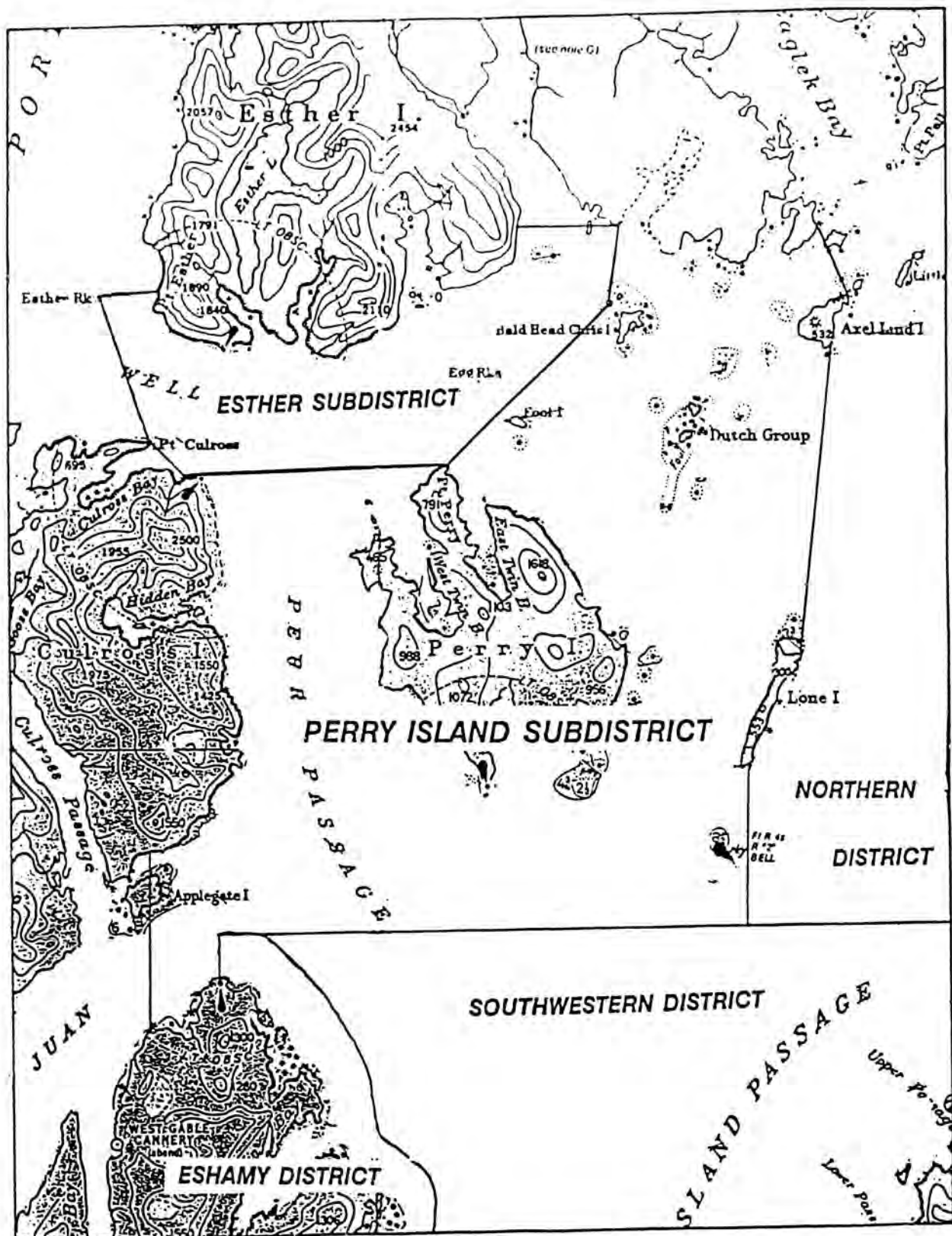


ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILE 8672
1815 SCOMM 74: SEN. SPEC. COMM. ON DOMESTIC & INTL. FISH., 1991-92.



Proposed Perry Island Subdistrict - October 30, 1990

(Draft Management
Policy Attached)

1990/91 BOARD OF FISHERIES BRIEFING DOCUMENT

Title: Policy of the Management of Enhanced Fish

Proposal No. 343

Page 224

Proposed by: Southeast Alaska Seiners

Commercial Fisheries

Division Author: Scott Marshall, Regional Supervisor

Title: Policy of the Management of Enhanced Fish

Proposal 343

Page 224

SYNOPSIS

This proposal requests that when hatchery and wild salmon stocks are mixed, management be based on the strength of wild stocks. Deviations from this principal will only be permitted by Board of Fisheries action, for a specific area, if a tagging study has demonstrated that doing so will not: (1) jeopardize conservation concerns for wild stocks; (2) deviate from maximum sustained yield of wild stocks; or (3) re-allocate wild stocks between user groups.

BACKGROUND

The issue of managing commingled wild and hatchery stocks has been of concern for along time. To clarify the department's views on the many complex issues involved, a policy has been drafted (attached). This policy is based upon interpretation of existing statutes, regulations and legal opinions. The department requests the Board to review this policy.

MANAGEMENT ISSUES

At issue is the management of wild and hatchery stocks in near-terminal and mixed stock fishing areas. The concern is that the management policy of the Board or in-season actions of the department will either: (1) over-escape wild stocks to protect hatchery returns; (2) under-escape wild stocks to direct fisheries on hatchery returns; (3) or result in reallocation of wild fish among users. Hence, prior to deviating from a management policy based solely on wild stock escapement needs, a tagging study would have to be conducted which proved that a new management scheme would not result in one of the aforementioned consequences.

There are many management, allocation, technical and legal issues embodied in this proposal. The complexity of these issues makes it difficult to adopt a policy that would govern the Board or department's action in all circumstances. Hence the department's draft policy relies heavily upon review of management options on a cases by case basis rather than establishing inflexible rules.

Title: Policy of the Management of Enhanced Fish

Proposal 343

Page 224

This proposal is not consistent with the department's draft policy on management of hatchery returns.

ENFORCEMENT ISSUES

None.

FISCAL NOTE

This proposal requests that tagging studies be conducted as a prerequisite to consideration of altering management for hatchery fish in any area. Costs for such projects could be substantial.

CONCLUSIONS AND RECOMMENDATIONS

- This proposal is not consistent with the State Attorney General Office's opinion that the Constitution of the State of Alaska mandates both the department and the Board to manage for escapement of brood stock to hatcheries.
- The department considers existing statutes and regulations governing the management of mixed wild and hatchery stock fisheries adequate. As such the department has proceeded with developing a policy on the subject rather than propose a new regulation. This policy relies heavily upon existing regulatory process to resolve the complex issues raised in this proposal.
- The department does not support this proposal.

REGULATORY LANGUAGE

The department cannot propose specific regulatory language without direction from the Board.

DRAFT



ALASKA DEPARTMENT OF FISH AND GAME

Statement of Policy on Management of Fish Returning to Hatcheries in Alaska

Background Information

The current fisheries enhancement program in Alaska was designed during the early 1970s to rehabilitate the state's depleted and depressed salmon fisheries. Provisions were made by the state Legislature for two types of salmon hatcheries: those operated by the state and those operated by private nonprofit (PNP) hatchery corporations. These programs share the common goal of contributing salmon to the common property fisheries. However, the state hatchery program was to be financed by bond issues and appropriations from the Legislature, while the PNP hatchery program was to be self-supporting with a unique financing mechanism called cost recovery. PNP hatchery operators were allowed to harvest and sell a portion of the salmon that returned to a designated Special Harvest Area (SHA) to recover the cost of building and operating the hatchery.

PNP hatcheries have received a significant amount of public funds, principally in the form of loans from the Fisheries Enhancement Loan Fund established under AS 16.10.505. Until fish released by PNP hatcheries return to a location where they can be harvested by the hatchery operator, 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)].

Normally, a fully developed hatchery will be able to maintain survival rates that will assure a return of enough salmon to the hatchery to at least meet broodstock requirements, defined as the number of fish required to meet the operational egg capacity of the hatchery. In situations where a hatchery is in the process of developing broodstock, additional fish, provided through management actions in the common property fisheries, may be necessary to ensure the success of the facility. Hatcheries located in areas where commercial fisheries operate adjacent to the SHA may have harvest rates on returning fish that are high enough to jeopardize brood stock and cost-recovery requirements. Hatcheries that are experiencing relatively poor marine survival may not be able to obtain even enough broodstock under the rates of common-property exploitation applied to wild stocks in the area.

In these situations, the Alaska Department of Fish and Game (ADF&G) could be asked to manage fisheries in ways that will allow escapement of additional fish to the hatchery. In the case of state-operated facilities, the additional escapement would be for broodstock; for PNP facilities, both broodstock and cost-recovery escapement may be needed. The manner in which management will occur for (1) broodstock and (2) cost recovery, under different sets of circumstances, must be clearly understood by hatchery operators, fishermen, fishery managers, state policy makers, and the general public.

The Need for Policy

A departmental policy is needed to clarify the role of the department's fishery managers in the management of common-property fisheries for escapement of hatchery fish to provide broodstock and cost recovery for PNP hatcheries, and broodstock for state-operated facilities. A policy is also necessary to explain to the public the respective roles of the department and the Alaska Board of Fisheries in this process.

Public interest and legislative intent are served when hatchery contributions to common-property fisheries are maximized, and when hatchery harvests are concurrently achieved such that they allow the hatchery operators to continue or expand their salmon production capabilities and services in a reasonable manner consistent with the regional comprehensive plan for that area.

The considerations for managing for a hatchery's broodstock and cost-recovery needs in terminal, near-terminal, and mixed-stock fishing areas are different. The following statements of policy are based on approaches to management in these different geographic areas.

Statements of Policy for Management of Hatchery Fish

Fish released into the natural waters of the state by a hatchery operated under AS 16.10.400-470 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. Management for hatchery broodstock is the same as management for wild stock spawning escapement. The State Attorney General's Office has issued an opinion finding that the Constitution of the State of Alaska mandates both the ADF&G and the Alaska Board of Fisheries to manage for escapement of broodstock to hatcheries. The policy of ADF&G has always been to do so (see Statement of Policy on Permitting Nonprofit Salmon Hatcheries in Alaska, October 3, 1974). The following policy statements, however, refer to management for both broodstock and cost-recovery.

1. Terminal or Hatchery Special Harvest Areas

Terminal harvest areas are areas where the returns to the hatchery are segregated from wild stocks sufficiently so that harvesting of the hatchery stock can occur with no appreciable catch of wild stocks. A portion or all of the terminal harvest area may be included in a PNP hatchery's special harvest area (SHA) where all of the returning salmon are available for brood stock and/or cost recovery. Broodstock and cost-recovery needs are to be documented in the annual management plan (AMP) for the hatchery.

- (a) Inside the terminal harvest area, the department will manage the hatchery return in a manner that allows the hatchery to reach broodstock and cost-recovery goals set forth in the AMP to the extent sufficient numbers of fish are available.

2. Near-Terminal Areas

Near-terminal areas are located immediately adjacent to the terminal harvest areas to which hatchery fish are returning. These areas are often transited by natural stocks, as well as the stocks destined for the hatchery release site. However, the degree to which the stock composition is mixed is highly variable and usually unknown. The legal commercial gear for use by common-property fishermen in the near-terminal area is usually the same as that used in the adjacent hatchery terminal area or SHA. When developing a plan that includes the management of a near-terminal area for the purpose of providing escapement of hatchery salmon into a terminal area, the department will proceed as follows:

- (a) The department will manage the hatchery return in a manner that allows the hatchery to achieve its broodstock needs in the same manner that it manages near-terminal fisheries to ensure spawning escapement of wild stocks. When restrictions of historic wild stock fisheries are required to achieve broodstock for a hatchery, the department will restrict time, area, and/or gear to the least extent possible.
- (b) In situations where adequate temporal or spacial separation of hatchery stocks from wild stocks does not exist, the hatchery operator may be required to establish a departmentally approved, operator-funded, mark or tagging program before restrictions of historic fisheries are initiated.
- (c) Restrictions in historic wild stock fisheries to provide broodstock will be made only if a reasonable expectation exists that foregone harvests of wild and hatchery stocks will be more than compensated for by increased future returns from the hatchery facility. Consideration of established performance standards for hatchery operations will be a factor in this determination.

(d) If a hatchery operator needs a near-terminal area managed to provide fish for cost-recovery purposes in addition to broodstock, a proposed management plan for the area must be submitted by the operator to the Board of Fisheries for its determination. The board, through review of available data on the performance of the hatchery, including its contributions to potentially affected fisheries, the hatchery's management plan, and comments and testimony from the public, will determine if the proposed management plan is in the best interest of the state. Through this process, the board may identify alternative management strategies to assist the hatchery in meeting its goals. These strategies might include directing ADF&G, through regulation, to manage for cost recovery harvest.

3. Mixed-Stock Fishing Areas

For some hatcheries, a major portion of their contributions will be to common-property fisheries that operate at some distance from the hatchery. Traditionally, these fisheries have been directed toward the harvest of wild stocks. The contribution of an individual hatchery's production to a distant mixed-stock fishery may be significant but, depending on a number of factors, may represent a highly variable portion of the total catch in the fishery. The actual contribution must be verified using a departmentally approved, operator-funded mark or tagging program. If a significant contribution to the common property fisheries is verified by data from catch sampling, management options to achieve an adequate broodstock or cost-recovery harvest may be proposed to the department and the Alaska Board of Fisheries by the hatchery operator. Based on catch data, the Alaska Board of Fisheries could then determine the appropriate management option, if any, to be used.

The alteration of a fishery to provide additional escapement into a distant, terminal area can have many effects, including: altering allocations among gear groups; causing a portion of the harvest normally taken in an area to go unharvested due to lack of later, more terminal harvest opportunities; and disadvantaging fishermen within the user group that traditionally fish in the affected area. Obviously, the effects of management to increase returns to a hatchery in a major mixed-stock fishing area will vary considerably in different situations, and no standard approach can be developed. In almost all instances where management actions to increase hatchery escapement are proposed, some allocative impacts or fishery restructuring will be necessary. The department will proceed as follows in these situations:

(a) Board of Fisheries consideration of any proposed management plan will be required in these situations. The board, after reviewing all available data regarding hatchery contributions in potentially affected fishing areas, taking into consideration comments and testimony from the public, and weighing the effects and tradeoffs created by implementing the proposed management action, will determine if the proposed action, or an alternative action, is appropriate and in the state's best interest.

(b) It is imperative, especially in mixed-stock situations, that a clear understanding of the

DRAFT

contribution of hatchery fish to affected fisheries be available to those who are developing management plans. The department will assist hatchery operators to obtain this information, within the limits of personnel and funding availability dedicated to this activity. Regional Planning Teams, with assistance from the department and hatchery operators, should work to determine where, in each region, the priority for tagging efforts should be placed.

Adoption of Policy

This policy is approved by:

Brian J. Allee Date _____
Director
Division of Fisheries Rehabilitation,
Enhancement and Development

Denby Lloyd
Director
Division of Commercial Fisheries

Norval Netsch
Director
Division of Sport Fisheries

Ron Somerville
Deputy Commissioner
Alaska Department of Fish and Game

Carl L. Rosier
Commissioner
Alaska Department of Fish and Game

SUGGESTED TOPICS FOR HATCHERY ISSUES MEETINGS

To: Mary McDowell
From: Kate Troll — S.E. Alaska Seiners Association
Re: Backup Information for Hatchery Hearing

In my conversations with Jim Brooks, former ADF&G Commissioner, and Rick Lauber, industry lobbyist, and in my investigations into old records, I have determined that the context of hatcheries has changed dramatically since the enabling legislation was passed in 1974. Here is a summary of my more significant findings:

- * The PNP Hatchery Program was spawned as a vital part of the Salmon Fisheries Rescue Plan. As you know, in the earlier seventies, salmon stocks were stressed and depleted in many areas of the state. A five point plan for improving the drastically reduced Alaskan salmon resource included: Management, Rehabilitation, Enhancement, Development Research, and Habitat Protection.

- * Enhancement was then defined as "an effort to add large quantities of fish to the fishery by establishing permanent production facilities under acceptable ecological conditions. Ideally, and ultimately, enhancement will use special "hatchery" stocks, genetically evolved for that purpose. Returns will be harvested except for hatchery brood stock needs". (1973 Statewide Salmon Management Plan)

- * The notion of harvesting for cost recovery was dismissed, because it was thought that the PNP's would be controlled by the regional associations and they would have the 3% enhancement tax revenues to cover costs.

- * At the time of the enabling legislation, Commissioner Brooks claims that he preached a wild stock management priority. In his opinion the legislation and the PNP's would have not gone anywhere if there was not a management priority on wild stocks. In fact, Commissioner Brooks signed a Statement of Policy on Permitting Nonprofit Salmon Hatcheries in Alaska in Oct. '74 which affirmed this priority. I quote:

"If complexities arise in managing mixed stocks, including both hatchery fish and wild fish, it will be State policy to manage the collective resource in a manner that favors protection of the wild stocks."

