

HCR

50

AGU 12-022

Hearing 3/20/80 Tabled

3/24/80 - HCR 50 withdrawn
by the sponsor



American Fisheries Society

ESTABLISHED 1870

March 20, 1980

The Honorable Hugh Malone
House of Representatives
Pouch V
Juneau, Alaska 99811

Dear Representative Malone:

Thank you for the opportunity to comment on House Concurrent Resolution 50. The American Fisheries Society is an international organization of over 8,000 fisheries, aquatic science professional, lay and student members. Chartered in 1870, the American Fisheries Society is the world's oldest and largest scientific group dedicated to the advancement of fisheries science and the conservation of renewable aquatic resources. As time was short it was impossible to canvass the entire Alaskan membership. It was possible to contact 29 percent of the membership by phone, and 86 percent of those members contacted were in favor of HC 50 and 9 percent were against the resolution with 5% having no opinion. Most of the membership contacted had not seen your letter of March 7. This testimony will attempt to summarize, those thoughts expressed most often by the members.

Several of the members expressed concern that if this resolution passed it would preclude involvement or participation by individuals and groups now currently involved in the salmon enhancement program. The entire issue is extremely complex and it is not the intent of the Alaska Chapter of the American Fisheries Society to prevent or discourage participation from others in the salmon program. The concern of the members centers around the quality of the program and not individual "territory" of the participants. The comment most frequently mentioned was that "the salmon resource in Alaska is a public resource, should remain that way and should be managed as such." The salmon resource is extremely valuable to the State and management of that resource should only be done by qualified professionals hired specifically for that purpose. Along this same line of thinking were comments that proper checks, balances and adequate review is absolutely necessary if this publicly owned renewable resource is to be properly managed to the benefit of all.

It is generally felt that adequate "grass roots" public (user) participation is a necessary element in the check and balance system. Presently there are adequate and numerous avenues for any person or group to influence the allocation and management process. Allocation of harvest cannot and should never be placed solely in the hands of the users or the managers.

The Board of Fisheries does a remarkably fine job of handling the allocation of the salmon resource. Current statutes require Regional Aquaculture Associations to jointly develop Regional Comprehensive Plans with the Department of Fish and Game. This process is adequate and can work nicely as evidenced by the recently completed draft Regional Comprehensive Plan for Southeast Alaska.

Almost all those members contacted expressed their concern that the complexity of the science of dealing with the salmon ecosystem is not appreciated fully by many lay people. The ecosystem is dynamic, extremely complex and not fully understood. Salmon husbandry is a valid and viable tool with which the salmon ecosystem can be positively influenced for man's benefit. The techniques employed, however must be carefully and scientifically interwoven with the natural ecosystem so that possible negative impacts are reduced or eliminated. The final area about which opinions were expressed was user participation. The concept of "those who benefit most should pay most" is well established in Alaska and seems well accepted by the fishing community. Through existing statutes, participation is required for planning and allowed for enhancement facilities (hatcheries.) In order to finance this participation, however, the users are left largely to their own devices to collect revenue. The social, institutional and legal barriers have prevented this concept from working efficiently.

In summary, the fisheries professionals feel that the salmon resource is a public resource and should be managed accordingly. They feel that there should be one salmon program. This position is not meant to preclude participation by any individual group or agency. However, the staff hired to implement that program must be highly trained professionals. The right "mix" of disciplines is absolutely necessary. Proper checks, balances and control through the legislative and implementation process cannot be compromised. It is unfair and certainly inefficient to expect the resource users to remove all the barriers and provide their own mechanism to participate in the salmon program financially. The legislature should provide the legal framework to allow financial participation by those who benefit most from the salmon resource and wish to participate in the salmon program.

On behalf of the Alaska Chapter of the American Fisheries Society I wish to thank you and the House Resources Committee for the opportunity to provide this testimony.

Sincerely,


S.A. Moberly, President
Alaska Chapter, American Fisheries Society



THE
AMERICAN
FISHERIES
SOCIETY



MEMBERSHIP BROCHURE

5410 Grosvenor Lane
Bethesda, Maryland 20014

AMERICAN FISHERIES SOCIETY

The American Fisheries Society is an international organization of 7,000 fisheries and aquatic science professional, lay, and student members. Chartered in 1870, AFS is the world's oldest and largest scientific group dedicated to the advancement of fisheries science and the conservation of renewable aquatic resources. The Society's executive offices are headquartered in the Washington, D.C. area with its sub-units operating throughout most of North America.

To achieve its goals, AFS has a far reaching program of activities that include:

- Publication and distribution of fisheries science materials
- Support of expanded and improved fisheries research
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- Political activities in support of favorable legislative and fisheries policies

AFS is a nonprofit, tax-exempt corporation controlled by the membership, governed by an elected Executive Committee, and presided over by an elected President. The Society holds membership meetings at widely scattered North American locations in August or September of each year, where members who are unable to attend may be represented by proxy.

Geographically, the Society is partitioned into four Divisions, with these in turn divided into a total of 48 local Chapters. In addition, the Society has several discipline Sections. New Sections and Chapters are added as the need arises. Membership is therefore optional and necessitates a small additional dues payment.



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March 20, 1980

TESTIMONY SUBMITTED TO HOUSE RESOURCE COMMITTEE
ON HOUSE CONCURRENT RESOLUTION NO. 50

Gentlemen:

I regret that I can not be present to testify, but I am frantically trying to get my boat ready for fishing on April 1. On the other hand, I don't know why it should be necessary to testify. It seems that we fishermen have followed the legislature's lead in forming our self-help program, and you keep asking us to come back and tell you that we are really serious, that in fact we took your legislation serious. All I can say is, hell yes we're serious.

I feel that the aquaculture associations have proven themselves. I am speaking for Sitka, since I've been with that Association since we kicked the idea around over three years ago and now how it works. I would like to tell you what we have accomplished and Dr. Tom will be reading this letter, so you can be assured of that. I can elaborate on it.

we can show you some impressive progress in any program. I'll tell you about some of the.

For starters, fishermen demonstrated their support by voting to assess themselves \$1 to support the associations. For another, we conducted the most thorough public involvement program to date to find out

what fishermen want before we started spending money. This information not only helped us in planning our projects, but we gave the information to you in writing in the comprehensive regional salmon plan. Phase I of the Plan was just finished and we'll be giving you all copies soon.

