state hatchery system is conditional on the protection of natural stocks. Perhaps because our hatcheries have flourished over time, and given some of the intense debate occurring in Oregon, Washington and Canada on how hatchery stocks have impacted natural systems, it is especially timely for the legislature to review the treatment natural stocks receive.

4. The necessity of protecting Alaska's vigorous natural stock populations is recognized by Department of Fish and Game regulations and policies. The regulations are in 5 AAC 40. For example, some of the strongest language exists in 5 AAC 40.220(b)(1), "the proposed hatchery returns may not unreasonably or adversely affect management of natural stocks. . .". Additional language exists in 5 AAC 40.005(a), (c), and (e), 5 AAC 40.007(b), 5 AAC 40.170 (2), 5 AAC 40.220 (b)(1), (3) and (7), and 5 AAC 40.860 (b)(2) and (4). As this issue of natural stock protection is examined by the legislature, the board recommends that the legislature seek input from the Commissioner of the Department of Fish and Game.

President Richard Eliason
May 6, 1991
Page Four

5. The legislature may wish to further clarify their intent in additional and more concise definitions of terms used in Title 16. For example, the following terms should be clarified: "escapement", "brood stock", "cost recovery", "substantial public benefit", and "private non-profit."

Should escapement apply strictly to natural stocks returning to natural systems?

Should broodstock be defined as the number of eggs authorized by permit to meet the production levels of the hatchery and to contribute to the common property fisheries? Some wording to this effect would be valuable in light of AS 16.10.420 and AS 16.10.450 which allow for the sale of salmon and salmon eggs for cost recovery. Fish which return to the hatchery for broodstock should be differentiated from fish which return and may be taken for cost recovery.

Does the legislature wish to rank or prioritize escapement to natural systems compared to return of broodstock to hatcheries?

"Cost recovery" is another term which warrants some further clarification. However, a clear definition of broodstock, coupled with a definition of substantial public benefits in terms of what is contributed to common property fisheries from broodstock, would provide a de facto identification of fish available for cost recovery as long as identification of hatchery stocks can be achieved.

These concerns of the Board of Fisheries are presented for your consideration. Your interest, and past support, in these resource issues has been greatly appreciated.

Should you have further questions, please feel free to call me.

Sincerely,

Michael R. Martin
Chair
Alaska Board of Fisheries

cc: Board of Fisheries members
Carl Rosier, Commissioner, ADF&G

MEMORANDUM

State of Alaska
Department of Law

TO: Hon. Don W. Collinsworth
Commissioner
Department of Fish and Game

DATE August 1, 1990

FILE NO 663-90-0327

TEL NO 465-3600

SUBJECT ADF&G authority to manage
fisheries for hatchery
broodstock and cost
recovery

Stephen M. White

FROM: Stephen M. White
Assistant Attorney General
Natural Resources Section

You have asked whether the Department of Fish and Game has legal authority to manage fisheries so that salmon hatcheries receive broodstock and cost recovery fish for their operations. You also asked whether the department is required to manage fisheries for these results. Your staff has also asked us to compare the department's authority with that of the Board of Fisheries.

I. ANALYSIS

A. Factual and Legal Background

There are two types of salmon hatcheries in Alaska. These are private, nonprofit hatcheries and state-owned hatcheries.

The regulation of private, nonprofit hatcheries is provided for in AS 16.10.400 - 16.10.470. These hatcheries have received a significant amount of public funds, principally in the form of loans from the state's fisheries enhancement revolving loan fund established by AS 16.10.507. 1/ Until fish raised by private, nonprofit hatcheries return to a location where they can be harvested by the hatchery operators, these fish "are available to the people for common use and are subject to regulation under applicable law in the same way as fish occurring in their natural state." AS 16.10.440(a).

The only law that deals with state-owned hatcheries is the one that gives the commissioner of the Department of Fish and Game authority to design and construct public hatcheries. AS 16.05.050(3).

1/ According to the Department of Commerce and Economic Development, the current amount owed to the state by private, nonprofit hatcheries is approximately \$63.1 million.