The role of hatcheries has changed dramatically over the years. Now we have PNP hatcheries funded not as a means to rescue our salmon stocks but as a means of contributing to fishermen and private economic development. Now we have regions so dependent on hatchery stocks that wild stocks are threatened. Now we have thriving wild stocks in many regions of the state and hatchery contributions are negligible (See Enclosed Table). Now we have hatchery production affecting the market in terms of quality and quantity. This change of context sets up a lot of questions. Some of these questions can be answered by re-examining the legal and management fundamentals of Alaska's initiation into hatcheries. Some of these questions can only be answered by new research and analysis leading perhaps to new legislation on hatcheries. Here is how some of the questions and tasks break out:

LEGAL AND POLICY

- * Should State laws on hatcheries apply to all hatchery and enhancement activities, not just private non-profit (PNP) hatcheries?
- * Should marking and/or tagging of hatchery fish be statutorily required?
- * Should PNP's that receive "x" amount in state financing be required to have all gear groups equally represented or have some overview by regional associations?
- * Substantial public benefit needs to be better defined for purposes of performance evaluations of PNP's. Possible options include:
 - a sliding scale of contribution to the common property fishery dependent on the amount of broodstock or finances obtained from the State
 - the estimated contribution to the common property fishery included in the loan applications
 - an average contribution for hatcheries in the region
 - the contribution goal established by regional associations
- * Should the State statutorily recognize a responsibility to manage for hatchery broodstock (only for broodstock taken prior to cost recovery activities) at the same time recognize that management of state owned fish take priority? Should this responsibility for broodstock be triggered by performance of substantial public benefit?
- * There is a conflict of interest created by the fact that the bank and manager of the resource to repay the bank are one and the same...the State of Alaska. Should there be some form of protection or recourse for the fishermen?
- * Could the Prince William Sound example of the Board of Fisheries' modification of wild stock harvest opportunities be incorporated into regulation i.e. modification done on the basis of solid tagging data and at the request of the regional association or all gear groups?

MANAGEMENT

- * Could Regional Salmon Plans be expanded to develop a Statewide Salmon Plan so that there is a statewide perspective of overall hatchery production? Could this review be done by fishermen representatives from the different Regional Associations?
- * Can a performance review of existing PNP's in relation to their contribution to the common property fisheries be conducted? If yes, should such a review occur?
- * Given the regional differences should there be regional hatchery stock management policies or one for the entire state? Could this policy differentiate how management for hatchery broodstock, with a wild stock priority, could occur in terminal areas, near terminal areas and mixed stock fisheries?
- * Is there ~~is~~ a standing management policy that historical fishing opportunities on wild stock will not be altered for hatchery needs unless directed otherwise by the Board of Fisheries? Would this be ample protection for fishermen in regards to the conflict of interest referred to above?

ECONOMIC

- * Is the current system of providing for cost recovery only in the terminal areas sufficient to assure loan re-payment? For what hatcheries is this sufficient?
- * Is there a threshold production capacity relative to loan amount that affects the PNP hatcheries' ability to re-pay the loan amount?
- * How many PNP's are defaulting on their loans? How many are regional PNPs?
- * Are any of these defaulting PNPs defaulting because harvest pressure exceeds the amount estimated on their loan application? Is there tagging information to confirm what is being harvested in the common property fisheries?
- * What is the status of the Revolving Loan Fund?
- * What is the market impact of current and proposed levels of pink salmon hatchery production?
- * Is there a market/quality impact from hatchery fish harvested in the terminal areas or near terminal areas? If yes, to what degree?
- * Has the amount of cost recovery fish on the salmon market affected fishermen? If yes, to what degree?

BIOLOGICAL

(answers to these questions will involve substantial research or inference from applicable research in Washington and Oregon)

- * Has hatchery fish negatively affected the genetic viability of wild salmon stocks?
- * Has hatchery production negatively affected the population viability of any wild stocks?
- * Is the current production of hatchery and wild stocks taxing the near shore or offshore carrying capacity? (The multi-million dollar research question)

Ultimately answers to these questions will help legislators and administrators answer these "big picture" questions:

THE BIG PICTURE

- * Does the State of Alaska want to continue to foster more hatchery development in light of 1) the altered role of hatcheries, 2) market implications of hatchery production and quality, 3) management's history of managing with hatchery stocks 4) status of the Revolving Loan Fund and State finances and 4) growing biological concerns?
- * If yes, how should the state proceed to minimize conflicts with the management and harvest opportunities on wild stocks?
- * If no, how should the State limit the program while assuring the viability of those hatcheries on line?

Alaska Department of Fish and Game- FRED Division Alaskan Enhancement- Common property harvest of enhanced fish (in thousands)							
Year Area		Harvest	Chinook	Sockeye	Coho	Pink	Chum
1990 Southeast		Total Commercial	832	2,198	2,554	31,188	1,884
		-Cost Recovery	22	0	117	388	337
		Adj Comm total	310	2,198	2,437	30,800	1,547
		Enhanced	68	110	344	499	408
		% Enhanced	12.3%	5.0%	10.6%	1.7%	26.4%
Prince William Sound		Total Commercial	22	912	524	44,165	967
		-Cost Recovery	0	17	8,858	32	8,907
		Adj Comm total	22	895	516	35,307	935
		Enhanced	0	150	201	28,159	612
		% Enhanced	1.1%	16.4%	39.7%	79.0%	65.5%
Cook Inlet		Total Commercial	18	3,807	503	988	358
		-Cost Recovery	0	0	8	1	18
		Adj Comm total	18	3,799	495	987	347
		Enhanced	2	404	9	167	48
		% Enhanced	8.5%	10.6%	1.8%	17.0%	13.4%
Kodiak/Chignik/Aleut AK Peninsula		Total Commercial	54	12,093	875	10,124	2,177
		-Cost Recovery	0	0	0	0	0
		Adj Comm total	54	12,093	875	10,124	2,177
		Enhanced	0	2,291	7	592	4
		% Enhanced	0.0%	18.9%	0.8%	5.9%	0.2%
Bristol Bay		Total Commercial	83	53,168	100	517	1,008
		Enhanced	0	0	0	0	0
		% Enhanced	0.0%	0.0%	0.0%	0.0%	0.0%
Arctic/Yukon/Kuskokwim		Total Commercial	189	206	592	17	1,138
		Enhanced	0	0	0	0	5
		% Enhanced	0.0%	0.0%	0.0%	0.0%	0.4%
1990 Total		Total Commercial	647	52,317	5,159	86,594	7,531
		-Cost Recovery	22	0	141	388	337
		Adj Comm total	625	52,308	5,018	86,206	7,194
		Enhanced	40	2,956	582	29,484	1,077
		% Enhanced	6.4%	5.6%	11.1%	34.2%	14.8%

Note: Cost recovery numbers have been subtracted out to provide a common-property harvest figure.



Prince William Sound Aquaculture Corporation

P.O. Box 1110
Cordova, Alaska 99574
Phone: (907) 424-7511
Fax: (907) 424-7514

May 14, 1991

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

The salmon fisheries enhancement program of Prince William Sound has benefited from the support of the fishermen of all gear groups. This support was demonstrated during the February, 1991 meeting of the Alaska Board of Fisheries. There, leaders of all the Prince William Sound fishermen's organizations testified in favor of the Prince William Sound salmon management plan, which will provide for the present and future allocation of specific hatchery stocks to specific gear groups and hatchery needs. I believe the Board of Fisheries' action follows the statement included in footnote number 5 of Assistant Attorney General Stephen White's August 1, 1990 opinion regarding ADF&G authority to manage fisheries for hatchery brood stock and cost recovery. That footnote says in part, "Finally, the board could by regulation establish an allocation framework that the department could implement through emergency orders."

In past years, Prince William Sound Aquaculture Corporation's (PWSAC) enhancement efforts were directed largely at pink salmon and the seine fishery, which led to a 1989 confrontation of the gear groups before the Alaska Board of Fisheries. At that time, the Board requested that PWSAC resolve the enhanced salmon allocation issues through the public participation process. Throughout the following year, a planning team developed an allocation policy which expresses PWSAC's intent to bring the seine and gillnet fisheries into balance, over time, through species diversification at its hatcheries. Concurrently, the Regional Planning Team, of ADF&G and PWSAC membership, followed the intent of the allocation policy in developing the salmon management plan which was adopted by the Board of Fisheries in February.

The Main Bay Hatchery and it's developing sockeye salmon program are of prime importance to gillnet fishermen, to who the sockeyes are allocated by the Board of Fisheries. In addition, fish sales at the hatchery must provide operational funds for the Main Bay and

the Gulkana Hatcheries, both which will be transferred from the state in the near future.

PWSAC's salmon production plan provides for pink, chum, and sockeye salmon. These increases will occur over an extended period of time. As an example of time requirements, the transfer and conversion of the Main Bay Hatchery in 1991 and 1992 will not result in increased sockeye catches until 1996. Production increases will be based on the ongoing evaluation of enhancement results as determined by PWSAC, the ADF&G, and the University of Alaska Fairbanks.

The salmon enhancement programs in the state are coming under review for several completely different reasons. In Prince William Sound, where the environment has become an issue as a result of the Exxon Valdez oil spill, ADF&G biologists are wondering if the enhancement program is overpowering the wild stocks. Present studies have not revealed any problems, but we are prepared to expand these studies, as necessary.

The northern and southern aquaculture associations in Southeast Alaska do not enjoy the support of some fishermen's organizations, for a number of valid and invalid reasons. Fishermen in Southeast Alaska pay an enhancement tax on all salmon caught in the region. Funds generated by the tax have been incorrectly distributed to the aquaculture associations based on landings within the geographical boundaries of each aquaculture association rather than the catches of wild and hatchery fish produced in each area. This inequity will be difficult to correct because the cape fisheries in Southeast Alaska harvest salmon which are migrating to distant streams.

The canned salmon industry appears to be in favor of the status quo in the fisheries at a time when sales of foreign produced salmon are on the rise in the U.S.A. and elsewhere. In this regard, we are hearing industry people say that regional caps should be placed on the salmon fisheries. In contrast, we believe that regional production should be allowed to be market driven, provided that wild stocks are adequately protected. PWSAC, for example, would produce only those fish that fishermen could sell.

Recently, it was stated that the aquaculture program in Alaska is at a crossroad. While it is reasonable that the successes and failures of aquaculture in Alaska should be examined with course corrections in mind, I believe the real issue is the salmon fishery in Alaska and whether it will be allowed to develop and diversify. We believe that new products - at reasonable prices - will benefit the salmon industry at this time when many other major fisheries resources in Alaska are depleted or in decline.

Many people have questioned PWSAC's proposal that foreign processors be allowed to operate in Alaska waters in 1991 if the Governor determines that a surplus of salmon exists. We consider foreign processors to be a last option to be used only if fish

would otherwise be wasted. PWSAC supports obtaining the best price possible for fishermen, and will sell its fish in a manner determined by its marketing committee, composed of fishermen.

Some of the marketing committee members also contribute to the Prince William Sound Harvest Management Task Force which is made up of ADF&G fishery managers, fishermen, processors, and aquaculture staff (see attachment). This group develops a common understanding of the manner in which the fishery will be managed each year, based on wild stock needs, enhanced salmon returns, and the need to maintain quality of harvested fish.

While PWSAC is pursuing new domestic marketing opportunities, we are hopeful that the legislature will continue to support the concept of economic development in the fisheries, including the salmon program in Prince William Sound.

We wish you well in your legislative endeavors.

Sincerely,



John McMullen
Special Projects Manager

cc: Senator Kerttula
Senator Menard
Representative Kubina
Representative Ulmer
E.J. Cheshier, Chairman, PWSAC Board
Bruce Suzumoto, President, PWSAC

P.W.S. SALMON HARVEST TASK FORCE - BYLAWS

COMPOSITION OF TASK FORCE

The following are the recognized seats composing the task force.

CDFU - Gill Net Division President
 CDFU - Seine Division President
 PWS Seiner's Association, President
 Prince William Alliance, President
 PWS Set Net Assn., President
 PWS Fish & Game Advisory Committee, Chairman

Chugach Fisheries
 North Pacific Processors
 St. Elias Ocean Products
 CRFC
 Seahawk Seafoods
 Peter Pan Seafoods
 Seward Fisheries

PWSAC, President
 Valdez Fisheries, President

Alaska Department of Fish and Game, Comm Fish., Area Biologist

Alaska Seafood Marketing
 Alaska Dept. of Environmental Cons.

AUTHORITY OF TASK FORCE

The SHTF has no authority of its own, but is recognized by the Commissioner of ADF&G as a strong body representing the commercial fishing industry in the Prince William Sound management area. The SHTF can make recommendations to the Department on fisheries management plans.

CONDUCT OF SHTF MEETINGS:

- 1.) All meetings will be chaired by the ADF&G Area Biologist unless the chair is delegated to another individual.
- 2.) An agenda will be prepared prior to each meeting and distributed.
- 3.) Minutes will be kept of each meeting, and a written transcript of these minutes will be distributed to all members. The central files of meeting minutes and related materials will be maintained by ADF&G.
- 4.) All discussions during meetings will be addressed to the chair. The chair may or may not, at his/her discretion recognize general public comments or input pertaining to task force business.
- 5.) All recommendations adopted by the task force will be agreed to by unanimous consent.

PROTOCOL FOR CALLING SPECIAL SHTF MEETINGS:

- 1.) An individual or organization that wishes to call a special meeting of the SHTF must identify the need for a meeting and obtain the consensus of ____ members.
- 2.) It is the individual's or organization's responsibility to clarify the concern or problem for other SHTF members and ADF&G. This may require special meetings of CDFU, PWSSA or whom ever, to condense the area of concern to an identifiable proposal.
- 3.) It is the individual's or organization's responsibility to schedule the meeting and notify SHTF members of the proposed meeting and distribute copies of the proposal.

CONDUCT OF SPECIAL SHTF MEETINGS:

- 1.) All meetings will continue to be conducted in the same style as previously developed for the SHTF.
- 2.) The individual or organization whom is championing the proposal to be discussed holds the responsibility to do the following:
 - a. Schedule meeting room.
 - b. Prepare an agenda for the meeting and handouts of the proposal to be discussed.
 - c. Pass out sign up sheet for attendance.
 - d. Record minutes of the meeting.
 - e. Write up minutes of the meeting (subject to one review by ADF&G), and distribute to the SHTF members no later than two weeks following the meeting.

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION
TRANSFER OF STATE SALMON HATCHERIES TO THE PRIVATE SECTOR

FEBRUARY 28, 1991

The public and private salmon enhancement programs which the Alaska State Legislature created in the early 1970's found willing and eager constituencies in the Prince William Sound and Copper River Region. As a result, the State built and operated the Cannery Creek, Main Bay, and Gulkana hatcheries in the Region, the Prince William Sound Aquaculture Corporation developed the Armin Koernig and Wally Noerenberg hatcheries, and the Valdez Fisheries Development Association added the Solomon Gulch hatchery to the Sound's salmon enhancement program.

Following the passage of state legislation which authorized the transfer of state owned hatcheries to private non-profit aquaculture associations, the Prince William Sound Aquaculture Corporation (PWSAC) contracted with the state for the operation of the Cannery Creek Hatchery. Since 1988, when PWSAC began operating that hatchery, about \$2.5 million has been invested in capital improvements there. Nearly \$1 million of that amount was obtained through a state loan with full knowledge that those improved facilities become the property of the state.

PWSAC funds Cannery Creek's annual operating budget of over \$850,000 per year, freeing the state from that obligation.

The state operates two sockeye salmon hatcheries in the Prince William Sound Area. One is located in Main Bay, near Whittier, and the other being located near Paxson, on the upper Copper River system.

In 1990, the Governor vetoed the FY-91 operating budgets of the Main Bay and Gulkana Hatcheries. PWSAC was immediately asked to assume responsibility for those hatcheries, the alternative being that they would close. Although PWSAC was denied the opportunity to plan for such an event, negotiations were begun on effecting the transfers, or at least PWSAC's assumption of financial responsibility for the two hatcheries.

The transfer of the Main Bay Hatchery began in the fall of 1990. PWSAC began drawing from its existing staff to operate the hatchery. Concurrently, negotiations asking for a delay in transferring the hatchery resulted in the state's agreement to operate Main Bay Hatchery in FY-91 on a deficit budget, which is included in a supplemental request now before the legislature. At this time, February, 1991, the hatchery is jointly operated. State personnel are responsible for the physical facility and PWSAC personnel are responsible for the fish production program.

The state would not operate the Gulkana Hatchery on a deficit budget in FY-91. Hence, PWSAC granted the state about \$332,000 for its operation this year.

The Main Bay and Gulkana Hatcheries, once removed from the FRED Division's base budget, were not reinstated for FY-92. The PWSAC Board of Directors, recognizing the importance of the Main Bay Hatchery for the achievement of equitable commercial seine and gillnet fisheries of the Sound, as provided for by the Alaska Board of Fisheries at its February, 1991 meeting, voted to work toward the

transfer of Main Bay Hatchery to PWSAC by July 1, 1991. At the same time, the Board agreed to continue operational funding for the Gulkana Hatchery prior to transfer in 2 or 3 years.

The Main Bay Hatchery has the potential for PWSAC fish sales for the purpose of cost recovery. However, the hatchery was not built to produce sockeye salmon as it is now doing, so must be modified to fully use the present facility. We are told that the state is in favor of placing hatcheries in acceptable, cost recovery, operating condition upon transfer.

We believe that our proposed \$5.9 million project which would increase the efficiency and capabilities of the Main Bay Hatchery is one which warrants funding through a direct grant.

Modification of the Main Bay Hatchery is a project which should be coupled with the full development of that facility. The water source at Main Bay is sufficient to provide for the hatchery's expansion to produce about 4 million adult sockeyes per year, at a value of over \$40 million. The hatchery expansion project for which PWSAC has already obtained a 35% design, is estimated to cost about \$13.5 million. The great importance of Main Bay's sockeye program has PWSAC in the search for construction funds.

The Gulkana Hatchery has no facilities within which to rear the sockeye fry it produces. Therefore, about 28 million unfed fry are stocked in tributary lakes each year, where 93% die before the remainder begin their migration to the ocean. A \$400,000 investment in rearing facilities would result in the increase of fry survival in lakes from the present 7% to an estimated 20%, with similar increases in adult returns to the commercial, subsistence, sport, and personal use fisheries of the Copper River. PWSAC requests that funding for this project be made available as a direct grant.