As for this comprehensive salmon plan, which we did jointly with SSRAA and ADF&G through the Regional Planning Team you created a couple years ago, this Association put the first draft together, pulling in everyone's ideas -- fishermen, Fish and Game, Forest Service, sportsmen, you name it. I want to say Fish and Game really got on the ball for us. By successfully writing the first draft, which you probably know is the roughest work, we proved how we can get everyone to talk to us and work with us. SSRAA followed up with much hard work in putting the plan into good shape. I think when you see it, you'll agree that it is the best salmon plan you've ever seen written for our region in Southeastern.

Another project all of us fishermen are really proud of is the lake and stream survey program to do some lake stocking in a big way. We were lucky to hire the best expert in this field to design and run the project for us. Dick Crone, who started the whole program at Little Port Walter years ago, and who is writing a book on it right now, put this project together for us last year. He apparently impressed people so much we got lots of help. Fish and Game stepped in and gave us equipment, materials, and helped us look over samples we collected. The Forest Service, which was the primary sponsor of the program, is very willing to help us and has provided us with \$40,000.

worth of help, in manpower, boat and airplane travels, and all sorts of other things. The Forest Service and Fish and Game will help us again this year, with the Forest Service throwing in \$60,000 this time. Of course, we fishermen could not possibly do this job without that kind of help, but you can see how we worked as a middleman and got everybody lined up in the same direction.

We are planning two hatcheries, one at Salmon Creek in Juneau for chum and coho salmon, and one in Sitka Sound to produce young coho to stock in the lakes we choose. Both hatcheries are what we call "cheapies" -- we wanted them to produce the most fish for the least money. Prince William Sound and Sheldon Jackson have already proven that inexpensive hatcheries do work.

We've done all of this in spite of the fact that we received very little money, because the lawsuit froze-up what was collected. We have survived day to day on small loans and grants from the State and a small amount of assessment money. We could never have survived under such conditions without fishermen support, including thousands of donated hours for organization and planning, and work such as surveying spawning streams. Also, it's taken lots of public support, cooperation and facilities from agencies, free positions from agencies such as CETA and VISTA, and an exceptional and dedicated staff, in particular our general manager Derek [redacted]. You know, for awhile we had five fundraisers working, and four of them were paid for by federal programs. Our staff got pretty good at doing a lot with very little, and as long as our organization is doing a bunch of hard-headed things, that will continue.

The aquaculture associations were created by State law, and encouraged and supported by the State. We have come a long way in the face of many obstacles. I feel the State has a moral obligation to see this program through. If they drop the ball just as we are on the verge of putting some fish in the water, they are going to face a bunch of goddamn mad fisherren.

Here's a program that won't cost the taxpayer a nickel once it gets going. In a year of budget surpluses and requests for handouts on all sides, here is one group which only asks for the right to do something for themselves. We are not asking for public monies to fund our entire program, or our organization would have no justification. If our original assessment monies had come to us, as was voted on, this hearing would never have been necessary. With the legal problems that have developed with the assessment, we have depended on state loans and grants as front monies to carry us through, and it looks like one more round will be needed. But once the legal roadblocks are removed, grants will no longer be necessary.

You told us we should help ourselves, and we told the fisherren out there that we'll do just that - to put more fish in the water. I hope you'll help us live up to our word.

Thank you.

Dexter H. [unclear]
President, [unclear]

DKK:jd

If & When **HCR50** is re-scheduled

notify: Bruce Wing - Fishery Research Biologist
789-7231

and Dick Myren
789-7231

Stan Moberly

✓ Geron Bruce

STATE OF ALASKA
THE LEGISLATURE

POU. H. V. STATE CAPITOL
JUNEAU, ALASKA 99811

HOUSE REPRESENTATIVES

TO RESOURCES COMMITTEE

REMARKS:

Please return your committee copy
of HCR 50 which has been withdrawn
at the request of the sponsor, to
Julie at the Chief Clerk's Office.
Thanks.

FROM Chief Clerk's DATE 3/24

LAA 25-H

March 20, 1980

Statement for NMFS, Auke Bay Laboratory
Concerning HCR-50

Mr. Chairman, Members of the House Resources Committee: My name is Bill Heard. I am Coordinator of the Salmon Aquaculture Research Program at the Auke Bay Laboratory. This Laboratory is under line authority of the Northwest and Alaska Fisheries Center, one of four regional research centers of the National Marine Fisheries Service (NMFS). The Laboratory also works and coordinates closely with the NMFS Alaska Regional Office headquartered here in Juneau. I would like to read a prepared statement before your group regarding some of the issues raised in your covering letter of March 7, 1980, introducing HCR No. 50.

I wish to emphasize that I will only address some of the issues--specifically those that speak to matters of (1) technological aspects of salmon aquaculture; (2) overall welfare of Alaska's salmon resources; and (3) the high level of professionalism needed in managing Alaska salmon including the planning, design, implementation and integration of sound, rational aquaculture programs into comprehensive management plans. Most issues raised in the proposed resolution and letter speak almost totally to socio-political aspects of aquaculture, matters in which my agency does not have a direct role. NMFS does not manage lands in Alaska nor do we manage the fisheries within the State's waters. NMFS is directly involved in the Offshore Troll Fishery involving principally chinook and coho salmon by virtue of the Fishery Conservation and Management Act of 1976. Also NMFS is directly concerned with interception issues, notably those involving the United States and Canada where salmon originating in one country are caught by the other.