B. Board of Fisheries' Authority to Manage for Hatchery Returns

1. Board's authority to manage for broodstock fish

The Board of Fisheries was created "for purposes of the conservation and development of the fishery resources of the state." AS 16.05.221(a) (emphasis added). The board has authority to "adopt regulations it considers advisable in accordance with the Administrative Procedure Act (AS 44.62) for . . . regulating commercial, sport, subsistence, and personal use fishing as needed for the conservation, development, and utilization of fisheries." AS 16.05.251(a)(12) (emphasis added).

The Alaska Supreme Court has defined "conservation" as "controlled utilization of a resource to prevent its exploitation, destruction, or neglect." Kenai Peninsula Fisherman's Coop. Ass'n v. State, 628 P.2d 897, 903 (Alaska 1981). We believe that the board's authority to conserve the fishery resource of the state, that is, to prevent its "exploitation, destruction, or neglect," is an expression of the constitutional requirement that fish be "utilized, developed, and maintained on the sustained yield principle." Alaska Const. art. VIII, § 4.

We understand that the term "broodstock" means the portion of returning fish that a hatchery uses to provide eggs for raising its next contribution to the common-property fishery. Because broodstock helps to perpetuate the fishery resource, we believe that managing for broodstock is analogous to managing for escapement of wild fish to achieve sustained yield. It follows, therefore, that the Board of Fisheries is empowered to adopt regulations that will provide brood stock to the hatcheries. Furthermore, because management for sustained yield is required by article VIII, section 4, of the Alaska Constitution, we believe that the law directs the board to manage for this result.

2. The Board's Authority to Manage for Cost Recovery Fish

We understand that "cost recovery fish" are the portion of returning fish that a private, nonprofit hatchery harvests and sells to help meet its financial obligations. We also understand that state-owned hatcheries do not presently harvest fish for cost

Hon. Don W. Collinsworth, Commissioner
Department of Fish and Game
AGO file: 663-90-0327

August 1, 1990
Page 3

recovery. Thus, the question of managing fish for cost recovery concerns only private, nonprofit hatcheries. 2/

As noted above, the Board of Fisheries has authority to adopt regulations for development as well as for conservation of the fisheries. AS 16.05.221(a); AS 16.05.251(a)(12). The Alaska Supreme Court has defined "development" as "management of a resource to make it available for use." Kenai Peninsula, 628 P.2d at 903.

We have previously advised that this authority empowers the board to allocate fish that are beyond those needed to assure sustained yield. This power is established by AS 16.05.251(d), which mandates that the board provide "a fair and reasonable opportunity for the taking of fishery resources" by fishery user groups and by AS 16.05.251(e), which requires that the board adopt criteria for making allocations among these groups. 1990 Inf. Op. Att'y Gen. (Jan. 12; 663-90-0227); 1989 Inf. Op. Att'y Gen. (Apr. 7; 663-89-0465).

The courts have endorsed various forms of allocation. These have included allocations between the various overall user groups identified in the fish and game code -- personal use, sport, and commercial fishers. For example, in the Kenai Peninsula case, the Alaska Supreme Court said that the board could establish priorities of use between recreational and commercial fishers. Kenai Peninsula, 628 P.2d at 903. In other cases, the courts have upheld regulations that allocate harvest between competing subgroups of a particular user group. For example, the court upheld the board's allocation of fish between drift gillnet fishers and set gillnet fishers, both of whom are commercial users. Meier v. State, 739 P.2d 172, 174 (Alaska 1987).

Private, nonprofit hatcheries are not identified in the law as an overall user group. Nevertheless, we know of no reason why they could not be considered a subgroup of commercial users and thus be targeted for allocations like any other distinct subgroup of commercial harvesters.

The law establishes seven criteria that the board may consider when making allocations. AS 16.05.251(e). See also 05 AAC 39.205, 05 AAC 75.017, and 05 AAC 77.007. We have

2/ If state-owned hatcheries, operated by the state or by private contractors, harvest cost-recovery fish, this would raise issues that are beyond the scope of this memorandum. In that event, we would be pleased to provide you with further analyses of those issues.