The Cannery Creek Hatchery complex was in need of major modifications when transferred to PWSAC in 1988. Although having spent about \$2.5 million in capital improvements there, PWSAC has determined that an additional \$2.3 million in improvements and modifications are necessary to properly operate and care for the facility, which would then produce an added \$2.7 million worth of salmon each year. PWSAC requests that funding for this project be made available as a direct grant.

State administration spokesmen have said it might be appropriate to provide interim operational funds for hatcheries which are transferred but are not yet capable of supplying cost recovery revenue to the contracting associations. The PWSAC Executive Committee believes that operational funds for the Main Bay and Gulkana Hatcheries should be budgeted internally, and should not be requested as a grant from the state. This opinion recognizes that the Gulkana Hatchery probably has no cost recovery potential, but must be supported with funds from the sale of fish which would otherwise be allocated to the commercial fisheries, because Gulkana sockeyes are valued by the fishery users on the Copper River.

REGULATIONS GOVERNING THE ALASKAN PRIVATE NON-PROFIT HATCHERY PROGRAM

By John McMullen, Special Projects Manager

Have you wondered how Alaska's non-profit salmon enhancement program originated, and what limitations are placed on the activities of organizations such as the Prince William Sound Aquaculture Corporation? If so, you should be interested in this summary of the pertinent regulations, and the precautions taken by the State of Alaska to ensure that proper planning precedes the approval of each and every salmon enhancement project in the state.

Alaska state law in 1974 authorized private ownership of salmon hatcheries by qualified non-profit corporations for the purpose of contributing, by artificial means, to the rehabilitation of the state's depleted and depressed salmon fisheries. The group of local commercial fishermen who formed the Prince William Sound Aquaculture Corporation (PWSAC) as a private non-profit corporation in 1974 immediately applied for and received a hatchery permit under this state statute.

In addition to state statutes, private aquaculture corporations in Alaska must comply with the requirements of permits, policies, and procedures of the **Alaska Department of Fish & Game**, which includes the **Alaska Board of Fisheries** and the **Regional Planning Team (RPT)**. The ADF&G Commercial Fisheries Division also manages the salmon which return to the hatcheries, including brood stocks.

The **Alaska Board of Fisheries** allocates wild and hatchery salmon stocks to user groups, including hatcheries. In February, 1991, the Board adopted a salmon management plan for Prince William Sound, which provides for the long-term balance of wild and hatchery and gill net fisheries. The **Regional Planning Team (RPT)**, which is composed of ADF&G and PWSAC representatives, is responsible for the development of a regional comprehensive salmon plan which defines salmon production goals by species, area, and time. The management plan adopted by the Board of Fisheries provides for the implementation of this regional comprehensive plan.

The RPT also reviews applications for hatchery permits, and requests for alterations in the production at existing hatcheries; its recommendations are forwarded to the ADF&G Commissioner.

ADF&G FISHERIES POLICIES

Several policies guide the development and ADF&G approval of hatchery basic and annual management plans, hatchery permits, permit alterations, and fish transport permits. These include specific policies regarding genetics, fish disease, fish stocking and fish transport.

The **Genetics Policy** protects the genetic integrity of important wild stocks and increases productivity of enhancement programs through brood stock selection and defined egg-take procedures.

ADF&G's **Fish Disease Policy** is a series of regulations that prevent dissemination of infectious diseases within or outside the borders of Alaska through diagnosis of wild stocks intended for hatchery use, and through utilization of disease prevention and treatment measures in hatchery stocks. Alaska is a leader among states with its fish disease prevention and treatment program.

The **Fish Stocking Policy** protects wild stocks as a first consideration in managing enhancement programs.

The state's **Fish Transport Policy** prohibits possession, transport, or release of live fish into the waters of the state without a permit issued by the ADF&G Commissioner. The permit holder must be in compliance with the conditions of the permit.

HATCHERY PERMITTING PROCESS

A hatchery permit application is submitted to the analysis of the Department of Fish and Game, and reviewed by the Regional Planning Team. The RPT then makes a recommendation to the ADF&G Commissioner, who alone may grant the permit to build and operate a hatchery.

Management Feasibility Analysis of a Proposed Hatchery: The ADF&G staff determines the desirability and compatibility of the proposed production with existing fisheries, and may provide recommendations to assist hatchery permit applicants.

Review of Applications for Permits and Permit Alterations: The Department has the responsibility to assess the technical feasibility of the proposed operations. It also estimates the impacts of hatchery production on wild stock management.

The Regional Planning Team also has responsibilities. The RPT must determine the compatibility of proposed operations with the goals of the Regional Salmon Plan. Also, the RPT determines if the proposed operations provide protection for wild stocks.

In addition, the RPT must provide for public comment on the proposals, then forward its recommendations to the ADF&G Commissioner. The hatchery permit applicant, in collaboration with ADF&G staff, must then develop a basic management plan -- an overview plan for hatchery production and for the management of returning fish. The basic management plan is presented at a public hearing, which provides guidance for the Commissioner's decision to issue a hatchery permit.

HATCHERY OPERATIONS AND REVIEW

Once a hatchery is operational, it must submit an **annual management plan** to the Department of Fish and Game. The plan must describe the annual production goals of the facility, and contain a statement of the number of returning fish needed for brood stock and cost recovery.

The hatchery management plan is prepared jointly by ADF&G and the hatchery operator, and requires the approval of the ADF&G Commissioner.

A **hatchery permit alteration** is required for changes in planned production or release locations of hatchery fish. Approval is based on past performance of the hatchery, and compatibility of the change with wild stock protection and the fishery management program. Each hatchery permit alteration must be approved by the ADF&G Commissioner.

A **hatchery performance review** is a process in which the ADF&G reviews hatchery operations to ensure adequacy of all phases of hatchery production, ranging from brood stock development to hatchery contributions in the fisheries.

Standard performance measures for egg and fish survivals in hatcheries are used to evaluate adequacy of fish culture methods.

EVALUATION OF PWSAC ENHANCEMENT PROGRAM

PWSAC cooperates with ADF&G and the University of Alaska Fairbanks to evaluate, through fish tagging and oceanographic studies: (1) ocean survival of hatchery fish, (2) performance of hatchery fish in the fisheries, (3) interactions between wild and hatchery salmon, and (4) utilization of food sources available to juvenile salmon.

Program evaluation will be the subject of an article in a later edition of the Sound Quarterly.

REGIONAL PLANNING TEAM CHARTER
COMPREHENSIVE SALMON PLANNING
ALASKA DEPARTMENT OF FISH AND GAME

THE REGIONAL PLANNING TEAMS ARE AN IMPORTANT PART OF THE SALMON ENHANCEMENT EFFORT IN THE STATE OF ALASKA. THE FOLLOWING STATEMENTS CONSTITUTE THEIR MISSION, STATUS, AND OPERATIONS AND CONFIRM ROLES AND TASKS THAT, AS A MATTER OF PRACTICE, HAVE BECOME RECOGNIZED AS APPROPRIATE.

MISSION STATEMENT

The mission of a regional planning team (RPT) is to plan for the long-term future of the salmon resource within its region. The team's primary responsibility is to initiate and continue an orderly process that examines the full potential of the region's salmon production capacity.

LEGAL REFERENCE

Pursuant to AS 16.10.375-470, the Commissioner of the Alaska Department of Fish and Game (ADF&G) has designated salmon production regions throughout the state. In each such region, the Commissioner is responsible for the development and amendment, as necessary, of a comprehensive salmon production plan.

The RPT, which consists of representatives from ADF&G and the appropriate Regional Aquaculture Association, develops and amends the plan for the Commissioner. The team has ex-officio members as considered necessary by the individual RPTs. The RPT is ultimately responsible to the Commissioner. Any staff funded by the ADF&G to assist the RPT with planning may be administratively monitored by the association but will be supervised by the RPT in planning matters.

The RPT is the only statutorily-created planning group with legally-mandated ADF&G and private sector participation.

State statute defines certain duties of the RPTs. They are:

1. Plan development and amendment.
2. Review of private nonprofit (PNP) hatchery permit applications and recommendations to the Commissioner.
3. Review and comment on proposed permit suspensions or revocations by the Commissioner.

HISTORICAL PERSPECTIVE

The underlying premise of regional planning is to provide a means whereby private-sector user groups, represented through regional aquaculture associations, and the public sector, represented by ADF&G, may establish and maintain a cooperative, working relationship.

The Commissioner, in approving NSPII, sanctioned the process used to develop that document as a guide for the plan amendment process. Chapters 9 and 10 of the NSPII provide one format to accomplish the amendments and to respond to plan maintenance needs.

Plan Maintenance

The RPT will meet at least once a year to update the Comprehensive Plan. These updates may include identification of new projects, and assessment of progress of ongoing projects toward achievement of the goals and objectives of the Comprehensive Plan. Some vehicles that provide the RPT with necessary information to accomplish the update include PNP Annual Reports and FRED and PNP Basic and Annual Management Plans.

Update of the annual report should be a process involving both the RPT and the implementing agencies. The RPT will seek the best biological advice available from those agencies and formulate recommendations. The updates will be submitted to the Commissioner as an annual report. The Commissioner or his representative will consider the report recommendations.

Review and Comment

To execute legally mandated review and comment responsibilities and to arrive at recommendations for permit approval, revocation, or suspension, the RPTs require criteria that can be applied equitably to all permit applications and ongoing operations. The Commissioner and the RPTs have arrived at a general consensus that the review, comment, and evaluation criteria, designated and elaborated on in Chapter 9, pp. 76-86, NSPII, will "...be consistent with the language and charge provided in AS 16.10.400 (a), (f), (g)..." and will serve as a model to conduct reviews and make recommendations. RPT participation will not be limited solely to these criteria.

10. Provide the general public an opportunity to review and comment on current Phase II projects and to suggest new projects.
11. Consider and incorporate, where appropriate, the public comments on suggested revisions to the Phase I and Phase II Plans.
12. Annually transmit to the Commissioner the draft report, resulting from the above considerations, for review and approval.
13. Incorporate the Commissioner-approved annual report into the Phase II planning process.
14. Make periodic recommendations to the Commissioner concerning potential changes in the Charter and perform such other tasks as are deemed advisable and desirable by the Commissioner.

CORRECTION

**THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY**

RESHOOT

TOMMY DARK

DOCUMENT Remember

② START OVER

CORRECTION

**THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY**

(Draft Management
Policy Attached)

1990/91 BOARD OF FISHERIES BRIEFING DOCUMENT

Title: Policy of the Management of Enhanced Fish

Proposal No. 343

Page 224

Proposed by: Southeast Alaska Seiners

Commercial Fisheries

Division Author: Scott Marshall, Regional Supervisor

Title: Policy of the Management of Enhanced Fish

Proposal 343

Page 224

SYNOPSIS

This proposal requests that when hatchery and wild salmon stocks are mixed, management be based on the strength of wild stocks. Deviations from this principal will only be permitted by Board of Fisheries action, for a specific area, if a tagging study has demonstrated that doing so will not: (1) jeopardize conservation concerns for wild stocks; (2) deviate from maximum sustained yield of wild stocks; or (3) re-allocate wild stocks between user groups.

BACKGROUND

The issue of managing commingled wild and hatchery stocks has been of concern for along time. To clarify the department's views on the many complex issues involved, a policy has been drafted (attached). This policy is based upon interpretation of existing statutes, regulations and legal opinions. The department requests the Board to review this policy.

MANAGEMENT ISSUES

At issue is the management of wild and hatchery stocks in near-terminal and mixed stock fishing areas. The concern is that the management policy of the Board or in-season actions of the department will either: (1) over-escape wild stocks to protect hatchery returns; (2) under-escape wild stocks to direct fisheries on hatchery returns; (3) or result in reallocation of wild fish among users. Hence, prior to deviating from a management policy based solely on wild stock escapement needs, a tagging study would have to be conducted which proved that a new management scheme would not result in one of the aforementioned consequences.

There are many management, allocation, technical and legal issues embodied in this proposal. The complexity of these issues makes it difficult to adopt a policy that would govern the Board or department's action in all circumstances. Hence the department's draft policy relies heavily upon review of management options on a cases by case basis rather than establishing inflexible rules.

Title: Policy of the Management of Enhanced Fish

Proposal 343

Page 224

This proposal is not consistent with the department's draft policy on management of hatchery returns.

ENFORCEMENT ISSUES

None.

FISCAL NOTE

This proposal requests that tagging studies be conducted as a prerequisite to consideration of altering management for hatchery fish in any area. Costs for such projects could be substantial.

CONCLUSIONS AND RECOMMENDATIONS

- * This proposal is not consistent with the State Attorney General Office's opinion that the Constitution of the State of Alaska mandates both the department and the Board to manage for escapement of brood stock to hatcheries.
- * The department considers existing statutes and regulations governing the management of mixed wild and hatchery stock fisheries adequate. As such the department has proceeded with developing a policy on the subject rather than propose a new regulation. This policy relies heavily upon existing regulatory process to resolve the complex issues raised in this proposal.
- * The department does not support this proposal.

REGULATORY LANGUAGE

The department cannot propose specific regulatory language without direction from the Board.

DRAFT



ALASKA DEPARTMENT OF FISH AND GAME

Statement of Policy on Management of Fish Returning to Hatcheries in Alaska

Background Information

The current fisheries enhancement program in Alaska was designed during the early 1970s to rehabilitate the state's depleted and depressed salmon fisheries. Provisions were made by the state Legislature for two types of salmon hatcheries: those operated by the state and those operated by private nonprofit (PNP) hatchery corporations. These programs share the common goal of contributing salmon to the common property fisheries. However, the state hatchery program was to be financed by bond issues and appropriations from the Legislature, while the PNP hatchery program was to be self-supporting with a unique financing mechanism called cost recovery. PNP hatchery operators were allowed to harvest and sell a portion of the salmon that returned to a designated Special Harvest Area (SHA) to recover the cost of building and operating the hatchery.

PNP hatcheries have received a significant amount of public funds, principally in the form of loans from the Fisheries Enhancement Loan Fund established under AS 16.10.505. Until fish released by PNP hatcheries return to a location where they can be harvested by the hatchery operator, 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)].

Normally, a fully developed hatchery will be able to maintain survival rates that will assure a return of enough salmon to the hatchery to at least meet broodstock requirements, defined as the number of fish required to meet the operational egg capacity of the hatchery. In situations where a hatchery is in the process of developing broodstock, additional fish, provided through management actions in the common property fisheries, may be necessary to ensure the success of the facility. Hatcheries located in areas where commercial fisheries operate adjacent to the SHA may have harvest rates on returning fish that are high enough to jeopardize brood stock and cost-recovery requirements. Hatcheries that are experiencing relatively poor marine survival may not be able to obtain even enough broodstock under the rates of common-property exploitation applied to wild stocks in the area.

DRAFT

In these situations, the Alaska Department of Fish and Game (ADF&G) could be asked to manage fisheries in ways that will allow escapement of additional fish to the hatchery. In the case of state-operated facilities, the additional escapement would be for broodstock; for PNP facilities, both broodstock and cost-recovery escapement may be needed. The manner in which management will occur for (1) broodstock and (2) cost recovery, under different sets of circumstances, must be clearly understood by hatchery operators, fishermen, fishery managers, state policy makers, and the general public.

The Need for Policy

A departmental policy is needed to clarify the role of the department's fishery managers in the management of common-property fisheries for escapement of hatchery fish to provide broodstock and cost recovery for PNP hatcheries, and broodstock for state-operated facilities. A policy is also necessary to explain to the public the respective roles of the department and the Alaska Board of Fisheries in this process.

Public interest and legislative intent are served when hatchery contributions to common-property fisheries are maximized, and when hatchery harvests are concurrently achieved such that they allow the hatchery operators to continue or expand their salmon production capabilities and services in a reasonable manner consistent with the regional comprehensive plan for that area.

The considerations for managing for a hatchery's broodstock and cost-recovery needs in terminal, near-terminal, and mixed-stock fishing areas are different. The following statements of policy are based on approaches to management in these different geographic areas.

Statements of Policy for Management of Hatchery Fish

Fish released into the natural waters of the state by a hatchery operated under AS 16.10.400-470 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. Management for hatchery broodstock is the same as management for wild stock spawning escapement. The State Attorney General's Office has issued an opinion finding that the Constitution of the State of Alaska mandates both the ADF&G and the Alaska Board of Fisheries to manage for escapement of broodstock to hatcheries. The policy of ADF&G has always been to do so (see Statement of Policy on Permitting Nonprofit Salmon Hatcheries in Alaska, October 3, 1974). The following policy statements, however, refer to management for both broodstock and cost-recovery.

1. Terminal or Hatchery Special Harvest Areas

Terminal harvest areas are areas where the returns to the hatchery are segregated from wild stocks sufficiently so that harvesting of the hatchery stock can occur with no appreciable catch of wild stocks. A portion or all of the terminal harvest area may be included in a PNP hatchery's special harvest area (SHA) where all of the returning salmon are available for brood stock and/or cost recovery. Broodstock and cost-recovery needs are to be documented in the annual management plan (AMP) for the hatchery.

- (a) Inside the terminal harvest area, the department will manage the hatchery return in a manner that allows the hatchery to reach broodstock and cost-recovery goals set forth in the AMP to the extent sufficient numbers of fish are available.