NMFS's primary role in Alaska aquaculture is one of supportive research; of providing sound technical and scientific support for orderly development of balanced hatchery and enhancement programs carefully integrated into comprehensive management approaches. Our Laboratory currently operates two experimental aquaculture facilities: at Auke Creek near Juneau and at Little Port Walter on the south end of Baranof Island. Both have been involved for the past decade with formal cooperative research programs between ADF&G and NMFS. A considerable volume of scientific research results on aquaculture in Alaska has resulted from these arrangements, touching such varied subjects as salmon egg incubator design, incubator substrate materials, fungus control, saltwater rearing pens, lake stocking, short-term rearing, floating raceways, brood stock development, terminal harvest strategies, vaccine testing, release time and size studies, and direct comparisons and interactions between wild and hatchery salmon. Additionally our staff has participated in the State's sockeye rehabilitation project at Lake Nunavugaluk in Bristol Bay and we have had informal research and advisory arrangements with Regional Aquaculture Associations as well as small non-association hatchery operators. Much of our research emphasis has been recently redirected toward the ecology of young salmon in estuaries, to learn the causes of variable marine survival in both wild and hatchery produced fish. Along with our programmed research, we frequently make technical comments on questions addressed to us from State and private hatcheries. Although NMFS as an agency is not involved in production hatchery programs in Alaska we will not hesitate to express concern and caution when aquaculture developments or practices are not founded on the best available technology or appear to jeopardize some portion of the salmon resource.

Specifically addressing some of the issues raised in the covering letter:

(1) Are we in danger of replacing wild with artificial stocks?

Mr. Chairman, in my opinion, it would be a very sad day for Alaska if this prospect ever became even a remote possibility. Unlike many other states and countries of the North Pacific Rim, Alaska is not yet forced into either hatchery salmon or no salmon. We must all strive to maintain this option by vigilance in protecting habitat and ecosystems that produce our wild salmon resources. Careful management by the stock concept can ensure continuation of wild stocks in concert with enhancement and development of artificial stocks.

The single most important salmon management principle that has slowly evolved over the years is the stock concept. This principle emphasizes the unique nature of each individual stock of salmon and seeks to adjust the harvest according to the strength of each stock. Weak stocks thus receive needed protection while strong stocks are more intensively harvested. The importance of hereditary and environmental factors in the evolution of wild stocks and wild stock interaction with artificial stocks must be foremost in decisions for management actions. Although the history of our salmon runs has been one of wide fluctuations, Alaska as yet has not suffered extensive irreplaceable habitat losses, as a result of industrialization, urbanization, watershed deterioration, or impounding of streams and rivers.

The core issue is not whether to focus only on natural or artificial production but how best to blend the two together to minimize the impact on wild stocks. Given increased understanding and improvements in aquaculture technology, the option to skillfully apply this knowledge should not be lost. In 1980 something between 2.5 and 3.0 billion juvenile salmon will be released from aquaculture programs around the Pacific Rim. Less than 5 percent of that amount will come from Alaska. Given the near certainty that ocean rearing areas of most Alaska salmon are not now fully utilized and given the fact that other states and nations are striving to increase their use of the available ocean carrying capacity for salmon it is important and logical for Alaska to field an active, effective aquaculture effort. Conversely, however, Alaska cannot afford indiscriminant and cavalier construction of hatcheries or other enhancement schemes. Skillful application requires scientific and social finesse in determining the appropriateness of (1) species emphasis at each location, (2) specific technology to use, (3) scope of production, (4) siting parameters, (5) harvesting strategies, and (6) interactions between other stocks and species in addition to interactions between competing user groups--all issues for which this committee is seeking answers.

(2) How many hatcheries are enough? Are we moving too fast with aquaculture efforts?

Many people do feel Alaska is trying to go too far too fast with its salmon hatchery programs. Certainly the decade of the 1970's could be called a "Decade of Hatchery Development" in the State. Perhaps the 1980's should be directed toward a "Decade of Hatchery Performance and Evaluation." The number of hatcheries and other enhancement programs and the rate of their development should be consistent with proven scientific and technical knowledge and our demonstrated ability to apply this knowledge to integrated management schemes that maintain and enhance our all-important wild stocks.

How can we maximize the benefits of artificial salmon production without jeopardizing wild stocks and yet continue to rebuild depressed natural runs? There are many aspects to this question but two principles go a long way toward achieving this goal. First we must minimize direct interaction between hatchery and wild stocks. Secondly when interactions do occur, we must carefully bias effects of the interaction in favor of the natural runs.

Hatcheries or other enhancement programs can have many positive effects on Alaska salmon fisheries, but perhaps two are most significant. A well planned, properly located and successful hatchery will produce returning fish; some will be available for harvest in existing fisheries, but of more importance are the special fisheries that may be required in terminal areas and the use of the fish after hatchery stocks separate from other stocks. Most Alaska hatcheries will be located at or near

tidewater and on simple stream systems, avoiding complicated upstream hatchery stock-wild stock mixtures in major rivers. Secondly, because hatchery stocks can sustain greater harvest rates than wild stocks, well thought-out management strategies are critical in dealing with mixtures of wild and hatchery fish. Both the fisheries manager and the fishermen he regulates will become increasingly aware of the necessity to adjust harvests to the strength of individual stocks. Thus hatcheries may be expected to cause further movement away from mixed stock fisheries toward more precise management of individual stock units. Each hatchery or enhancement project, if properly designed and evaluated becomes an important research tool in broadening our total understanding of salmon dynamics and management. Our ability to deal with mixtures of wild and hatchery fish, the limitations of terminal harvest strategies along with maintaining high standards of industry product quality will likely self-limit Alaska hatchery development.

(3) Are biological questions being adequately addressed? What about disease control, hatchery siting, brood stock development, and separation of stocks?

Mr. Chairman, these are all vital technical matters that must be effectively dealt with before Alaska can have a successful aquaculture program.

I have already touched on stock separation and hatchery siting. Disease control and brood stock development are equally important. Although our laboratory does not specialize in disease research, we are proud of our cooperative role in helping to develop a comprehensive fish disease program in the State. Regarding brood stock development for hatcheries, most MFS

research scientists in Alaska tend to be cautious and conservative on this matter mostly out of concern over possible detriment to wild stocks. Unfortunately the time required to develop brood sources for a specific hatchery is, in many people's minds, not consistent with reality. However, if Alaska is to maintain and manage aquaculture programs as discrete entities and avoid adverse interactions with wild stocks, we must proceed with caution in developing hatchery brood stocks. What are the best and most scientifically sound approaches to brood stock development? Should we try to develop a hatchery brood quickly perhaps with large transplants of eggs in a short time frame? Or should we opt for developing brood more slowly, allowing time to integrate resultant returns into the genetic makeup of the stock? How fast will genetic traits of a given stock be adapted or modified to a specific hatchery environment? Unfortunately technology can't give pat answers to these questions because of the many complex and poorly understood biological phenomena involved. Our advice in the absence of complete knowledge is to make full use of the information that is available, proceed cautiously, and tend towards adaptation and development of a local stock even though it may be more expensive and require more time.