Hon. Don W. Collinsworth, Commissioner
Department of Fish and Game
AGO file: 663-90-0327

August 1, 1990
Page 4

previously noted that the board is not limited to just these factors. We cautioned, however, that if the board considers additional factors, it should insure that the resulting allocation satisfies constitutional requirements of substantive due process and of equal protection. 1990 Inf. Op. Att'y Gen. (Jan. 12; 663-90-0227). 3/

To satisfy substantive due process, an allocation cannot be arbitrary and it must further a legitimate governmental purpose. Mobile Oil Corp. v. Local Boundary Comm'n, 518 P.2d 92 (Alaska 1974). To satisfy equal protection, a distinction between competing users must be "based on a legitimate public purpose and . . . be reasonable, not arbitrary, and . . . rest upon some ground of difference having a fair and substantial relation to the object of the [allocation scheme]." State v. Ostrovsky, 667 P.2d 1184, 1193 (Alaska 1983) (citation omitted).

Earlier we noted that private, nonprofit hatcheries have received substantial loans from the state. We assume that cost recovery fish are a significant, if not essential, source of income for meeting these hatcheries' debt service. If the borrowers do not receive sufficient cost recovery fish, it may not only threaten their ability to contribute to the common-property fishery, but also their ability to repay state loans. Accordingly, we believe that preventing the economic failure of borrower hatcheries would certainly be a "legitimate government purpose."

We also believe that distinguishing between private, nonprofit hatcheries, who make a direct contribution to sustained yield, and other users who do not make such a contribution bears a "fair and substantial relationship" to the goals of sustaining common-property fisheries and replenishing the loan fund. Thus, we believe that an allocation to provide cost recovery fish would satisfy the requirements of substantive due process and equal protection.

We note, however, that none of the present criteria in AS 16.05.251(a) precisely describe the positive attributes of hatcheries. Factors (5) (economic importance) and (6) (regional importance) could, under narrow circumstances, justify an

3/ We also opined that allocations must satisfy the provisions of article VIII of the Alaska Constitution. Specifically, these are section 1 (maximum use), section 2 (maximum benefit), section 3 (common use), section 15 (no exclusive right of fishing), and section 17 (equal application). 1990 Inf. Op. Att'y Gen. (Jan. 12; 663-90-0227). We do not believe that an allocation for cost-recovery would violate any of these sections.

Hon. Don W. Collinsworth, Commissioner
Department of Fish and Game
AGO file: 663-90-0327

August 1, 1990
Page 5

allocation that provides for cost recovery. 4/ Although the board is not limited to using these criteria, they still affect the public and implement a legislative mandate. Thus, any unlisted criteria that the board wishes to use should be adopted by regulation. See Kenai Peninsula, 628 P.2d at 905, 906. In other words, if the board intends to allocate for cost recovery, it should adopt by regulation criteria that more closely describe the special attributes of private, nonprofit hatcheries.

The board's authority to allocate for cost recovery, then, is based upon characterizing private, nonprofit hatcheries as another type of commercial subgroup. But, there is nothing in the law that requires the board to allocate to a particular group or subgroup. Accordingly, we do not believe that the board is required by law to allocate cost recovery fish to this subgroup.

C. Department's Authority to Manage for Hatchery Returns

1. Department's authority to manage for broodstock

The commissioner of the Department of Fish and Game has limited tools for managing commercial fisheries independently of the board. This authority is contained in AS 16.05.060(a). It allows the commissioner to use emergency orders "when the circumstances require" to summarily open and close seasons or areas or to summarily change weekly closed periods.

The law does not define what circumstances will enable the commissioner to use his or her emergency order power. However, we have previously advised that in light of the commissioner's statutory charge to "manage, protect, maintain, improve, and extend the fish . . . resources of the state," emergency orders can be issued to protect sustained yield, based on conservation concerns. AS 16.05.020(2); 1989 Inf. Op. Att'y Gen. (Apr. 7; 663-89-0465).

Earlier we recognized an analogy between managing escapement of wild stocks for conservation/sustained yield and managing for hatchery broodstock in order to serve the same purposes. Thus, we believe that the department, acting through the commissioner's power to issue emergency orders, can independently

4/ For example, if (1) a certain fishery were an important segment of an economy, (2) a hatchery made a critical contribution to the perpetuation of this fishery, and (3) the hatchery could not survive to make this contribution without an allocation of cost-recovery fish, the board could conclude that the allocation would be very important to that economy. . . .