2. Near-Terminal Areas

Near-terminal areas are located immediately adjacent to the terminal harvest areas to which hatchery fish are returning. These areas are often transited by natural stocks, as well as the stocks destined for the hatchery release site. However, the degree to which the stock composition is mixed is highly variable and usually unknown. The legal commercial gear for use by common-property fishermen in the near-terminal area is usually the same as that used in the adjacent hatchery terminal area or SHA. When developing a plan that includes the management of a near-terminal area for the purpose of providing escapement of hatchery salmon into a terminal area, the department will proceed as follows:

- (a) The department will manage the hatchery return in a manner that allows the hatchery to achieve its broodstock needs in the same manner that it manages near-terminal fisheries to ensure spawning escapement of wild stocks. When restrictions of historic wild stock fisheries are required to achieve broodstock for a hatchery, the department will restrict time, area, and/or gear to the least extent possible.
- (b) In situations where adequate temporal or spacial separation of hatchery stocks from wild stocks does not exist, the hatchery operator may be required to establish a departmentally approved, operator-funded, mark or tagging program before restrictions of historic fisheries are initiated.
- (c) Restrictions in historic wild stock fisheries to provide broodstock will be made only if a reasonable expectation exists that foregone harvests of wild and hatchery stocks will be more than compensated for by increased future returns from the hatchery facility. Consideration of established performance standards for hatchery operations will be a factor in this determination.

(d) If a hatchery operator needs a near-terminal area managed to provide fish for cost-recovery purposes in addition to broodstock, a proposed management plan for the area must be submitted by the operator to the Board of Fisheries for its determination. The board, through review of available data on the performance of the hatchery, including its contributions to potentially affected fisheries, the hatchery's management plan, and comments and testimony from the public, will determine if the proposed management plan is in the best interest of the state. Through this process, the board may identify alternative management strategies to assist the hatchery in meeting its goals. These strategies might include directing ADF&G, through regulation, to manage for cost recovery harvest.

3. Mixed-Stock Fishing Areas

For some hatcheries, a major portion of their contributions will be to common-property fisheries that operate at some distance from the hatchery. Traditionally, these fisheries have been directed toward the harvest of wild stocks. The contribution of an individual hatchery's production to a distant mixed-stock fishery may be significant but, depending on a number of factors, may represent a highly variable portion of the total catch in the fishery. The actual contribution must be verified using a departmentally approved, operator-funded mark or tagging program. If a significant contribution to the common property fisheries is verified by data from catch sampling, management options to achieve an adequate broodstock or cost-recovery harvest may be proposed to the department and the Alaska Board of Fisheries by the hatchery operator. Based on catch data, the Alaska Board of Fisheries could then determine the appropriate management option, if any, to be used.

The alteration of a fishery to provide additional escapement into a distant, terminal area can have many effects, including: altering allocations among gear groups; causing a portion of the harvest normally taken in an area to go unharvested due to lack of later, more terminal harvest opportunities; and disadvantaging fishermen within the user group that traditionally fish in the affected area. Obviously, the effects of management to increase returns to a hatchery in a major mixed-stock fishing area will vary considerably in different situations, and no standard approach can be developed. In almost all instances where management actions to increase hatchery escapement are proposed, some allocative impacts or fishery restructuring will be necessary. The department will proceed as follows in these situations:

(a) Board of Fisheries consideration of any proposed management plan will be required in these situations. The board, after reviewing all available data regarding hatchery contributions in potentially affected fishing areas, taking into consideration comments and testimony from the public, and weighing the effects and tradeoffs created by implementing the proposed management action, will determine if the proposed action, or an alternative action, is appropriate and in the state's best interest.

(b) It is imperative, especially in mixed-stock situations, that a clear understanding of the

DRAFT

contribution of hatchery fish to affected fisheries be available to those who are developing management plans. The department will assist hatchery operators to obtain this information, within the limits of personnel and funding availability dedicated to this activity. Regional Planning Teams, with assistance from the department and hatchery operators, should work to determine where, in each region, the priority for tagging efforts should be placed.

Adoption of Policy

This policy is approved by:

Brian J. Allee **Date**
Director
Division of Fisheries Rehabilitation,
Enhancement and Development

Denby Lloyd
Director
Division of Commercial Fisheries

Norval Netsch _____ Date _____
 Director
 Division of Sport Fisheries

Ron Somerville
Deputy Commissioner
Alaska Department of Fish and Game

Carl L. Rosier
Commissioner
Alaska Department of Fish and Game

SUGGESTED TOPICS FOR HATCHERY ISSUES MEETINGS

To: Mary McDowell
From: Kate Troll — S.E. Alaska Seiners Association
Re: Backup Information for Hatchery Hearing

In my conversations with Jim Brooks, former ADF&G Commissioner, and Rick Lauber, industry lobbyist, and in my investigations into old records, I have determined that the context of hatcheries has changed dramatically since the enabling legislation was passed in 1974. Here is a summary of my more significant findings:

- * The PNP Hatchery Program was spawned as a vital part of the Salmon Fisheries Rescue Plan. As you know, in the earlier seventies, salmon stocks were stressed and depleted in many areas of the state. A five point plan for improving the drastically reduced Alaskan salmon resource included: Management, Rehabilitation, Enhancement, Development Research, and Habitat Protection.

- * Enhancement was then defined as "an effort to add large quantities of fish to the fishery by establishing permanent production facilities under acceptable ecological conditions. Ideally, and ultimately, enhancement will use special "hatchery" stocks, genetically evolved for that purpose. Returns will be harvested except for hatchery brood stock needs". (1975 Statewide Salmon Management Plan)

- * The notion of harvesting for cost recovery was dismissed, because it was thought that the PNP's would be controlled by the regional associations and they would have the 3% enhancement tax revenues to cover costs.

- * At the time of the enabling legislation, Commissioner Brooks claims that he preached a wild stock management priority. In his opinion the legislation and the PNP's would have not gone anywhere if there was not a management priority on wild stocks. In fact, Commissioner Brooks signed a Statement of Policy on Permitting Nonprofit Salmon Hatcheries in Alaska in Oct. '74 which affirmed this priority. I quote:

"If complexities arise in managing mixed stocks, including both hatchery fish and wild fish, it will be State policy to manage the collective resource in a manner that favors protection of the wild stocks."

The role of hatcheries has changed dramatically over the years. Now we have PNP hatcheries funded not as a means to rescue our salmon stocks but as a means of contributing to fishermen and private economic development. Now we have regions so dependent on hatchery stocks that wild stocks are threatened. Now we have thriving wild stocks in many regions of the state and hatchery contributions are negligible (See Enclosed Table). Now we have hatchery production affecting the market in terms of quality and quantity. This change of context sets up a lot of questions. Some of these questions can be answered by re-examining the legal and management fundamentals of Alaska's intiation into hatcheries. Some of these questions can only be answered by new research and analysis leading perhaps to new legislation on hatcheries. Here is how some of the questions and tasks break out:

LEGAL AND POLICY

- * Should State laws on hatcheries apply to all hatchery and enhancement activities, not just private non-profit (PNP) hatcheries?
- * Should marking and/or tagging of hatchery fish be statutorily required?
- * Should PNP's that receive "x" amount in state financing be required to have all gear groups equally represented or have some overview by regional associations?
- * Substantial public benefit needs to be better defined for purposes of preformance evaluations of PNP's. Possible options include:
 - a sliding scale of contribution to the common property fishery dependant on the amount of broodstock or finances obtained from the State
 - the estimated contribution to the common property fishery included in the loan applications
 - an average contribution for hatcheries in the region
 - the contribution goal established by regional associations
- * Should the State statutorily recognize a responsibility to manage for hatchery broodstock (only for broodstock taken prior to cost recovery activities) at the same time recognize that management of state owned fish take priority? Should this responsibility for broodstock be triggerred by preformance of substantial public benefit?
- * There is a conflict of interest created by the fact that the bank and manager of the resource to repay the bank are one and the same...the State of Alaska. Should there be some form of protection pr recourse for the fishermen?
- * Could the Prince William Sound example of the Board of Fisheries' modification of wild stock harvest opportunities be incorporated into regulation i.e. modification done on the basis of solid tagging data and at the request of the regional association or all gear groups?

MANAGEMENT

- * Could Regional Salmon Plans be expanded to develop a Statewide Salmon Plan so that there is a statewide perspective of overall hatchery production? Could this review be done by fishermen representatives from the different Regional Associations?
- * Can a preformance review of existing PNP's in relation to thier contribution to the common property fisheries be conducted? If yes, should such a review occur?
- * Given the regional differences should there be regional hatchery stock management policies or one for the entire state? Could this policy differentiate how management for hatchery broodstock, with a wild stock priority, could occur in terminal areas, near terminal areas and mixed stock fisheries?
- * Is there a standing management policy that historical fishing opportunities on wild stock will not be altered for hatchery needs unless directed otherwise by the Board of Fisheries? Would this be ample protection for fishermen in regards to the conflict of interest reffered to above?

ECONOMIC

- * Is the current system of providing for cost recovery only in the terminal areas sufficient to assure loan re-payment? For what hatcheries is this sufficient?
- * Is there a threshold production capacity relative to loan amount that affects the PNP hatcheries' ability to re-pay the loan amount?
- * How many PNP's are defaulting on their loans? How many are regional PNPs?
- * Are any of these defaulting PNPs defaulting because harvest pressure exceeds the amount estimated on their loan application? Is there tagging information to confirm what is being harvested in the common property fisheries?
- * What is the status of the Revolving Loan Fund?
- * What is the market impact of current and proposed levels of pink salmon hatchery production?
- * Is there a market/quality impact from hatchery fish harvested in the terminal areas or near terminal areas? If yes, to what degree?
- * Has the amount of cost recovery fish on the salmon market affected fishermen? If yes, to what degree?

BIOLOGICAL

(answers to these questions will involve substantial research or inference from applicable research in Washington and Oregon)

- * Has hatchery fish negatively affected the genetic viability of wild salmon stocks?
- * Has hatchery production negatively affected the population viability of any wild stocks?
- * Is the current production of hatchery and wild stocks taxing the near shore or offshore carrying capacity? (The multi-million dollar research question)

Ultimately answers to these questions will help legislators and administrators answer these "big picture" questions:

THE BIG PICTURE

- * Does the State of Alaska want to continue to foster more hatchery development in light of 1) the altered role of hatcheries, 2) market implications of hatchery production and quality, 3) management's history of managing with hatchery stocks 4) status of the Revolving Loan Fund and State finances and 4) growing biological concerns?
- * If yes, how should the state proceed to minimize conflicts with the management and harvest opportunities on wild stocks?
- * If no, how should the State limit the program while assuring the viability of those hatcheries on line?

Alaska Department of Fish and Game- FRED Division							
Alaskan Enhancement- Common property harvest of enhanced fish (in thousands)							
4/12/90: M. McKean							
Year Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
1990 Southeast	Total Commercial	832	2,138	2,664	31,188	1,884	38,201
	-Cost Recovery	22	0	117	888	337	1,465
	Adj Comm total	310	2,138	2,548	30,100	1,547	36,733
	Enhanced	88	110	344	499	408	1,399
Prince William Sound	Total Commercial	22	912	524	44,165	967	46,591
	-Cost Recovery	0	0	17	8,858	32	8,907
	Adj Comm total	22	912	507	35,307	935	37,854
	Enhanced	0	160	201	28,199	612	29,168
Cook Inlet	Total Commercial	18	3,807	803	988	358	6,070
	-Cost Recovery	0	0	8	0	1	9
	Adj Comm total	18	3,799	795	988	357	6,067
	Enhanced	2	404	9	167	48	630
Kodiak/Chignik/ Aleut AK Peninsula	Total Commercial	54	12,093	875	10,124	2,177	25,323
	-Cost Recovery	0	0	0	0	0	0
	Adj Comm total	54	12,093	875	10,124	2,177	25,323
	Enhanced	0	2,291	7	502	4	2,805
Bristol Bay	Total Commercial	83	53,188	100	817	1,008	54,822
	-Cost Recovery	0	0	0	0	0	0
	Adj Comm total	83	53,188	100	817	1,008	54,822
	Enhanced	0	0	0	0	0	0
Arctic/Yukon/Kuskokwim	Total Commercial	189	205	532	17	1,138	2,078
	-Cost Recovery	0	0	0	0	5	5
	Adj Comm total	189	205	532	17	1,133	2,078
	Enhanced	0	0	0	0	0	0
1990 Total	Total Commercial	647	52,317	5,190	84,994	7,631	152,667
	-Cost Recovery	22	0	141	8,848	370	10,381
	Adj Comm total	625	52,308	5,049	77,146	7,261	142,289
	Enhanced	40	2,855	562	29,454	1,077	34,087
	% Enhanced	6.4%	5.5%	11.1%	34.7%	14.0%	24.0%

Note: Cost recovery numbers have been subtracted out to provide a common-property harvest figure.



Prince William Sound Aquaculture Corporation

P.O. Box 1110
Cordova, Alaska 99574
Phone: (907) 424-7511
Fax: (907) 424-7514

May 14, 1991

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

The salmon fisheries enhancement program of Prince William Sound has benefited from the support of the fishermen of all gear groups. This support was demonstrated during the February, 1991 meeting of the Alaska Board of Fisheries. There, leaders of all the Prince William Sound fishermen's organizations testified in favor of the Prince William Sound salmon management plan, which will provide for the present and future allocation of specific hatchery stocks to specific gear groups and hatchery needs. I believe the Board of Fisheries' action follows the statement included in footnote number 5 of Assistant Attorney General Stephen White's August 1, 1990 opinion regarding ADF&G authority to manage fisheries for hatchery brood stock and cost recovery. That footnote says in part, "Finally, the board could by regulation establish an allocation framework that the department could implement through emergency orders."

In past years, Prince William Sound Aquaculture Corporation's (PWSAC) enhancement efforts were directed largely at pink salmon and the seine fishery, which led to a 1989 confrontation of the gear groups before the Alaska Board of Fisheries. At that time, the Board requested that PWSAC resolve the enhanced salmon allocation issues through the public participation process. Throughout the following year, a planning team developed an allocation policy which expresses PWSAC's intent to bring the seine and gillnet fisheries into balance, over time, through species diversification at its hatcheries. Concurrently, the Regional Planning Team, of ADF&G and PWSAC membership, followed the intent of the allocation policy in developing the salmon management plan which was adopted by the Board of Fisheries in February.

The Main Bay Hatchery and it's developing sockeye salmon program are of prime importance to gillnet fishermen, to who the sockeyes are allocated by the Board of Fisheries. In addition, fish sales at the hatchery must provide operational funds for the Main Bay and

the Gulkana Hatcheries, both which will be transferred from the state in the near future.

PWSAC's salmon production plan provides for pink, chum, and sockeye salmon. These increases will occur over an extended period of time. As an example of time requirements, the transfer and conversion of the Main Bay Hatchery in 1991 and 1992 will not result in increased sockeye catches until 1996. Production increases will be based on the ongoing evaluation of enhancement results as determined by PWSAC, the ADF&G, and the University of Alaska Fairbanks.

The salmon enhancement programs in the state are coming under review for several completely different reasons. In Prince William Sound, where the environment has become an issue as a result of the Exxon Valdez oil spill, ADF&G biologists are wondering if the enhancement program is overpowering the wild stocks. Present studies have not revealed any problems, but we are prepared to expand these studies, as necessary.

The northern and southern aquaculture associations in Southeast Alaska do not enjoy the support of some fishermen's organizations, for a number of valid and invalid reasons. Fishermen in Southeast Alaska pay an enhancement tax on all salmon caught in the region. Funds generated by the tax have been incorrectly distributed to the aquaculture associations based on landings within the geographical boundaries of each aquaculture association rather than the catches of wild and hatchery fish produced in each area. This inequity will be difficult to correct because the cape fisheries in Southeast Alaska harvest salmon which are migrating to distant streams.

The canned salmon industry appears to be in favor of the status quo in the fisheries at a time when sales of foreign produced salmon are on the rise in the U.S.A. and elsewhere. In this regard, we are hearing industry people say that regional caps should be placed on the salmon fisheries. In contrast, we believe that regional production should be allowed to be market driven, provided that wild stocks are adequately protected. PWSAC, for example, would produce only those fish that fishermen could sell.

Recently, it was stated that the aquaculture program in Alaska is at a crossroad. While it is reasonable that the successes and failures of aquaculture in Alaska should be examined with course corrections in mind, I believe the real issue is the salmon fishery in Alaska and whether it will be allowed to develop and diversify. We believe that new products - at reasonable prices - will benefit the salmon industry at this time when many other major fisheries resources in Alaska are depleted or in decline.

Many people have questioned PWSAC's proposal that foreign processors be allowed to operate in Alaska waters in 1991 if the Governor determines that a surplus of salmon exists. We consider foreign processors to be a last option to be used only if fish

would otherwise be wasted. PWSAC supports obtaining the best price possible for fishermen, and will sell its fish in a manner determined by its marketing committee, composed of fishermen.

Some of the marketing committee members also contribute to the Prince William Sound Harvest Management Task Force which is made up of ADF&G fishery managers, fishermen, processors, and aquaculture staff (see attachment). This group develops a common understanding of the manner in which the fishery will be managed each year, based on wild stock needs, enhanced salmon returns, and the need to maintain quality of harvested fish.

While PWSAC is pursuing new domestic marketing opportunities, we are hopeful that the legislature will continue to support the concept of economic development in the fisheries, including the salmon program in Prince William Sound.

We wish you well in your legislative endeavors.

Sincerely,



John McMullen
Special Projects Manager

cc: Senator Kerttula
Senator Menard
Representative Kubina
Representative Ulmer
E.J. Cheshier, Chairman, PWSAC Board
Bruce Suzumoto, President, PWSAC

P.W.S. SALMON HARVEST TASK FORCE - BYLAWS

COMPOSITION OF TASK FORCE

The following are the recognized seats composing the task force.