To summarize some of these points: (1) hatcheries and related aquaculture developments in Alaska should not threaten wild stocks of salmon; management by the stock concept ensures continuation of wild stocks yet allows careful development of artificial stocks; (2) the number of hatcheries and other enhancement programs and the rate of their development should not exceed a demonstrated ability

to apply available technology and research information to management schemes that preserve and enhance wild stocks; (3) many important, unanswered questions concerning basic biological phenomena must be dealt with, frequently on a site specific or individual project basis before salmon enhancement in Alaska can reach its fullest potential.

Mr. Chairman, the complexities of these issues bring me to the last item I wish to address--that of professionalism in our fisheries. Whatever socio-political provisions the Legislature decides are appropriate for salmon aquaculture in Alaska, you should be constantly aware that aquaculture involves extremely complex biological matters that call for the highest levels of professional competence. Our salmon, as a public resource held in trust for all, deserve nothing less than the most competent, highly trained, experienced professional biologists, geneticists, pathologists, managers, culturists, engineers, and technicians available. The resource must be managed by capable responsible public agencies sensitive to both needs of the users and of the resource. And if we err let it be in favor of the resource, not the user, nor a particular social institution. To do less would be a disservice to our heritage.

DRAFT

House Concurrent Resolution No. 50, requesting the governor to suspend the issuance of grants and loans for fisheries enhancement, proposes two moratoriums-- one on grants to regional aquaculture associations and a second on loans to regional aquaculture associations until a legal assessment of fishermen is established and sufficient collateral is guaranteed to secure loans.

The state, over the last decade, has embarked on an ambitious program of fisheries enhancement and development. The current wealth of the state provides us with the opportunity to continue and expand this effort. However, before we automatically proceed, it might be wise to take a close look at the existing efforts and determine whether they should be continued in the same manner or whether changes in direction and emphasis should be made.

The House Resources Committee will hold a hearing on HCR 50 on ~~Tuesday~~, March 25 at 3 p.m. in Juneau. As sponsor of the resolution, I'd like to have it serve as a basis for discussion of aquaculture purposes and direction in general, and I invite your participation. If you cannot attend the hearing, I would appreciate your written comments and would make them available to all members of the committee. The following questions may provide a framework for your comments.

1) What should be the areas of responsibility of the regional aquaculture associations, the "Mom and Pop" non-profit hatcheries, and the state's Division of Fisheries Rehabilitation, Enhancement, and Development? Which entities should be building and operating hatcheries, fertilizing lakes, clearing streams, controlling precatation, etc?

2) Where are there needs for greater cooperation between the private non-profit hatcheries and associations and F.R.E.D.? How can cooperation be fostered, and what degree provides for the greatest efficiency?

3) What limits should be placed on the non-profit hatcheries and regional associations? How accountable are they now to the fishermen, the public, and the resource, and how can this be improved?

4) What should the role of commercial fishermen be in providing for fishery resources? What control should they exert over those resources?

5) Who is more responsive to the fishermen, the public, and the resource-- F.R.E.D. or the regional associations? Which represents the best state investment?

6) Where should the emphasis be placed in aquaculture programs? What are the relative benefits of hatcheries, rehabilitation efforts, and enhancement projects?

7) How many hatcheries are enough? What will be the effects, biologically and economically, of producing more and more salmon?

8) Are the biological questions being adequately addressed by the state and the regional associations? How are the problems of disease control, hatchery siting, brood stock supplies, and separation of stocks being handled?

9) Are we in danger of replacing wild with artificial stocks? What are the ramifications of this?

10) How will aquaculture programs-- state-run and private-- pay their way? How will costs be recovered? Are hatchery harvests appropriate?

11) Are we moving too fast with aquaculture efforts?

What would be lost by slowing expansion down and perfecting what we already have?

12) Where are the lines drawn between biological and political management? How can existing problems be mitigated and future ones averted?

- Hugh Malone

To: Mr. Chairman, Members of the House Resources Committee, and
Representative Hugh Malone

From: St. James Bay Aquaculture Association
Rob ~~Malone~~

Subject: Hearing on HCR 50

St. James Bay Aquaculture Association is a group of Alaskans who are in the process of forming a private non-profit hatchery. The following are our statements concerning HCR 50. The questions were suggested by Hugh Malone as a spring board for commenting, but our group decided we might express our feelings by commenting on each question. Several of the questions require considerable detail to answer. Others are essentially unanswerable at this time; therefore, our statements are only brief overviews.

1. The entire area of salmon enhancement should be considered an opportunity for all Alaskans who wish to participate in and enjoy the benefits of what can become one of this state's greatest renewable resources. Persons, whether they call themselves "regional association" or a private non-profit hatchery can create a stable food source for export. Their efforts will provide an income for commercial fishermen, fish processors, local business, and the state. Sports-fishing and tourism will also be enhanced. No one group should infringe upon the opportunity of others to enjoy what can easily become Alaska's greatest industry. However, ground rules should be made and enforced to prevent, ignorant, non caring, or avarice people from playing havoc with salmon stocks and other hatchery operators. For example, every effort should be made to prevent indiscriminant mixing of stocks which destroy the natural inclination

of fish to return to their home stream. The tragedy that occurred in the Columbia River drainage should be prevented in Alaska. Selective breeding should be outlawed until certain kinds can be proved safe. The genetic integrity of each stream should be maintained as much as possible. When any bonafide hatchery obeys the ground rules, they should have the freedom to develop salmon production for their area.

The state's FRED division should continue to maintain an overview of enhancement possibilities and proceed with their own hatcheries where they feel hatcheries are needed. They should set a good example of intelligence and good science for others to follow. Perhaps the greatest function the FRED division can perform is in the area of enhancement of the three high risk salmon, the red, silver, and king salmon. Perhaps in most cases, non-profit hatcheries will not attempt to propagate any one of these three species until they have developed a secure base with chum and pink salmon. Technology developed by FRED could be passed on to the non profit hatcheries.

2. To promote the greatest degree of cooperation between the three enhancement groups, there should exist an easy way for each group to communicate with the others. Good communication is the key to working out differences, for sharing ideas, and to treat each other fairly. No one group should be discriminated against by not having an equal opportunity to express their views. Perhaps the FRED division should become a central co-ordinator for funneling information between hatchery groups. Cooperation provides for the greatest degree of efficiency.

3. Non profit hatcheries and associations should always be accountable to fishermen, the public, the resource, the streams or lakes they use, the natural wildlife that also use salmon, the ocean environment they are using to rear salmon, and to various state agencies. Poorly managed hatcheries can create a host of problems. For example, they can spread disease and propogate strays. Salmon enhancement could become big business, and, like any business, should be responsible to whoever, or whatever they affect. Three limitations that may help control enhancement programs are:
 - 1) set strict guidelines for salmon farming
 - 2) prevent any group from having preferencial treatment at the expense of others
 - 3) prevent big business from eventually monopolizing all salmon enhancement.
4. Eventually, commercial and sports fishermen should enjoy a consistant and bountiful harvest of hatchery produced salmon. Since the sole support for non-profit hatcheries is to sell excess fish returning to the hatchery, perhaps fishermen could work with management biologists to ensure hatcheries get enough returns to meet expenses.
5. Because we intend to become a successful private non-profit hatchery, we feel we are as capable of showing as much responsibility to fishermen, the public and the resource as anyone. However, we feel the FRED division could probably best serve sportsmen and salmon trolle by producing silver and king salmon since these are expensive to produce and are a high risk fish. In many cases, only well

established associations or private non-profit hatcheries would dare attempt to rear these fish in numbers. This is equally true for the red salmon. Since FRED is tax supported, they are in a position to afford the facilities and develop the technology to rear these three species. Our own group could produce enough silver salmon which the streams could support naturally, but we wouldn't attempt large scale culture of this species until we had succeeded with pink and chum salmon.

Perhaps another job FRED division could undertake is to rehabilitate depressed streams by means of portable hatcheries. The hatcheries would remain on a stream long enough to produce enough fish which the stream can support naturally, then move to another stream.

6. Emphasis on aquaculture programs should include at least two concepts. First, build salmon stocks to consistent harvest levels to provide a reliable industry for the state. This industry includes tourism as well. Second, return depressed streams to their former levels.
7. The state of the art has not been reached to say how many salmon the ocean can support or what the effects will be on other life forms with too many salmon in the ocean. These are important concerns and should be addressed.

Economically, it may be possible to glut existing markets with too many salmon. However, American fishermen and processors have never developed the great potential market for salmon that exists in the U.S. and the world.

8. We do not know how well biological problems are being addressed. We hope they are being taken seriously by all concerned. Professional biologists and hatchery operators alike should be constantly aware of the biological consequences of mixing stocks, selective breeding, and other manipulations they perform on salmon.

9. A hatchery system may, theoretically, automatically replace wild stocks with artificial stocks. For example, a hatchery may promote the existence of young salmon that normally would not survive. These salmon are given the opportunity to survive and mate. A hatchery may mix early spawners with late spawners and thus destroy a stock separation that existed naturally in the stream. Selective breeding may be very bad. All of the biological problems of poor salmon ranching are not fully understood, so it seems a good idea to attempt to breed hatchery fish as much as possible as nature had done.

10. Hatcheries must be assured that part of the run will return to the stream in order for the hatchery to pay their expenses and collect brood stock.

11. Aquaculture efforts are moving too slowly. Salmon harvests are down in many areas. Yearly returns are not consistent, which is difficult for the fisherman, processors and related industries. Hatcheries help to assure consistency in the industry.

12. Political management should never supercede what is true, or fair, or honest. Politicians should weigh their decisions on the findings of competent and unbiased salmon biologists, planners, economists and other professionals.

HC250

BRUCE L. WING, PH.D.
FISHERY RESEARCH BIOLOGIST
OCEANOGRAPHY INVESTIGATIONS

LUKE BAY FISHERIES LABORATORY
P.O. BOX 155
LUKE BAY, ALASKA 99521

HOME
(907) 789-2933
OFFICE
(907) 789-7000

723

This testimony was not heard due to lack of time

American Institute of Fishery Research Biologists

An association incorporated in 1958 to establish and maintain high professional standards by recognition of achievement and competence.

Alaska District, Box 265, Auke Bay, AK 99821

Mr. Chairman ^{Mr.} Malone and Members of the House Resources Committee

I am Bruce Wing, Director of the Alaska District of the American Institute of Fishery Research Biologists. The Institute is an international organization of professional fishery biologists dedicated to the application of sound biological principals and the results of biological research to fisheries management and to improving the quality of professional fishery management and research. Currently we have about 50 members in Alaska representing academic, federal, state and private organizations. We are independent of the American Fisheries Society, although most of our members belong to both organizations.

All the questions of your covering letter to HCR-50 have been topics of thought and private discussion by our members. The questions are complex and many extend beyond biological technology and theory into the sociological and political arenas, thus generating strongly divergent opinions. Consequently, the Alaska District of AIFRB has not developed a consensus within the short time available. Many of the thoughts and opinions of our membership have been given by previous speakers or will be presented by following speakers.

As the representative of a group which acts in a conservative and deliberate mode after considerable debate, the rapidity of this resolution is of concern to our membership. We are worried that its final effects may

extend beyond its stated concerns and its objective of preventing wasteful expenditure of public funds.

In your cover letter to the proposal you listed 12 sets of questions. The first five are in the realms of economics, sociology and politics, not in biology. However, whoever ultimately receives responsibility for maintaining and increasing our salmonid fisheries must realize that we are not working with backyard garden plots. It is mandatory that the activities be conducted with the best professional expertise available and that the quality of the professionals continues to increase.

There always will be some conflicting opinions and a certain amount of competitiveness between the several entities involved in salmonid fishery enhancement activities. Our concern with this resolution is that it may ultimately breakdown the present lines of communications and cooperation that have been developed in the past few years. Alaska appears to be ahead of other states in developing programs in which potentially conflicting resource users and managers work cooperatively.