CDFU - Gill Net Division President
CDFU - Seine Division President
PWS Seiner's Association, President
Prince William Alliance, President
PWS Set Net Assn., President
PWS Fish & Game Advisory Committee, Chairman

Chugach Fisheries
North Pacific Processors
St. Elias Ocean Products
CRFC
Seahawk Seafoods
Peter Pan Seafoods
Seward Fisheries

PWSAC, President
Valdez Fisheries, President

Alaska Department of Fish and Game, Comm Fish., Area Biologist

Alaska Seafood Marketing
Alaska Dept. of Environmental Cons.

AUTHORITY OF TASK FORCE

The SHTF has no authority of its own, but is recognized by the Commissioner of ADF&G as a strong body representing the commercial fishing industry in the Prince William Sound management area. The SHTF can make recommendations to the Department on fisheries management plans.

CONDUCT OF SHTF MEETINGS:

- 1.) All meetings will be chaired by the ADF&G Area Biologist unless the chair is delegated to another individual.
- 2.) An agenda will be prepared prior to each meeting and distributed.
- 3.) Minutes will be kept of each meeting, and a written transcript of these minutes will be distributed to all members. The central files of meeting minutes and related materials will be maintained by ADF&G.
- 4.) All discussions during meetings will be addressed to the chair. The chair may or may not, at his/her discretion recognize general public comments or input pertaining to task force business.
- 5.) All recommendations adopted by the task force will be agreed to by unanimous consent.

PROTOCOL FOR CALLING SPECIAL SHTF MEETINGS:

- 1.) An individual or organization that wishes to call a special meeting of the SHTF must identify the need for a meeting and obtain the consensus of ___ members.
- 2.) It is the individual's or organization's responsibility to clarify the concern or problem for other SHTF members and ADF&G. This may require special meetings of CDFU, PWSSA or whom ever, to condense the area of concern to an identifiable proposal.
- 3.) It is the individual's or organization's responsibility to schedule the meeting and notify SHTF members of the proposed meeting and distribute copies of the proposal.

CONDUCT OF SPECIAL SHTF MEETINGS:

- 1.) All meetings will continue to be conducted in the same style as previously developed for the SHTF.
- 2.) The individual or organization whom is championing the proposal to be discussed holds the responsibility to do the following:
 - a. Schedule meeting room.
 - b. Prepare an agenda for the meeting and handouts of the proposal to be discussed.
 - c. Pass out sign up sheet for attendance.
 - d. Record minutes of the meeting.
 - e. Write up minutes of the meeting (subject to one review by ADF&G), and distribute to the SHTF members no later than two weeks following the meeting.

PRINCE WILLIAM SOUND AQUACULTURE CORPORATION
TRANSFER OF STATE SALMON HATCHERIES TO THE PRIVATE SECTOR

FEBRUARY 28, 1991

The public and private salmon enhancement programs which the Alaska State Legislature created in the early 1970's found willing and eager constituencies in the Prince William Sound and Copper River Region. As a result, the State built and operated the Cannery Creek, Main Bay, and Gulkana hatcheries in the Region, the Prince William Sound Aquaculture Corporation developed the Armin Koernig and Wally Noerenberg hatcheries, and the Valdez Fisheries Development Association added the Solomon Gulch hatchery to the Sound's salmon enhancement program.

Following the passage of state legislation which authorized the transfer of state owned hatcheries to private non-profit aquaculture associations, the Prince William Sound Aquaculture Corporation (PWSAC) contracted with the state for the operation of the Cannery Creek Hatchery. Since 1988, when PWSAC began operating that hatchery, about \$2.5 million has been invested in capital improvements there. Nearly \$1 million of that amount was obtained through a state loan with full knowledge that those improved facilities become the property of the state.

PWSAC funds Cannery Creek's annual operating budget of over \$850,000 per year, freeing the state from that obligation.

The state operates two sockeye salmon hatcheries in the Prince William Sound Area. One is located in Main Bay, near Whittier, and the other being located near Paxson, on the upper Copper River system.

In 1990, the Governor vetoed the FY-91 operating budgets of the Main Bay and Gulkana Hatcheries. PWSAC was immediately asked to assume responsibility for those hatcheries, the alternative being that they would close. Although PWSAC was denied the opportunity to plan for such an event, negotiations were begun on effecting the transfers, or at least PWSAC's assumption of financial responsibility for the two hatcheries.

The transfer of the Main Bay Hatchery began in the fall of 1990. PWSAC began drawing from its existing staff to operate the hatchery. Concurrently, negotiations asking for a delay in transferring the hatchery resulted in the state's agreement to operate Main Bay Hatchery in FY-91 on a deficit budget, which is included in a supplemental request now before the legislature. At this time, February, 1991, the hatchery is jointly operated. State personnel are responsible for the physical facility and PWSAC personnel are responsible for the fish production program.

The state would not operate the Gulkana Hatchery on a deficit budget in FY-91. Hence, PWSAC granted the state about \$332,000 for its operation this year.

The Main Bay and Gulkana Hatcheries, once removed from the FRED Division's base budget, were not reinstated for FY-92. The PWSAC Board of Directors, recognizing the importance of the Main Bay Hatchery for the achievement of equitable commercial seine and gillnet fisheries of the Sound, as provided for by the Alaska Board of Fisheries at its February, 1991 meeting, voted to work toward the

transfer of Main Bay Hatchery to PWSAC by July 1, 1991. At the same time, the Board agreed to continue operational funding for the Gulkana Hatchery prior to transfer in 2 or 3 years.

The Main Bay Hatchery has the potential for PWSAC fish sales for the purpose of cost recovery. However, the hatchery was not built to produce sockeye salmon as it is now doing, so must be modified to fully use the present facility. We are told that the state is in favor of placing hatcheries in acceptable, cost recovery, operating condition upon transfer.

We believe that our proposed \$5.9 million project which would increase the efficiency and capabilities of the Main Bay Hatchery is one which warrants funding through a direct grant.

Modification of the Main Bay Hatchery is a project which should be coupled with the full development of that facility. The water source at Main Bay is sufficient to provide for the hatchery's expansion to produce about 4 million adult sockeyes per year, at a value of over \$40 million. The hatchery expansion project for which PWSAC has already obtained a 35% design, is estimated to cost about \$13.5 million. The great importance of Main Bay's sockeye program has PWSAC in the search for construction funds.

The Gulkana Hatchery has no facilities within which to rear the sockeye fry it produces. Therefore, about 28 million unfed fry are stocked in tributary lakes each year, where 93% die before the remainder begin their migration to the ocean. A \$400,000 investment in rearing facilities would result in the increase of fry survivals in lakes from the present 7% to an estimated 20%, with similar increases in adult returns to the commercial, subsistence, sport, and personal use fisheries of the Copper River. PWSAC requests that funding for this project be made available as a direct grant.

The Cannery Creek Hatchery complex was in need of major modifications when transferred to PWSAC in 1988. Although having spent about \$2.5 million in capital improvements there, PWSAC has determined that an additional \$2.3 million in improvements and modifications are necessary to properly operate and care for the facility, which would then produce an added \$2.7 million worth of salmon each year. PWSAC requests that funding for this project be made available as a direct grant.

State administration spokesmen have said it might be appropriate to provide interim operational funds for hatcheries which are transferred but are not yet capable of supplying cost recovery revenue to the contracting associations. The PWSAC Executive Committee believes that operational funds for the Main Bay and Gulkana Hatcheries should be budgeted internally, and should not be requested as a grant from the state. This opinion recognizes that the Gulkana Hatchery probably has no cost recovery potential, but must be supported with funds from the sale of fish which would otherwise be allocated to the commercial fisheries, because Gulkana sockeyes are valued by the fishery users on the Copper River.

REGULATIONS GOVERNING THE ALASKAN PRIVATE NON-PROFIT HATCHERY PROGRAM

By John McMullen, Special Projects Manager

Have you wondered how Alaska's non-profit salmon enhancement program originated, and what limitations are placed on the activities of organizations such as the Prince William Sound Aquaculture Corporation? If so, you should be interested in this summary of the pertinent regulations, and the precautions taken by the State of Alaska to ensure that proper planning precedes the approval of each and every salmon enhancement project in the state.

Alaska state law in 1974 authorized private ownership of salmon hatcheries by qualified non-profit corporations for the purpose of contributing, by artificial means, to the rehabilitation of the state's depleted and depressed salmon fisheries. The group of local commercial fishermen who formed the Prince William Sound Aquaculture Corporation (PWSAC) as a private non-profit corporation in 1974 immediately applied for and received a hatchery permit under this state statute.

In addition to state statutes, private aquaculture corporations in Alaska must comply with the requirements of permits, policies, and procedures of the **Alaska Department of Fish & Game**, which includes the **Alaska Board of Fisheries** and the **Regional Planning Team (RPT)**. The ADF&G Commercial Fisheries Division also manages the salmon which return to the hatcheries, including brood stocks.

The **Alaska Board of Fisheries** allocates wild and hatchery salmon stocks to user groups, including hatcheries. In February, 1991, the Board adopted a salmon management plan for Prince William Sound, which provides for the long-term balance of the seine and gill net fisheries.

The **Regional Planning Team (RPT)**, which is composed of ADF&G and PWSAC representatives, is responsible for the development of a regional comprehensive salmon plan which defines salmon production goals by species, area, and time. The management plan adopted by the Board of Fisheries provides for the implementation of this regional comprehensive plan.

The RPT also reviews applications for hatchery permits, and requests for alterations in the production at existing hatcheries; its recommendations are forwarded to the ADF&G Commissioner.

ADF&G FISHERIES POLICIES

Several policies guide the development and ADF&G approval of hatchery basic and annual management plans, hatchery permits, permit alterations, and fish transport permits. These include specific policies regarding genetics, fish disease, fish stocking and fish transport.

The Genetics Policy protects the genetic integrity of important wild stocks and increases productivity of enhancement programs through brood stock selection and defined egg-take procedures.

ADF&G's Fish Disease Policy is a series of regulations that prevent dissemination of infectious diseases within or outside the borders of Alaska through diagnosis of wild stocks intended for hatchery use, and through utilization of disease prevention and treatment measures in hatchery stocks. Alaska is a leader among states with its fish disease prevention and treatment program.

The Fish Stocking Policy protects wild stocks as a first consideration in managing enhancement programs.

The state's Fish Transport Policy prohibits possession, transport, or release of live fish into the waters of the state without a permit issued by the ADF&G Commissioner. The permit holder must be in compliance with the conditions of the permit.

HATCHERY PERMITTING PROCESS

A hatchery permit application is submitted to the analysis of the Department of Fish and Game, and reviewed by the Regional Planning Team. The RPT then makes a recommendation to the ADF&G Commissioner, who alone may grant the permit to build and operate a hatchery.

Management Feasibility Analysis of a Proposed Hatchery: The ADF&G staff determines the desirability and compatability of the proposed production with existing fisheries, and may provide recommendations to assist hatchery permit applicants.

Review of Applications for Permits and Permit Alterations: The Department has the responsibility to assess the technical feasibility of the proposed operations. It also estimates the impacts of hatchery production on wild stock management.

The Regional Planning Team also has responsibilities. The RPT must determine the compatability of proposed operations with the goals of the Regional Salmon Plan. Also, the RPT determines if the proposed operations provide protection for wild stocks.

In addition, the RPT must provide for public comment on the proposals, then forward its recommendations to the ADF&G Commissioner. The hatchery permit applicant, in collaboration with ADF&G staff, must then develop a basic management plan -- an overview plan for hatchery production and for the management of returning fish. The basic management plan is presented at a public hearing, which provides guidance for the Commissioner's decision to issue a hatchery permit.

HATCHERY OPERATIONS AND REVIEW

Once a hatchery is operational, it must submit an **annual management plan** to the Department of Fish and Game. The plan must describe the annual production goals of the facility, and contain a statement of the number of returning fish needed for brood stock and cost recovery.

The hatchery management plan is prepared jointly by ADF&G and the hatchery operator, and requires the approval of the ADF&G Commissioner.

A **hatchery permit alteration** is required for changes in planned production or release locations of hatchery fish. Approval is based on past performance of the hatchery, and compatibility of the change with wild stock protection and the fishery management program. Each hatchery permit alteration must be approved by the ADF&G Commissioner.

A **hatchery performance review** is a process in which the ADF&G reviews hatchery operations to ensure adequacy of all phases of hatchery production, ranging from brood stock development to hatchery contributions in the fisheries.

Standard performance measures for egg and fish survivals in hatcheries are used to evaluate adequacy of fish culture methods.

EVALUATION OF PWSAC ENHANCEMENT PROGRAM

PWSAC cooperates with ADF&G and the University of Alaska Fairbanks to evaluate, through fish tagging and oceanographic studies: (1) ocean survival of hatchery fish, (2) performance of hatchery fish in the fisheries, (3) interactions between wild and hatchery salmon, and (4) utilization of food sources available to juvenile salmon.

Program evaluation will be the subject of an article in a later edition of the Sound Quarterly.

REGIONAL PLANNING TEAM CHARTER
COMPREHENSIVE SALMON PLANNING
ALASKA DEPARTMENT OF FISH AND GAME

THE REGIONAL PLANNING TEAMS ARE AN IMPORTANT PART OF THE SALMON ENHANCEMENT EFFORT IN THE STATE OF ALASKA. THE FOLLOWING STATEMENTS CONSTITUTE THEIR MISSION, STATUS, AND OPERATIONS AND CONFIRM ROLES AND TASKS THAT, AS A MATTER OF PRACTICE, HAVE BECOME RECOGNIZED AS APPROPRIATE.

MISSION STATEMENT

The mission of a regional planning team (RPT) is to plan for the long-term future of the salmon resource within its region. The team's primary responsibility is to initiate and continue an orderly process that examines the full potential of the region's salmon production capacity.

LEGAL REFERENCE

Pursuant to AS 16.10.375-470, the Commissioner of the Alaska Department of Fish and Game (ADF&G) has designated salmon production regions throughout the state. In each such region, the Commissioner is responsible for the development and amendment, as necessary, of a comprehensive salmon production plan.

The RPT, which consists of representatives from ADF&G and the appropriate Regional Aquaculture Association, develops and amends the plan for the Commissioner. The team has ex-officio members as considered necessary by the individual RPTs. The RPT is ultimately responsible to the Commissioner. Any staff funded by the ADF&G to assist the RPT with planning may be administratively monitored by the association but will be supervised by the RPT in planning matters.

The RPT is the only statutorily-created planning group with legally-mandated ADF&G and private sector participation.

State statute defines certain duties of the RPTs. They are:

1. Plan development and amendment.
2. Review of private nonprofit (PNP) hatchery permit applications and recommendations to the Commissioner.
3. Review and comment on proposed permit suspensions or revocations by the Commissioner.

HISTORICAL PERSPECTIVE

The underlying premise of regional planning is to provide a means whereby private-sector user groups, represented through regional aquaculture associations, and the public sector, represented by ADF&G, may establish and maintain a cooperative, working relationship.

This relationship would facilitate and enforce the efforts being made in each region to contribute to the maintenance and enhancement of the salmon resource.

The major, initial role of the RPT is to develop a Comprehensive Salmon Plan. Comprehensive salmon planning has evolved since 1977 into three basic components: (1) Phase I Planning - a Comprehensive Plan; (2) Phase II Planning -- project specific planning; and (3) plan maintenance.

The RPT reviews PNP permit applications, as mandated by the statutes. The RPT review and comment on an application is based upon the objectives of the Comprehensive Plan. To conduct these reviews, the RPT must have current knowledge of private and public-sector proposals and operations. Public-sector hatcheries are to be included in the development of the Comprehensive Plan, pursuant to AS 16.10.375. The RPT reviews and comments on public-sector hatchery operations as well.

PLANNING, REVIEW, AND COMMENT PROCESS

Phase I Planning

The process begins with the development of a long-range Comprehensive Plan for salmon production in a region.

The Comprehensive Plan is a 20-year, strategic, regional plan that is generally consistent with the plan content outline that has been adopted by the Commissioner's Office. Since opportunity and need for salmon resource enhancement vary by region, variations within the outline categories may be necessary to address regional differences. While a 20-year time span was determined to be reasonable for long-term salmon development planning, amendments necessary to keep the plan current require shorter time frame planning. This is referred to as Phase II planning.

Phase II Planning

Phase II of the planning process occurs after the comprehensive plan is approved and addresses the plan's statutory update and amendment requirements. The Phase II plan develops detailed project descriptions and provides information for project implementation. The product of this effort may be a separate document or may be additional information or revisions incorporated into the comprehensive planning process through annual reports or plan updates.

Prior to Commissioner approval of the Comprehensive Plan, Phase II; Northern Southeast (NSPII) the future role of the RPT had not been defined. Chapter 9 of the NSPII addresses this matter:

"...since the beginning of the process, it has been recognized that the plan must not be considered fixed or static but, rather, constantly evolving; that, therefore, the RPT would have a continuing role in aquaculture planning. This continuing planning effort must relate actual events to the plan and make the plan responsive to new knowledge and ideas and changing conditions."

The Commissioner, in approving NSPII, sanctioned the process used to develop that document as a guide for the plan amendment process. Chapters 9 and 10 of the NSPII provide one format to accomplish the amendments and to respond to plan maintenance needs.

Plan Maintenance

The RPT will meet at least once a year to update the Comprehensive Plan. These updates may include identification of new projects, and assessment of progress of ongoing projects toward achievement of the goals and objectives of the Comprehensive Plan. Some vehicles that provide the RPT with necessary information to accomplish the update include PNP Annual Reports and FRED and PNP Basic and Annual Management Plans.