Question sets 6 through 9 are being addressed by many of our members in their daily work. Because we are dealing with a complex biological and physical environment, simplistic answers are not reliable. Present research efforts are at a low level. We definitely need more research activities and time to evaluate the results of present and past aquaculture actions. Observations on one or two cycles of fish are not adequate for evaluating the effectiveness of any enhancement method. There is a natural tendency to rush from a preliminary experiment to full scale if

the first results are promising. This results in failure to evaluate interactions and natural variation. Thus when the next cycle is less than expected, we look for sources of blame or error rather than understanding. Enhancement activities should be treated as long term research experiments and monitored as part of research program.

To quickly finish, we are concerned that this resolution may have the effect of endangering the present cooperation in research efforts between the existing entities (the aquaculture associations, Department of Fish and Game, National Forest Service, National Marine Fisheries, University of Alaska, etc.) and make more difficult future cooperative research programs.

Thank you.

Bruce L. Wing Ph.D.
20 March 1980

AFIRB

American Fisheries Society

Isaac Walton League

F.R.E.D., Com Fish, Sport Fish

Bob Blmer

Terry Gardner

Shee Atika, Inc.

West Side Fishermen's Association

United Fishermen of Ak.

Southeast Ak. Seine Boat Owners + Operators

NMFS

USF+W

Rep. Malone's office
mailed this letter &
info to these people:

and all
aquaculture
assoc.'s listed

LIST OF PRIVATE NONPROFIT/SCIENTIFIC/EDUCATIONAL HATCHERIES

CORPORATION
SOUTHERN SOUTHEASTSTATUSLOCATIONEGG CAPACITY

- | <u>CORPORATION</u>
<u>SOUTHERN SOUTHEAST</u> | <u>STATUS</u> | <u>LOCATION</u> | <u>EGG CAPACITY</u> |
|--|---|---------------------------|---------------------------------------|
| 1. Southern Southeast Regional
Aquaculture Association
307 Mill Street #5
Ketchikan, Alaska 99901
225-2171
Attn: Ron Wendte | Regional Association
PNP Permit, Operational | Ketchikan
Whitman Lake | 23 million chum
2.3 million coho |
| 2. Alaska Aquaculture Foundation, Inc.
Box 1288
Wrangell, Alaska 99929
874-2013
Attn: Tod A. Jones | PNP Permit, Operational | Burnett Inlet | 5 million pink and chum |
| 3. Meyers Chuck Aquaculture Association
Box 15
Myers, Chuck, Alaska 99903
946-1234
Attn: Robert Meyer | PNP Permit, Operational 7/27/75 | Myers Chuck | 1 million pink |
| 4. Twin Creek Salmon Ranch, Inc.
P.O. Box 97
Petersburg, Alaska 99833
772-3282
Attn: Darline Clausen | PNP Preliminary Application | Twin Creek | Requested: 7 million pink
and chum |

CORPORATION
NORTHERN SOUTHEAST

STATUS

LOCATION

EGG CAPACITY

- | <u>CORPORATION</u>
<u>NORTHERN SOUTHEAST</u> | <u>STATUS</u> | <u>LOCATION</u> | <u>EGG CAPACITY</u> |
|---|---|---|--|
| 1. Northern Southeast Regional
Aquaculture Association
Box 786
Sitka, Alaska 99835
747-6850
747-6730
Attn: Dr. Derek Poon | Regional Association | Sitka | No hatcheries |
| 2. Sheldon Jackson College
Aquaculture Program
P.O. Box 479
Sitka, Alaska 99835
747-6264 - Office
747-5238 - Hatchery
Attn: Mel Seifert | PNP Permit, Operational

Sci./Ed. Permit | Indian River

Indian River | 15 million pink and chum

Miscellaneous species |
| 3. Douglas Island Pink & Chum, Inc.
RR 4, Box 4754
Juneau, Alaska 99803
465-2510
Attn: Ladd Macaulay | PNP Permit, Operational

PNP Permit #11 (Issued 9/79) | Kowee Creek

Sheep Creek | 5 million pink -
1 million chum

5 million pink -
and chum |
| 4. Fish Fry, Inc. (Southeast Gillnet
Federation)
853 Basin Road
Juneau, Alaska 99801
586-2242
Attn: Jev Shelton | PNP Permit Approved | Salmon Creek | 4.5 million pink and chum
500,000 coho |
| 5. Kake Nonprofit Fishery Development
Corporation
P.O. Box 263
Kake, Alaska 99830
785-3221
785-3262
Attn: Clarence Jackson | PNP Permit, Operational | Gunnuk Creek
(new construction site
being considered) | 3 million pink and chum |

CORPORATION
NORTHERN SOUTHEAST CONT'D.

STATUS

LOCATION

EGG CAPACITY

- | <u>CORPORATION</u>
<u>NORTHERN SOUTHEAST CONT'D.</u> | <u>STATUS</u> | <u>LOCATION</u> | <u>EGG CAPACITY</u> |
|---|--|-----------------------------------|--|
| 6. Richard Mathews
Dennis Lund
Box 786
Sitka, Alaska 99835 | Preliminary Application | Port Armstrong
Baranof Island | 10 million pink and chum <i>prelim. app.</i> |
| 7. St. James Bay Aquaculture Inc.
P.O. Box 648
Douglas, Alaska 99824
Attn: Rob McLeod | Preliminary Application | St. James Point | 1.5 million pink and chum <i>prelim app</i> |
| 8. Kake City Schools
Kake, Alaska 99830
785-3731
Attn: Chuck Larson | Sci./Ed. Permit, pending renewal | Gunnuk Creek | 40,000 pink / 25,000 chum |
| 9. Tlingit & Haida Central Council
One Sealaska Plaza, Suite 200
Juneau, Alaska 99801
586-2204
586-1432
Attn: Dr. Y. R. Mayudu | PNP Preliminary Application | Deep Cove (Baranof Island) | Requested: 12 million pink -
and chum |
| | PNP Permit, Not Operational | Maksoutof River (Baranof Island) | 1 million pink
1 million chum |
| 10. Angoon Aquaculture Association, Inc.
P.O. Box 135
Angoon, Alaska 99820
Attn: Peter Hease | PNP Preliminary Application | Mitchell Bay-
Admiralty Island | Requested at full capacity:
150,000 coho
25 million chum |
| 11. Burro Creek Farms
P.O. Box 8324
Ketchikan, Alaska 99901
225-2405
225-9696
Attn: Eugene Richards | Public Hearing Scheduled: Late
October - early November | Burro Creek | Requested: 10 million pink
and chum , |

CORPORATION
PRINCE WILLIAM SOUND

STATUS

LOCATION

EGG CAPACITY

- | <u>CORPORATION</u> | <u>STATUS</u> | <u>LOCATION</u> | <u>EGG CAPACITY</u> |
|--|---|------------------------------|------------------------------|
| 1. Prince William Sound
Aquaculture Association
.O. Box 1110
Cordova, Alaska 99574
424-7511
424-7512
Attn: Armin Koernig | Regional Association

PNP Permit, Operational | Cordova

Port San Juan | 55 million pink and chum |
| 2. NERKA, Inc.
Box 80165
Fairbanks, Alaska 99708
479-2476
Attn: Dr. Jack Van Hyning | FNP Permit, Operational | Perry Island | 3 million pink and chum |
| 3. Institute of Marine Science
University of Alaska Marine Station
P.O. Box 617
Seward, Alaska 99664
224-5261
224-5262
224-5263
Attn: Jack Schwartz | Sci./Ed. Permit | Seward | (500 juvenile pink) |
| 4. Valdez Fisheries Development Corp.
Box 125
Valdez, Alaska 99686
835-4874
Attn: Jason Wells | Sci./Ed. Permit | Valdez | 400,000 chum
360,000 pink |

COOK INLET

- | | | | |
|---|--|---|--|
| 1. Cook Inlet Aquaculture Association
P.O. Box 850
Soldotna, Alaska 99669
262-4441
Attn: Floyd Helmbuch | Regional Association

PNP Preliminary Application

Sci./Ed. Permit | Soldotna

Eklutna

Eklutna Power Plant Site | No hatcheries

Requested: 65 million
pink and chum
also at capacity, 5 million
coho, 5 million king

Incubator Evaluation |
|---|--|---|--|

CORPORATION
COOK INLET CONT'D

2. Homer High School
Homer, Alaska 99603
235-8186
Attn: Frank Libal

STATUS

Sci./Ed. Permit (Inactive)

LOCATION

Homer

EGG CAPACITY

3. Un-named
P.O. Box 205
Seldovia, Alaska 99663
234-8422
Attn: Harley Hess

Public Hearing held on
11/27/78 (PNP)

Perl Island

Requested: 1 million coho

4. Bartlett School
Tyonek, Alaska 99682
583-2291
Attn: Paul Zobeck

Sci./Ed. Permit

Tyonek

4,800 pink

5. Irreantum Inc.
P.O. Box 225
Kenai, Alaska 99611
Attn: Donna L. McCubbins
776-8697

Preliminary Application

Jakolof Creek Bay

5 million pink and
15 million chum

KODIAK

1. Kodiak Area Native Association
Box 172
Kodiak, Alaska 99615
486-5725
Attn: Bill Osborne

Sci./Ed. Permits

Port Lyon's
Ouzinle
Kodiak High School (Lake
Rose Tead Creek)
Old Harbor

6,000 pink or coho each

2. Village Island Sea Ranching, Inc.
345 North Maple Avenue
Monrovia, California 91016
Attn: Blain Sikes

Preliminary Application

Uganik Bay

17 million pink and chum

CORPORATION:
BRISTOL BAY

STATUS

LOCATION

EGG CAPACITY

1. Imaprik
P.O. Box 179
Dillingham, Alaska 99576
842-5257
842-5258
Attn: Andrew Golla

Regional Association

Dillingham

No hatcheries

ALASKA PENINSULA

1. Aleutian/Pribilof Island
Association
430 "C" Street, Suite 303
Anchorage, Alaska 99501
278-3567
Attn: Patrick Plotnikof

Seeking Regional Association Status

No hatcheries

2. Sand Point Aquaculture Association
P.O. Box 132
Sand Point, Alaska 99661
283-2393
383-3545
Attn: Mike Breitzman

Sci./Ed. Permit

Sand Point (Humbolt Creek)

200,000 pink

3. Unalaska City School
Unalaska, Alaska 99685
581-1222
Attn: Delmer Olsen

Sci./Ed. Permit

Unalaska

51,200 pink
58,500 coho

*Nisilaki
Hatchery*

AYK

1. AUCP Fisheries Development
PO Box 641
Bethel, AK 99557

*Requesting Recognition
Regional Association
Sci/Ed. Permit*

Bethel

*1 Million Coho
500,000 Chum*

CPC SUBSISTENCE WORKSHOP

Issue: Limited Entry

Whether to allow the filing of applications for limited entry permits by those persons who did not file in a timely manner and to provide for the allowance of additional limited entry permits in the Upper Yukon Fishery.

The discussion of these two limited entry issues occupied a great portion of the work of the workshop. The late filing bill, HB 665, sponsored by Rep. Anderson, came under attack by both the Limited Entry Commission and the United Fishermen of Alaska. They explained that there would be too many new fishermen allowed into the salmon fisheries which have not recovered as is popularly believed. On the other hand, it was brought out that there were many problems with the initial application period and that the people who missed filing should be given the opportunity to file at this time. It was felt by the participants that it would be beneficial to rural Alaskans if the application period was reopened. HB 665 was favorably recommended 21-1.

As to SB 187, the Upper Yukon Limited Entry Bill, the participants recommended against its passage 7-6. The failure of the bill to adequately address the allocation problems that would be caused by more permits in the upper positions of the river was the primary cause for this opposition to the bill.

Issue: Aquaculture

Whether to stop financial support for aquaculture associations until the legislature was more certain of the financial responsibility of these organizations.

The participants voted 19-0 against the passage of HCR 50 which calls for the moratorium on grants to aquaculture associations feeling that these programs were very worthwhile and while the legislature has an interest and is taking a close look at the associations, this was much too drastic a response to the perceived problem.