Update of the annual report should be a process involving both the RPT and the implementing agencies. The RPT will seek the best biological advice available from those agencies and formulate recommendations. The updates will be submitted to the Commissioner as an annual report. The Commissioner or his representative will consider the report recommendations.

Review and Comment

To execute legally mandated review and comment responsibilities and to arrive at recommendations for permit approval, revocation, or suspension, the RPTs require criteria that can be applied equitably to all permit applications and ongoing operations. The Commissioner and the RPTs have arrived at a general consensus that the review, comment, and evaluation criteria, designated and elaborated on in Chapter 9, pp. 76-86, NSPII, will "...be consistent with the language and charge provided in AS 16.10.400 (a), (f), (g)..." and will serve as a model to conduct reviews and make recommendations. RPT participation will not be limited solely to these criteria.

BASIC OPERATIONAL DUTIES

The Regional Planning Team (RPT) will:

1. Develop a Comprehensive Salmon Plan for the region it represents and submit the draft document to the Commissioner of the Alaska Department of Fish and Game (ADF&G) for review and approval.
2. Develop and submit for ADF&G Commissioner review and approval, a Phase II planning process or document to serve as a vehicle for the implementation and amendment of the Comprehensive Plan.
3. Establish and implement a maintenance program that is at least inclusive of items #6 through #14 below.
4. Review private nonprofit (PNP) hatchery permit applications and make recommendations to the Commissioner.
5. Review and comment to the Commissioner on PNP permit suspensions or revocations proposed by the Commissioner.
6. Review and comment on both PNP and ADF&G Annual Hatchery Management Plans, Annual Reports, and, at Commissioner's discretion, proposed permit alterations. This review could provide information for conducting performance analysis and evaluation for plan amendment purposes.
7. Apply regional criteria modeled in Chapter 9, pp. 76-86, Comprehensive Plan, Phase II, Northern Southeast Alaska to all review, comment, performance evaluation, and analysis activities.
8. Meet at least once annually, but as many times as necessary, to discuss:
 - A. Ongoing, enhancement and rehabilitation projects.
 - B. New projects being considered for implementation.
 - C. New opportunities which may be investigated as potential projects.
9. From the meeting or meetings addressed in paragraph #8, the RPT will prepare an annual report or plan update which will address the following items in relation to the Comprehensive Plan:
 - A. Summarize the basic conditions of the Comprehensive Plan.
 - B. Present events and trends of the immediate, past five years with comparisons and contrasts to basic conditions.
 - C. Present major events of the immediate past season with comparisons and contrasts to basic conditions.
 - D. Project events for the coming five years and relate them to immediate goals and objectives of the Plan.
 - E. Summarize conditions at the end of the year with reference to all goals and objectives of the Comprehensive Plan, current year's accomplishments, and relevant RPT commentary.

10. Provide the general public an opportunity to review and comment on current Phase II projects and to suggest new projects.
11. Consider and incorporate, where appropriate, the public comments on suggested revisions to the Phase I and Phase II Plans.
12. Annually transmit to the Commissioner the draft report, resulting from the above considerations, for review and approval.
13. Incorporate the Commissioner-approved annual report into the Phase II planning process.
14. Make periodic recommendations to the Commissioner concerning potential changes in the Charter and perform such other tasks as are deemed advisable and desirable by the Commissioner.

CONCLUSIONS

The RPT is the instrument of active cooperation between the regional aquaculture associations and the ADF&G and its various divisions. To accomplish that cooperation, regular exchange of information and discussion of objectives are necessary. A regular meeting schedule is important to maintain the relationship. The work of the RPT should support the best interest of the resource and be based on the best professional fisheries information. It should also recognize the interests of the salmon users. To this end, regular participation from the users should be solicited, and those groups should be advised concerning the decisions and recommendations of the RPT. This dialogue is a key element of the regional planning process.

THEREFORE, REGIONAL PLANNING TEAMS ARE, BY MEANS OF THIS DOCUMENT, CHARTERED TO PERFORM THE BASIC OPERATIONAL DUTIES WITHIN THE GENERAL PLANNING FRAMEWORK OUTLINED ABOVE AND TO REGULARLY REPORT THEIR PROGRESS TO THE COMMISSIONER OF THE ALASKA DEPARTMENT OF FISH AND GAME.

GLOSSARY

ADF&G -- Acronym for Alaska Department of Fish and Game.

Annual Report -- Summary of results of plan update.

Commissioner -- Principal executive officer of the Alaska Department of Fish and Game.

Commissioner approval -- Formal acceptance of a salmon development plan or other RPT products by the Commissioner.

Comprehensive Plan, Phase II, Northern Southeast Alaska -- Document produced by Northern Southeast Regional Planning Team and approved by the Commissioner on December 6, 1982.

Comprehensive Salmon Production Plan -- A statutory-mandated, strategic plan, spanning 20 years, for perpetuation and increase of salmon resources on a regional basis.

Criteria -- Accepted measures or rules for evaluation of program and project proposals and operations.

Five-year action plan -- The section of Phase II which recommends projects for implementation within the next five years (Chapter 10 of NSPII).

NSPII -- Acronym for Comprehensive Plan, Phase II, Northern Southeast Alaska.

PNP -- Acronym for private nonprofit.

Phase II Plan -- An analytical document or process that addresses salmon production development by geographic unit, project, and site and makes recommendations concerning both long and short-range opportunities (usually 20 and 5-year time frames).

Plan amendment -- Analyzing and evaluating a planning document with the option of changing the plan.

Plan content outline -- A document that defines topics and gives guidance and shape to comprehensive salmon plans.

Plan development -- Composing, drafting, revising, and finalizing a planning document.

Plan maintenance -- Process through which the RPT reviews and comments on existing plans to preserve, continue, and expedite planned salmon production.

Plan, The -- Comprehensive Salmon Plan.

Plan update -- The process and results of RPT review and changes of a plan document.

Private nonprofit -- Legal and/or operational status of a private sector organization without a profit motive.

Private nonprofit hatchery permit application -- A request presented by a private nonprofit corporation to the Department of Fish and Game for a permit to operate a private nonprofit hatchery.

Private sector -- That group active in salmon resource development which is not employed by government.

Production -- Perpetuation or increase of the salmon resource through maintenance, rehabilitation or enhancement programs and techniques. The Salmon Production Plan addresses stock perpetuation and increase through appropriate balance and integration of program and techniques.

Project -- A unit of work having a beginning, middle, and end that functions according to defined performance criteria.

Public sector -- That group active in salmon resource development that is employed by government.

RPT -- Acronym for Regional Planning Team.

Regional Aquaculture Association -- A statutory-based, nonprofit corporation comprised of representatives of fisheries user groups and organized for the purpose of producing salmon.

Regional Planning Team -- A statutory-mandated planning group, comprised of Department of Fish and Game staff and Regional Aquaculture Association representatives, designated to develop the Comprehensive Salmon Plan.

Review and comment process -- A collection of accepted procedures to solicit and generate examination and remarks.

Revised plan -- A document resulting from incorporation of Commissioner-approved material into a plan.

Uniform procedures -- Those practices that have been accepted by planning participants as appropriate for conducting or accomplishing a task.

APPROVE:


Steven Pennoyer
Deputy Commissioner

1/8/85
Date

LEGISLATIVE COUNCIL MEETING

NOVEMBER 1, 1991

MOTION #1:

Approve the expenditure of not more than \$48,000 from the Senate Operating Budget to the University of Alaska, School of Management and/or Limited Entry Commission for a reimbursable services agreement to conduct an extensive review of the Alaska salmon enhancement program.

MOTION #2:

Approve the expenditure of not more than \$10,000 from the Senate Operating Budget to the University of Alaska, School of Fisheries & Ocean Sciences for a reimbursable services agreement to provide salmon population modeling as part of the economic analyses of the Alaska salmon enhancement program.

SCOMM

74.35

ALASKA STATE LEGISLATURE SENATE

SENATOR RICHARD I. ELIASON

PRESIDENT OF THE SENATE
LABOR & COMMERCE COMMITTEE
RESOURCES COMMITTEE
RULES COMMITTEE
CHAIRMAN, SPECIAL COMMITTEE ON
DOMESTIC & INTERNATIONAL
COMMERCIAL FISHERIES



P.O. BOX 143
SITKA, ALASKA 99835

P.O. BOX V
JUNEAU, ALASKA 99811
(907) 465-4916

FAX (907) 465-4928

May 7, 1991

Carl Rosier, Commissioner
Department of Fish and Game
P.O. Box 3-2000
Juneau, AK 99802

Dear Commissioner Rosier:

Next Wednesday, May 15, The Senate Special Committee on Fisheries plans to meet to discuss hatchery issues. A copy of the memorandum announcing the meeting is enclosed for your information. As the memo explains, the meeting is to identify topics of interest and concern relating to Alaska's hatchery programs, and to discuss how to best gather information about those topics for legislative consideration next session.

I would like to invite you and/or any appropriate employees of the Department to attend and participate in this meeting. It would seem particularly valuable to have participation by those who have been involved with the Fish and Game-sponsored "Hatchery Forum" which met recently.

I would also appreciate your passing along an invitation to the Chairman of the Board of Fisheries or his designee to attend or participate in the meeting by teleconference hook-up. I understand that the Board has been working on some of the same questions and concerns regarding hatchery programs and statutes that are of interest to the committee.

My aide Mary McDowell will be coordinating the May 15 meeting. We would be grateful if your office would let her know as soon as possible who will be representing the Department of Fish and Game at the meeting.

Thank you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Dick", is written over the word "Sincerely,".

Senator Dick Eliason, Chairman
Senate Special Committee on Fisheries

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

WALTER J. HICKEL, GOVERNOR

P.O. BOX 3-2000
JUNEAU, ALASKA 99802-2000
PHONE: (907) 465-4100

May 10, 1991

The Honorable Richard Eliason
Chairman
Senate Special Committee
on Fisheries
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Senator Eliason:

The Department of Fish and Game appreciates the opportunity to participate in discussions with the Senate Special Committee on Fisheries regarding hatchery issues. My personal participation will be decided by the fickle spawning habits of the Togiak herring and a special Board of Fisheries meeting scheduled for May 14-15 in Anchorage. The Chairman and Vice Chairman of the Board are both participants in the Togiak herring fishery. Your invitation will be forwarded to the Board Chairman, but the board probably will not be in a position to participate.

I will have the directors of Commercial Fisheries, Sport Fish, and Fisheries Rehabilitation and Enhancement Division available for the meeting. My staff will be coordinating with Mary McDowell of your office.

Thank you for your invitation to participate with the committee on this very timely item.

Sincerely,



Carl L. Rosier
Commissioner

cc: Denby Lloyd
Norval Netsch
Jeff Koenings

Alaska State Legislature

3111 C STREET, SUITE 550
ANCHORAGE, ALASKA 99503
(907) 561-7615

SENATOR
ARLISS STURGULEWSKI

While in Juneau
P.O. BOX V
JUNEAU, ALASKA 99811
(907) 465-3818

Senate

MEMORANDUM

May 10, 1991

TO: Senator Dick Eliason, Chair
Senate Special Committee on Fisheries

FROM: Senator Arliss Sturgulewski 
Senate District F

RE: Meeting regarding hatchery issues on May 15, 1991

Thank you for letting me know about your upcoming committee hearing. I have also been concerned about the State's hatchery program and have recently received some information that may be of interest to your committee.

Enclosed is a letter from Wards Cove Packing Company outlining some of the concerns they have regarding the state hatchery program. In addition there is also enclosed a thoughtful article on the future of hatcheries in the Northwest by Ray Hilborn of the School of Fisheries at the University of Washington.

Enclosure

A. W. BRINDLE
H. A. BRINDLE

PROCESSORS OF
CHOICE ALASKA SEAFOOD
SINCE 1912

Wards Cove Packing Company

PHONE (206) 323-3200
TELEX 328759

88 E. HAMLIN STREET
P.O. BOX C-5030
SEATTLE, WA 98105-0030

Day Fax (206) 323-3200 Ext. 258
Night Fax (206) 323-3204

April 24, 1991

The Honorable Arliss Sturgulewski
Alaska State Senate
P.O. Box V
Juneau, Alaska 99811

AX 1, 95
Dear ~~Senator~~ Sturgulewski:

When we last met in Juneau, you asked me to elaborate on the concerns I expressed to you over the direction of the salmon hatchery programs in Alaska.

It is my understanding scientists are in general agreement that the long-term status of Columbia River salmon has not been enhanced by the use of hatcheries. There now appears to be a much stronger emphasis being placed on utilizing wild stocks in association with environmental corrective measures to improve the status of the various runs. Considerable apprehension is evident concerning the impact past hatchery practices have had on the genetic integrity of wild stocks.

As you know, hatcheries had been viewed many years ago as the solution to offset the adverse impact of dams, irrigation, pollution and other habitat degradation. Alaska fortunately is not plagued with these environmental problems. It is therefore with serious concern that I ask you to investigate current enhancement practices taking place throughout Alaska. The wild or natural stocks of salmon of most regions in Alaska have been at record or near record levels in recent years. The maintenance of these wild stocks is imperative for the long-term stability of the salmon industry.

There is growing concern that the continued growth in the release of hatchery pinks in Prince William Sound, while enhancing the numbers of fish available to the common property fishery, may be related to the recent decline of wild pinks in that area. This is a concern that I believe needs to be addressed as I do not feel that it was, nor should it have been, the intention that the hatchery program should be detrimental to the maintenance and enhancement of Alaska's wild stocks.

The continued growth in release of hatchery pinks may also have a serious negative impact on the economics of commercial fisheries.

The Hon. Arliss Sturgulewski
April 24, 1991
Page 2

Alaskan salmon production is now at record or near record levels even in areas where there is little or no hatchery enhancement. The addition of substantial numbers of hatchery fish to a market where there is already potential surplus wild production can only further reduce the value of the fish to the detriment of both the harvesting and processing sectors. It does little good to produce fish for the sake of production. Market conditions must be taken into account lest the value of fish fall below that which is affordable to harvest.

Another area of concern that needs to be addressed is the experimental plan to produce female only pink salmon runs. The rationale behind this program is apparently based on the theory that the primary value in the female pink salmon is the roe. While roe is an important component in the value of female salmon, there is a very limited market for processed salmon roe, particularly that from pink salmon. Any program which leads to a significant increase in roe production will lead to further weakening of that market, again to the financial detriment of the harvesting and processing sectors.

Finally, there is the growing issue of genetic drift and genetic selectivity. Are the hatchery programs endangering the genetic diversity of Alaska's wild stocks? I will not expand on this issue as it is highly technical and of growing concern within the scientific community. However, it needs to be addressed.

I am enclosing a copy of a paper by Ray Hilborn which also addresses the issue of hatchery fish and the effect on wild stocks. I hope that after review of that paper and considering the matters raised in this letter you will agree with me that the Alaska hatchery program needs to be reviewed. It would be my suggestion that a forum be convened, perhaps under the sponsorship of the University of Alaska, where members of the fishing community could gather to discuss in depth the future direction of Alaska's salmon hatchery program.

Thank you for your consideration of my views. If you have any questions I will be happy to answer them.

Sincerely,



Alec W. Brindle

AWB:kmh
Enclosure

Hatcheries and the future of salmon in the Northwest

**Copyright 1990
Ray Hilborn**

Below my office window at the School of Fisheries, University of Washington, is our small salmon hatchery. Every fall thousands of school children come to see the chinook and coho salmon return to their natal waters. Our graduate students show them the fish and demonstrate how eggs are taken, mixed with sperm, and magically the life cycle of salmon is renewed. These tours are the most significant public relations activity of our school, and through these tours most Seattle school children are brought into their most direct touch with a major part of the environmental heritage of the northwest.

It was only after three years of seeing the annual cycle of school visits that I began to wonder if we were really doing the right thing. Hatchery tours are common throughout the Northwest and I fear that the message they convey is that 1) salmon come from hatcheries, 2) habitat loss and pollution are so widespread that natural spawning fish are dying out or are extinct, and 3) the long term survival of salmon depends upon hatchery technology. My daughter's fourth grade teacher was planning a field trip to a state run hatchery for a tour. He was unaware that only 20 minutes away between 100,000 and 200,000 natural spawning sockeye salmon can be seen in a few miles of the Cedar river -- that indeed most of our rivers still support runs of wild spawning salmon.

I believe that fisheries scientists share a collective responsibility for the public belief that the maintenance of salmon runs depends upon hatchery operation. This belief is particularly pernicious because it inexorably leads to the acceptance of hatcheries as a mitigative measure for habitat loss and dam construction. This view can be expressed as "If the wild stocks are doomed anyway, lets just build the hatcheries and get it over with." This belief is not just found among the general public, many professional fisheries scientists also believe that the future of salmonids is in hatcheries. They believe that resources that could go into habitat protection or fisheries management would be better spent on artificial propagation.

The fisheries community in general is not aware that artificial propagation in the Northwest has failed to live up to expectations, nor are they aware that artificial propagation poses a substantial, and perhaps the major, threat to the long term viability of our salmon heritage.

It is not only for Pacific salmon that many believe that the future of fisheries lies with aquaculture. Indeed throughout the world most management agencies seem to be relying on some form of artificial propagation to "rebuild" fish stocks that are depleted due to poor fisheries management or poor habitat management. Artificial propagation has been proposed for such diverse species as herring, tuna, abalone and giant clams -- the list is nearly endless. Thus the lessons we have learned with salmonids in the our part of North America are of direct and important relevance around the world.

Are Hatcheries Sustainable?

Fisheries management is a long term proposition, our responsibility is to assure that the fisheries resource will be maintained by our generation for the next generation. We need to assure that 20, and even 100 years from now there will still be salmon in our rivers. This means that the time horizon for fisheries scientists and managers must be much longer than the engineering horizon for dams on our rivers. Once the dams have rotted away or been taken down, we must be sure we will still have fish to use the rivers. While this may seem far-fetched, removal of the Elwah dam on the Olympic Peninsula, and the Hetch Hetchy dam in California are now being considered.

If hatcheries are to be used as mitigative measures, we must ask not only do they work now, but will they continue to work, and will they permit the maintenance of natural runs? Unfortunately, most evidence suggests that while hatcheries may work initially, their success decreases after a few years. The figure below shows the trends in survival for two major hatchery programs, coho in Oregon, and chinook in British Columbia. In each case, as the hatcheries programs have developed, the success of the hatcheries has decreased. The B.C. chinook example is an extreme point. Although more hatcheries were built throughout the 1980's so that by the mid 1980s there were ten times more chinook smolts released than in the mid 1970's, there were no more hatchery chinook being caught or escaping. This pattern of declining survival of hatchery reared fish is found in nearly every hatchery program in North America.

There is no well accepted explanation for the declining survivals from hatcheries, it may be genetic changes, predator build up, disease accumulation, or a host of other potential problems. The cause doesn't matter as much as the conclusion -- hatchery production is probably not sustainable over decades. To assume it will work for a century is a bold assumption indeed and one that puts our the salmon resources of our children at great risk.

Impacts of hatchery fish on wild stocks

I believe we must rely on wild fish for the long term maintenance of our salmon populations. Wild fish are our heritage, and we must, in turn, pass it on to our descendants. Artificial production poses a great threat to the maintenance of wild fish. This threat comes in at least four forms, direct competition for food and other resources between wild and artificial fish, predation of artificial fish on wild fish, genetic dilution of wild fish by artificial fish allowed to spawn in rivers and streams, and increased fishing pressure on wild stocks due to artificial production.

There is ample evidence that salmonids compete for resources at most stages of their life history. The figure below shows the survival rate of sockeye salmon from Babine Lake, a tributary of the Skeena River in British Columbia. The number of juvenile sockeye leaving Babine Lake was increased by artificial spawning channels. The more fish that left Babine Lake and swam down the Skeena River, the smaller proportion of them survived their ocean life. A major impact of this change, is that the wild runs from the Skeena River have declined approximately 50%. Presumably the other sockeye on the Skeena were affected by the competition that is so obvious in the Babine Lake data. Salmon compete for food and space in freshwater and in the ocean. We should expect that as we increase artificial production they will

compete with wild fish, and the survival of wild fish will decrease -- it is folly to assume this will not happen.

Proponents of artificial propagation like to think of their hatcheries "giving a boost" to the wild stocks, particularly by allowing surplus hatchery fish to spawn in the wild. These extra spawners, turned away from the hatchery are hoped to add to the natural spawning population. Accumulating evidence suggests that the hatchery fish often do poorly in the wild, and that by reproducing with wild fish, the hatchery fish cause poorer survival of offspring of wild parents. Two mechanisms explain this, first hatchery managers select for fish that do well in hatcheries; that is fish that can hatch in plastic trays and learn to feed on a man-made diet. In the wild, fish must find mates, lay eggs in gravel, avoid predators, and find natural food. The requirements of a successful hatchery fish are very different from a successful wild fish and it should be no surprise that fish selected for a hatchery may do poorly when facing the rigors of a real river. Secondly, hatchery practice in the past often involved taking fish from one watershed and using them in a hatchery elsewhere. The thousands of years of natural selection for particular rivers have been swamped.

When hatcheries allow surplus fish to spawn in the wild, they are allowing all of these genes that have been brought in from elsewhere and have been selected for hatchery life, to dilute the naturally adapted genes of the wild fish. The net result may be that after a few generations there are no more wild fish -- we will, and indeed in many places now do have, mongrel fish not well adapted to any particular river. The great genetic diversity of the Northwest of 100 years ago is being lost at an horrifying rate, and hatcheries are accelerating this loss.

When hatcheries have a poor return of adults, they often capture wild fish to use as brood stock. This "creek robbing" would be a criminal offense if conducted by ordinary citizens and they would be called poachers. However, when conducted by hatchery staff it is somehow considered beneficial for the resource. I know of one case where a hatchery had an unusually poor return, and the hatchery staff diverted half of the wild spawning stock into the hatchery for an egg take. It then turned out they had a surplus of eggs, and they sold the surplus to private salmon farms.

When hatcheries are successful at producing adult fish, the potential harvest rate is very high, often 95% of the returning fish can be harvested because so few adults are needed for eggs. There is wide concern throughout the Northwest that we have allowed our fisheries harvest rates to match the potential productivity of hatchery stocks, causing wild stocks to be overfished. In some places this is obvious, parts of Puget Sound such as the Nooksack River, have been declared off limits for wild fish, and the harvest rates are so high that no wild fish make it back to spawn. Just north of Puget Sound, in Canadian waters between Vancouver Island and the mainland, harvest rates on coho salmon are as high as 95%, sustainable only by the most successful hatchery stocks. The net result of these high harvest rates is that as hatchery production has increased, wild stocks have declined, and the Canadians have no more coho now than they did 15 years ago, but now many of their coho come from hatcheries instead of natural streams.

The Real threat: the technological fix syndrome

The real danger of hatcheries and other forms of artificial production is that they provide an excuse for habitat loss and poor fisheries management. If we believe in hatcheries,

then we can allow the rivers to be dammed, silted and destroyed. Just mitigate with a hatchery. While it seems we should know better by now, the lessons haven't really sunk in. New hatcheries are still being built in Washington and Oregon. B.C. and Alaska have both embarked on large scale hatchery programs despite the fact that their catches from wild fish are now at or above historic highs.

Even more dangerous, is the spread of the technological fix syndrome. If hatcheries don't work now, we will try some other form of hatchery technology. The current new idea is "supplementation" where eggs are incubated in a hatchery and then spread throughout a watershed to rear naturally. The technological fix has spread beyond salmon hatcheries -- now developers throughout the west coast want to build "artificial" habitat for lost wetlands. This is where the fisheries community must accept its responsibility, we have been extremely eager to help in the design and testing of new technology. Indeed fisheries schools have been, in effect, salesmen of the technology.

Great Hatchery Successes

Whenever I speak out against the hatchery fetish, people ask about the great successes -- trout in freshwater lakes, salmon in the Great Lakes, and the Japanese chum salmon hatcheries. These programs are undoubtedly successful. Introduction of exotic species or monoculture often works reasonably well. Rabbits did very well in Australia, starlings do well in North America. The widespread introduction of trout around the world has produced some valuable recreational fisheries. However, in most cases this has amounted to the replacement of indigenous species by new species, not boosting the production of an existing wild population. Indeed my first response to each of these examples is that in every case the wild species that were there before have been almost totally replaced by the introduced or artificially produced fish.

Even with these great successes, we see echoes of our own concern here. Trout management is going away from hatcheries to nurturing of habitat for wild fish. This is documented in Ray Whites recent article in Trout, "We're going wild: a 30-year transition from hatcheries to habitat." In the Great Lakes, where introduced Pacific salmon generated a major recreational fishery, concern is mounting about declining hatchery survivals -- they just don't know if their salmon fishery is sustainable. The highly successful chum fishery in northern Japan has produced large catches of chum salmon for Japanese fishermen, but the total yield of salmon from northwest Pacific waters has not increased, it is quite possible that Japanese chum have simply replaced the naturally occurring mix of 6 species of salmon with a single species.

What should be done.

Is there a place for hatcheries? I really don't know. Certainly if all hatcheries were now closed, the catch of chinook and coho salmon in the Northwest would drop greatly. We could certainly expect some wild stock production to rebound, particularly if we devoted some of the resources that have gone for hatcheries to habitat protection and improvement. Closing all hatcheries now would certainly cause a lot of pain to recreational, Indian and commercial fishermen -- but it might ensure the long-term survival of the fish and the fishermen who depend upon them.

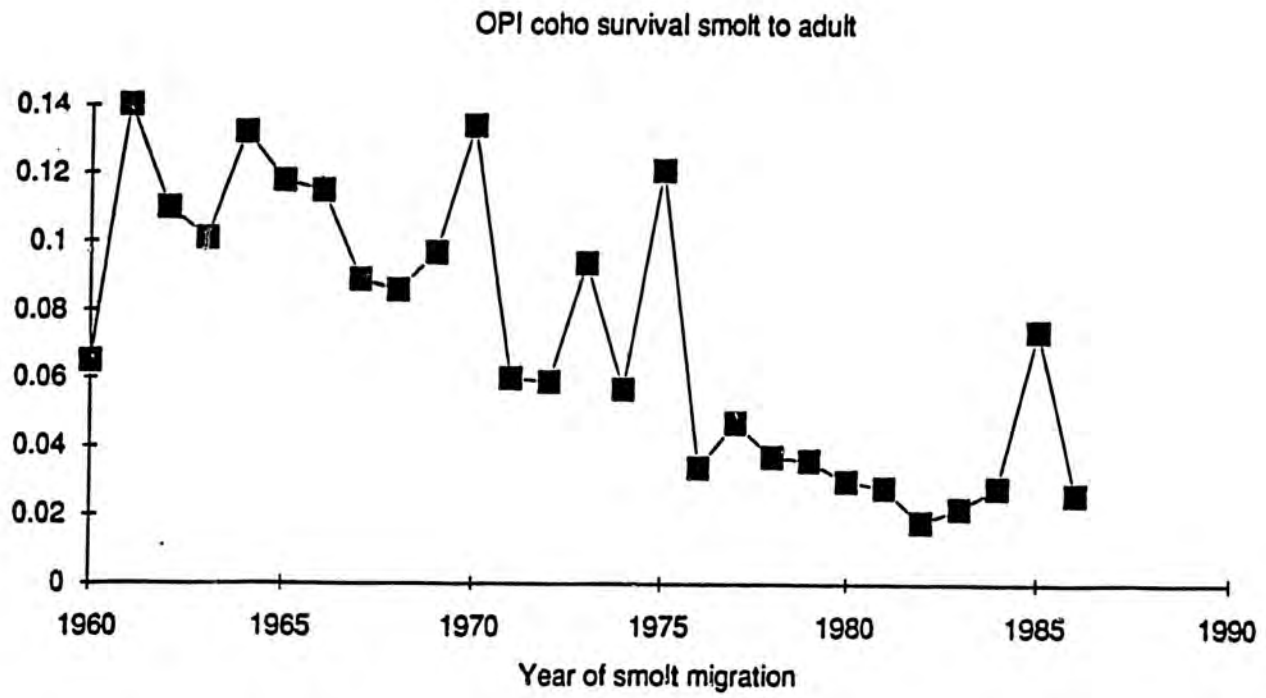
On the Columbia River, where much of the habitat has been lost, and the series of dams poses a severe barrier to downstream migration of juvenile salmon, most people believe that we must have hatcheries. I am not convinced. The most successful salmon stock on the Columbia is the wild spawning chinook of the Hanford Reach, the one free flowing section of the main river. If we devoted all of the resources that now go into hatcheries on the Columbia to improving the downstream passage of fish, and to habitat protection, we might be quite surprised what the natural spawning fish would do if given a chance.

I do believe we should declare a moratorium on building of new hatcheries. We have taken an enormous gamble with our children's heritage. Now we must find out what we are doing to the wild fish, how to preserve them, and rebuild them. Michael Goodman has proposed that hatcheries must have a federal license that is reviewed periodically. Hatcheries that don't produce adult fish, and those that cause serious adverse impacts on wild fish would be shut down. I believe this is an excellent proposal.

As I look out my window at another group of school children touring our hatchery I wonder what kind of salmon their children will see. Will their world be one of high technology, with genetically engineered fish returning to computer controlled hatcheries, or will we maintain and improve our wild streams? Will their classes visit streams instead of hatcheries? Instead of imitating hatcheries by rearing fish in classrooms will the school children of the future adopt sections of streams for protection, know what wild spawning salmon need and make sure they have it?

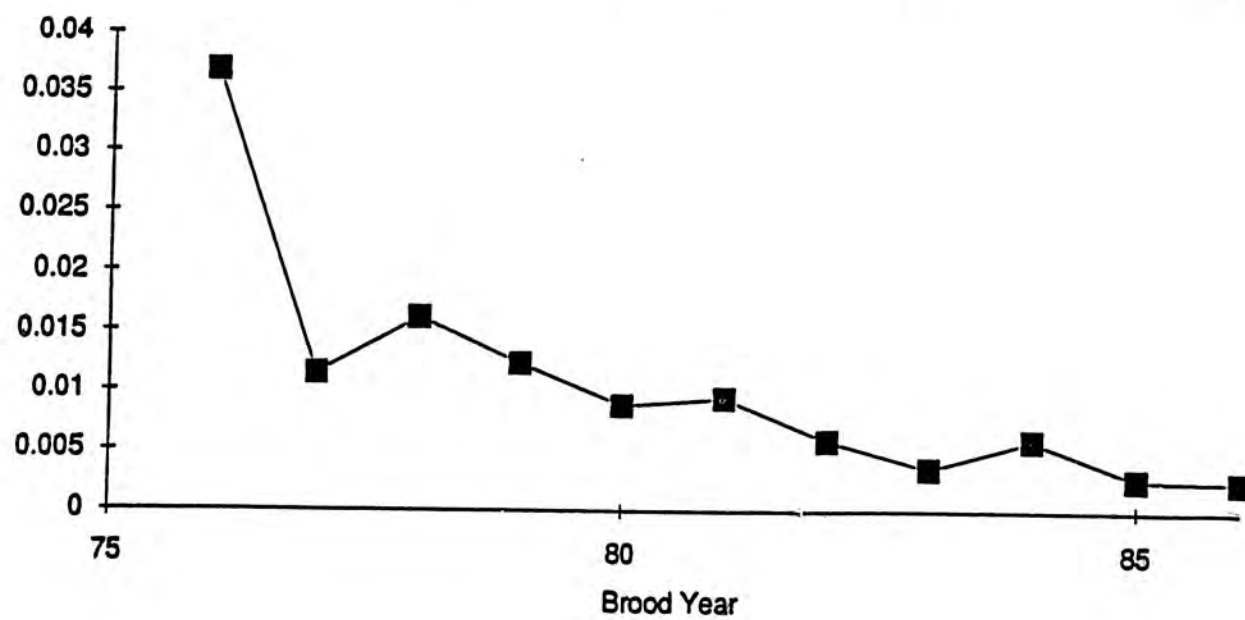
Further Readings

Those interested in knowing more about wild and hatchery fish should read "Mountains in the Clouds" by Bruce Brown, "We're going wild" a 30-year transition from hatcheries to habitat" by Ray J. White Trout Magazine, Summer 1989, and "Preserving the genetic diversity of salmonid stocks: a call for federal regulation of hatchery programs" by Michael L. Goodman, in Environmental Law Vol 20.



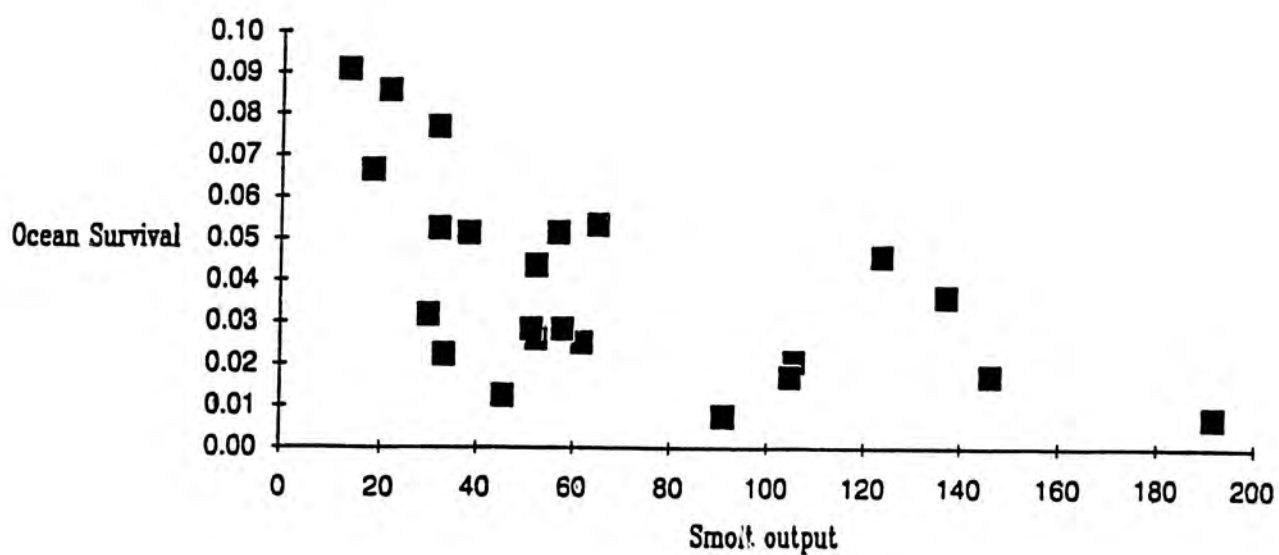
CHINCON.XLC

Canadian Hatchery Chinook Contribution Rate



BABINE.XLC

Babine lake 1959-1981





Juneau Center for Fisheries and Ocean Sciences

University of Alaska Fairbanks

11120 Glacier Highway

Juneau, Alaska 99801

(907) 789-4441

11 May 1991

Carl L. Rosier, Commissioner of Fisheries
Alaska Department of Fish and Game
1255 West 8th Street
P.O.Box 3-2000
Juneau, Alaska 99802-2000

Dear Carl:

Due to a previous workshop commitment in Seattle it is very difficult for me to attend the meeting called by Senator Dick Eliason on Wednesday, May 15, at 1:30 in the Butrovich Room regarding hatcheries and hatchery programs in Alaska. The purpose of the meeting is to identify major topics and to formulate specific questions regarding hatcheries which should be researched and addressed by the Legislature.

As I see it there are specific genetic questions involved in any hatchery program. The State already has a standing committee for answering such questions and to develop guidelines for future work. Dr. Tony Gharrett from the Juneau Center for Fisheries and Ocean Sciences is a member of this group.

Then there are a number of social and economic questions with some far reaching consequences and Lee Gorsuch has expressed an interest in such problems.

My effort to convene a workshop deals with the biological aspects of the hatchery program and the interaction between wild and enhanced stocks. This question has been raised in Norway, it will be discussed in Nanaimo in June this year and later at a NATO sponsored conference at Washington State University in Pullman.

An observed decline of wild stocks of pinks in Prince William Sound with its massive ocean ranching program has prompted the question of any link and raised the following questions:

1. What is the extent of straying of enhanced stocks of pinks or any other enhanced salmon?
2. What is the reproductive success of stray cultured and wild salmon?

3. To what extent will wild fish school together with enhanced stocks and eventually be caught in a restricted harvest area.

4. What is the carrying capacity of the feeding areas in the Gulf of Alaska, not only for pink salmon but also for sockeye salmon from other districts like Bristol Bay using the same feeding grounds?

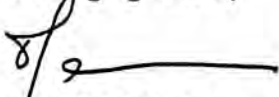
5. What is the value of an undisturbed gene pool which has developed over the last 10 -12 000 years since the ice cap receded?

Although the proposed workshop should only deal with Alaskan problems, it would be advantageous to solicit the assistance of a few experts from abroad. In Norway, Japan and the USSR enhancement programs have been practiced for a long time.

I feel confident that the workshop could conclude its work before the next session of the Legislature; but I also expect that there will remain some unanswered questions, which eventually may call for additional research. I have tentatively estimated the cost of a workshop convened at least for one week, to be \$ 50 000, half of which may come from new Science Center in Cordova.

One purpose of this letter is to convey to you Dean Alexanders interest in utilizing the talent of the School of Fisheries and Ocean Sciences and especially of the Juneau based group in assisting the State in solving some of the problems raised above.

Sincerely yours,



Ole A. Mathisen

cc: Representative Ulmer ✓
Dr. Burkett
Dean Alexander

Alaska State Legislature

COMMITTEES:

MEMBER

RULES

INTERNATIONAL TRADES & TOURISM

LABOR & COMMERCE

ETHICS

WESTERN STATES LEGISLATIVE
FORESTRY TASK FORCE



P.O. BOX 1441
WRANGELL, ALASKA 99929
(907) 874-2316

White in Juneau
P.O. BOX V
JUNEAU, ALASKA 99811
(907) 465-4905

House of Representatives

ROBIN L. TAYLOR
MINORITY LEADER

MEMORANDUM

TO: Senator Dick Eliason, Chairman
Senate Special Committee on Fisheries

FROM: Rep. Robin L. Taylor *R.L.T.*

DATE: May 13, 1991

REF: Meeting on hatchery issues.

As your committee begins its review of hatchery issues, I would appreciate it if attention is given to the attached correspondence from Alec Brindle of Wards Cove Packing Company.

Mr. Brindle raises valid concerns that should be part of your committee review. I believe the questions raised are important enough that some consideration should be given to the creation of a subcommittee to address them. Please also consider Mr. Brindle's suggestion regarding the involvement of the University of Alaska.

A. W. BRINDLE
H. A. BRINDLE

PROCESSORS OF
CHOICE ALASKA SEAFOOD
SINCE 1912

Wards Cove Packing Company

PHONE (206) 323-3200
TELEX 328759

88 E. HAMLIN STREET
P.O. BOX C-5030
SEATTLE, WA 98105-0030

Day Fax (206) 323-3200 Ext. 258
Night Fax (206) 323-3204

April 24, 1991

APR 26 1991

The Honorable Robin Taylor
Alaska State House of Representatives
P.O. Box V
Juneau, Alaska 99811

Dear ~~Representative~~ ^{ROBIN} Taylor:

When we last met in Juneau, you asked me to elaborate on the concerns I expressed to you over the direction of the salmon hatchery programs in Alaska.

It is my understanding scientists are in general agreement that the long-term status of Columbia River salmon has not been enhanced by the use of hatcheries. There now appears to be a much stronger emphasis being placed on utilizing wild stocks in association with environmental corrective measures to improve the status of the various runs. Considerable apprehension is evident concerning the impact past hatchery practices have had on the genetic integrity of wild stocks.

As you know, hatcheries had been viewed many years ago as the solution to offset the adverse impact of dams, irrigation, pollution and other habitat degradation. Alaska fortunately is not plagued with these environmental problems. It is therefore with serious concern that I ask you to investigate current enhancement practices taking place throughout Alaska. The wild or natural stocks of salmon of most regions in Alaska have been at record or near record levels in recent years. The maintenance of these wild stocks is imperative for the long-term stability of the salmon industry.

There is growing concern that the continued growth in the release of hatchery pinks in Prince William Sound, while enhancing the numbers of fish available to the common property fishery, may be related to the recent decline of wild pinks in that area. This is a concern that I believe needs to be addressed as I do not feel that it was, nor should it have been, the intention that the hatchery program should be detrimental to the maintenance and enhancement of Alaska's wild stocks.

The continued growth in release of hatchery pinks may also have a serious negative impact on the economics of commercial fisheries.

The Hon. Robin Taylor
April 24, 1991
Page 2

Alaskan salmon production is now at record or near record levels even in areas where there is little or no hatchery enhancement. The addition of substantial numbers of hatchery fish to a market where there is already potential surplus wild production can only further reduce the value of the fish to the detriment of both the harvesting and processing sectors. It does little good to produce fish for the sake of production. Market conditions must be taken into account lest the value of fish fall below that which is affordable to harvest.

Another area of concern that needs to be addressed is the experimental plan to produce female only pink salmon runs. The rationale behind this program is apparently based on the theory that the primary value in the female pink salmon is the roe. While roe is an important component in the value of female salmon, there is a very limited market for processed salmon roe, particularly that from pink salmon. Any program which leads to a significant increase in roe production will lead to further weakening of that market, again to the financial detriment of the harvesting and processing sectors.

Finally, there is the growing issue of genetic drift and genetic selectivity. Are the hatchery programs endangering the genetic diversity of Alaska's wild stocks? I will not expand on this issue as it is highly technical and of growing concern within the scientific community. However, it needs to be addressed.

I am enclosing a copy of a paper by Ray Hilborn which also addresses the issue of hatchery fish and the effect on wild stocks. I hope that after review of that paper and considering the matters raised in this letter you will agree with me that the Alaska hatchery program needs to be reviewed. It would be my suggestion that a forum be convened, perhaps under the sponsorship of the University of Alaska, where members of the fishing community could gather to discuss in depth the future direction of Alaska's salmon hatchery program.

Thank you for your consideration of my views. If you have any questions I will be happy to answer them.

Sincerely,



Alec W. Brindle

AWB:kmh
Enclosure

APR 26 1991
1

Hatcheries and the future of salmon in the Northwest

Copyright 1990
Ray Hilborn

Below my office window at the School of Fisheries, University of Washington, is our small salmon hatchery. Every fall thousands of school children come to see the chinook and coho salmon return to their natal waters. Our graduate students show them the fish and demonstrate how eggs are taken, mixed with sperm, and magically the life cycle of salmon is renewed. These tours are the most significant public relations activity of our school, and through these tours most Seattle school children are brought into their most direct touch with a major part of the environmental heritage of the northwest.

It was only after three years of seeing the annual cycle of school visits that I began to wonder if we were really doing the right thing. Hatchery tours are common throughout the Northwest and I fear that the message they convey is that 1) salmon come from hatcheries, 2) habitat loss and pollution are so widespread that natural spawning fish are dying out or are extinct, and 3) the long term survival of salmon depends upon hatchery technology. My daughter's fourth grade teacher was planning a field trip to a state run hatchery for a tour. He was unaware that only 20 minutes away between 100,000 and 200,000 natural spawning sockeye salmon can be seen in a few miles of the Cedar river -- that indeed most of our rivers still support runs of wild spawning salmon.

I believe that fisheries scientists share a collective responsibility for the public belief that the maintenance of salmon runs depends upon hatchery operation. This belief is particularly pernicious because it inexorably leads to the acceptance of hatcheries as a mitigative measure for habitat loss and dam construction. This view can be expressed as "If the wild stocks are doomed anyway, lets just build the hatcheries and get it over with." This belief is not just found among the general public, many professional fisheries scientists also believe that the future of salmonids is in hatcheries. They believe that resources that could go into habitat protection or fisheries management would be better spent on artificial propagation.

The fisheries community in general is not aware that artificial propagation in the Northwest has failed to live up to expectations, nor are they aware that artificial propagation poses a substantial, and perhaps the major, threat to the long term viability of our salmon heritage.

It is not only for Pacific salmon that many believe that the future of fisheries lies with aquaculture. Indeed throughout the world most management agencies seem to be relying on some form of artificial propagation to "rebuild" fish stocks that are depleted due to poor fisheries management or poor habitat management. Artificial propagation has been proposed for such diverse species as herring, tuna, abalone and giant clams -- the list is nearly endless. Thus the lessons we have learned with salmonids in the our part of North America are of direct and important relevance around the world.

Are Hatcheries Sustainable?

Fisheries management is a long term proposition, our responsibility is to assure that the fisheries resource will be maintained by our generation for the next generation. We need to assure that 20, and even 100 years from now there will still be salmon in our rivers. This means that the time horizon for fisheries scientists and managers must be much longer than the engineering horizon for dams on our rivers. Once the dams have rotted away or been taken down, we must be sure we will still have fish to use the rivers. While this may seem far-fetched, removal of the Elwah dam on the Olympic Peninsula, and the Hetch Hetchy dam in California are now being considered.

If hatcheries are to be used as mitigative measures, we must ask not only do they work now, but will they continue to work, and will they permit the maintenance of natural runs? Unfortunately, most evidence suggests that while hatcheries may work initially, their success decreases after a few years. The figure below shows the trends in survival for two major hatchery programs, coho in Oregon, and chinook in British Columbia. In each case, as the hatcheries programs have developed, the success of the hatcheries has decreased. The B.C. chinook example is an extreme point. Although more hatcheries were built throughout the 1980's so that by the mid 1980s there were ten times more chinook smolts released than in the mid 1970's, there were no more hatchery chinook being caught or escaping. This pattern of declining survival of hatchery reared fish is found in nearly every hatchery program in North America.

There is no well accepted explanation for the declining survivals from hatcheries, it may be genetic changes, predator build up, disease accumulation, or a host of other potential problems. The cause doesn't matter as much as the conclusion -- hatchery production is probably not sustainable over decades. To assume it will work for a century is a bold assumption indeed and one that puts our the salmon resources of our children at great risk.

Impacts of hatchery fish on wild stocks

I believe we must rely on wild fish for the long term maintenance of our salmon populations. Wild fish are our heritage, and we must, in turn, pass it on to our descendants. Artificial production poses a great threat to the maintenance of wild fish. This threat comes in at least four forms, direct competition for food and other resources between wild and artificial fish, predation of artificial fish on wild fish, genetic dilution of wild fish by artificial fish allowed to spawn in rivers and streams, and increased fishing pressure on wild stocks due to artificial production.

There is ample evidence that salmonids compete for resources at most stages of their life history. The figure below shows the survival rate of sockeye salmon from Babine Lake, a tributary of the Skeena River in British Columbia. The number of juvenile sockeye leaving Babine Lake was increased by artificial spawning channels. The more fish that left Babine Lake and swam down the Skeena River, the smaller proportion of them survived their ocean life. A major impact of this change, is that the wild runs from the Skeena River have declined approximately 50%. Presumably the other sockeye on the Skeena were affected by the competition that is so obvious in the Babine Lake data. Salmon compete for food and space in freshwater and in the ocean. We should expect that as we increase artificial production they will

compete with wild fish, and the survival of wild fish will decrease -- it is folly to assume this will not happen.

Proponents of artificial propagation like to think of their hatcheries "giving a boost" to the wild stocks, particularly by allowing surplus hatchery fish to spawn in the wild. These extra spawners, turned away from the hatchery are hoped to add to the natural spawning population. Accumulating evidence suggests that the hatchery fish often do poorly in the wild, and that by reproducing with wild fish, the hatchery fish cause poorer survival of offspring of wild parents. Two mechanisms explain this, first hatchery managers select for fish that do well in hatcheries; that is fish that can hatch in plastic trays and learn to feed on a man-made diet. In the wild, fish must find mates, lay eggs in gravel, avoid predators, and find natural food. The requirements of a successful hatchery fish are very different from a successful wild fish and it should be no surprise that fish selected for a hatchery may do poorly when facing the rigors of a real river. Secondly, hatchery practice in the past often involved taking fish from one watershed and using them in a hatchery elsewhere. The thousands of years of natural selection for particular rivers have been swamped.

When hatcheries allow surplus fish to spawn in the wild, they are allowing all of these genes that have been brought in from elsewhere and have been selected for hatchery life, to dilute the naturally adapted genes of the wild fish. The net result may be that after a few generations there are no more wild fish -- we will, and indeed in many places now do have, mongrel fish not well adapted to any particular river. The great genetic diversity of the Northwest of 100 years ago is being lost at an horrifying rate, and hatcheries are accelerating this loss.

When hatcheries have a poor return of adults, they often capture wild fish to use as brood stock. This "creek robbing" would be a criminal offense if conducted by ordinary citizens and they would be called poachers. However, when conducted by hatchery staff it is somehow considered beneficial for the resource. I know of one case where a hatchery had an unusually poor return, and the hatchery staff diverted half of the wild spawning stock into the hatchery for an egg take. It then turned out they had a surplus of eggs, and they sold the surplus to private salmon farms.

When hatcheries are successful at producing adult fish, the potential harvest rate is very high, often 95% of the returning fish can be harvested because so few adults are needed for eggs. There is wide concern throughout the Northwest that we have allowed our fisheries harvest rates to match the potential productivity of hatchery stocks, causing wild stocks to be overfished. In some places this is obvious, parts of Puget Sound such as the Nooksack River, have been declared off limits for wild fish, and the harvest rates are so high that no wild fish make it back to spawn. Just north of Puget Sound, in Canadian waters between Vancouver Island and the mainland, harvest rates on coho salmon are as high as 95%, sustainable only by the most successful hatchery stocks. The net result of these high harvest rates is that as hatchery production has increased, wild stocks have declined, and the Canadians have no more coho now than they did 15 years ago, but now many of their coho come from hatcheries instead of natural streams.

The Real threat: the technological fix syndrome

The real danger of hatcheries and other forms of artificial production is that they provide an excuse for habitat loss and poor fisheries management. If we believe in hatcheries,

then we can allow the rivers to be dammed, silted and destroyed. Just mitigate with a hatchery. While it seems we should know better by now, the lessons haven't really sunk in. New hatcheries are still being built in Washington and Oregon. B.C. and Alaska have both embarked on large scale hatchery programs despite the fact that their catches from wild fish are now at or above historic highs.

Even more dangerous, is the spread of the technological fix syndrome. If hatcheries don't work now, we will try some other form of hatchery technology. The current new idea is "supplementation" where eggs are incubated in a hatchery and then spread throughout a watershed to rear naturally. The technological fix has spread beyond salmon hatcheries -- now developers throughout the west coast want to build "artificial" habitat for lost wetlands. This is where the fisheries community must accept its responsibility, we have been extremely eager to help in the design and testing of new technology. Indeed fisheries schools have been, in effect, salesmen of the technology.

Great Hatchery Successes

Whenever I speak out against the hatchery fetish, people ask about the great successes -- trout in freshwater lakes, salmon in the Great Lakes, and the Japanese chum salmon hatcheries. These programs are undoubtedly successful. Introduction of exotic species or monoculture often works reasonably well. Rabbits did very well in Australia, starlings do well in North America. The widespread introduction of trout around the world has produced some valuable recreational fisheries. However, in most cases this has amounted to the replacement of indigenous species by new species, not boosting the production of an existing wild population. Indeed my first response to each of these examples is that in every case the wild species that were there before have been almost totally replaced by the introduced or artificially produced fish.

Even with these great successes, we see echoes of our own concern here. Trout management is going away from hatcheries to nurturing of habitat for wild fish. This is documented in Ray Whites recent article in Trout, "We're going wild: a 30-year transition from hatcheries to habitat." In the Great Lakes, where introduced Pacific salmon generated a major recreational fishery, concern is mounting about declining hatchery survivals -- they just don't know if their salmon fishery is sustainable. The highly successful chum fishery in northern Japan has produced large catches of chum salmon for Japanese fishermen, but the total yield of salmon from northwest Pacific waters has not increased, it is quite possible that Japanese chum have simply replaced the naturally occurring mix of 6 species of salmon with a single species.

What should be done.

Is there a place for hatcheries? I really don't know. Certainly if all hatcheries were now closed, the catch of chinook and coho salmon in the Northwest would drop greatly. We could certainly expect some wild stock production to rebound, particularly if we devoted some of the resources that have gone for hatcheries to habitat protection and improvement. Closing all hatcheries now would certainly cause a lot of pain to recreational, Indian and commercial fishermen -- but it might ensure the long-term survival of the fish and the fishermen who depend upon them.