Lower
Kuskokwim Aquaculture
Assoc. on HCR 50

one of
1. In my opinion, the primary reasons for the Private Non-Profit hatchery program and the importance of its success is that our economic system does not allow for cost efficient government operations in the process of renewing a renewable resource. The general public should not have to pay for government projects that do not provide a direct return benefit to them as tax payers.

The creation of the F.R.E.D. Division in the Alaska Department of Fish and Game has been in most cases a valuable asset to the states economy. Through research and the application of aquaculture and fisheries enhancement projects, government agencies (F.R.E.D. Division and N.M.F.S.) have not only proven the feasibility of the salmon enhancement efforts, but through their successes and failures have provided a basic model for productive salmon enhancement in Alaska. Government agencies in our economy should stay within the framework of research, education and regulation.

The means for the transition of salmon production to the private sector were provided through the legislative creation of the PNP program. Because of the Superior Court decision ruling "mandatory assessments" Section 16.10.530 unconstitutional, the PNP program appears to be in a precarious situation. Section 16.10.520 (c) reads:

All loans must be secured by collateral satisfactory to the commissioner, including but not limited to a first deed of trust, assignment of lease and leasehold improvements, sale of surplus fish from the hatchery, or royalty assessments from fishermen levied under AS 16.10.530-AS 16.10.540.

Because one of the five listed collateral arrangements was ruled out, I see no reason to let the PNP program falter. We need to focus on the final product, a statewide system of Private Non-Profit hatcheries and enhancement projects providing the fisheries resource with optimal harvests and future security in the industry. I believe the means for this final product are already here and that the problem is in their interpretation. The F.R.E.D. Division did not have to depend on a royalty assessment for their projects and neither should we. No one can just throw up a facility any were, at least not the P.N.P. outfits. The permit application process is very thorough in the review of any proposed production project and any approved project in all likelihood will be successful. It is extremely important to get the P.N.P program off to a good healthy start. The first deed of trust, a promissory note as to the sale of surplus hatchery fish and the likelihood of successful voluntary assessments when hatchery returns become evident, are sufficient means of securing the much needed start up loans. I would like to see some legislation allowing the state to "loan" existing facilities to the associations enabling the state to be payed off for the facility while at the same time providing for a smooth faster transition.

2. The need for greater cooperation between P.N.P. groups, associations, and the F.R.E.D. Division is very important. On the surface I think the cooperation has improved. There are however questions which need to be answered in regards to this cooperation. Considering that the F.R.E.D. Division is the agency responsible for providing both assistance and regulation to the P.N.P program and considering the financial position of the F.R.E.D. Division in light of the aforementioned cost effective and public funding problems and considering the possibility that the success of the P.N.P. program might directly endanger the F.R.E.D. Division, There appears to be a possible conflict of interest in the assigned role of the F.R.E.D. Division in regards to the successful initiation of the P.N.P Program.

3. The non-profit hatcheries and regional associations have more than enough limitations through the regulations imposed on them by the Alaska Department of Fish and Game. The state regulations provide adequate means of control.

4. In any renewable resource situation it stands to reason that the industries which rely directly on the resource as their means of support should commit themselves towards the rejuvenation of the resource when ever possible. The timber industry has learned that replanting a harvested area is not only responsible management, but also very profitable. In the fishing industry where many species particularly salmon, have two to eight year harvest replenishment cycles, the idea of industrial rejuvenation is even more practical.

The P.N.P. Program provides the fishing industry with an efficient method of activating such a commitment.

5. It is imperative that the state of Alaska does not view the F.R.E.D. Division and the P.N.P. Programs as a wrestling match. The best investment for the state would be to place in effect a step by step transition period of ten years at which time all major salmon production projects would be run by P.N.P. organizations. Both the F.R.E.D. Division and the P.N.P. organizations should be equally responsive to the fishermen, the public, and the resource. The F.R.E.D. Division should focus on research and regulation of fisheries enhancement programs. There are many other species of commercially feasible fish, the rehabilitation, enhancement, and development of which need to be evaluated and demonstrated.

6. The need for flexibility in fisheries enhancement programs is critical. In many cases egg eyeing stations, habitat improvement, on site artificial spawning, lake stocking or lake fertilization projects will be more cost effective than multimillion dollar hatcheries. The flexible use of any and all of these enhancement methods will play a large roll in the success of the P.N.P. program.

7,8,9. The production of any renewable resource has various problems which must be addressed. The idea behind fisheries enhancement should be to allow the fishermen optimal harvest while at the same time minimizing the impact on the available stocks by insuring adequate maximum yield escapement.

There are many guidelines to follow in any fisheries enhancement project. So long as these guidelines are followed major problems are minimized. It must be remembered that so long as artificial spawning is carefully done to avoid genetic problems and proper disease control is utilized, a hatchery reared salmon upon its return as an adult is essentially as wild as its native cousins or it never would have survived its life in the ocean.

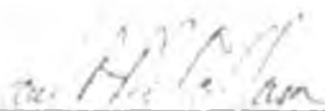
The case of wild versus hatchery reared salmon is a valid problem which is clouded over with misconceptions of past genetic or disease tragedies. As a virgin stand of timber the value of an original native stock is important. Equally important is the need for people to understand that an original native stock can be supplemented without danger to insure its survival. This can and should be done only when necessary. In the event that an original native stock is severely depleted or destroyed then the following hatchery runs must replace the original native runs. Even in these cases a "wild" run can be maintained by allowing a percentage

for natural up stream reproduction.

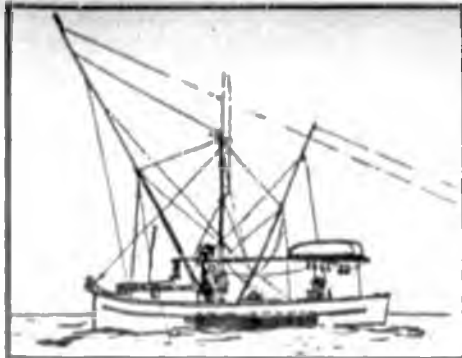
10. Private aquaculture programs will achieve cost recovery through the sale of surplus fish, the sale or utilization of spawned carcasses, and voluntary assessment by the fishermen and the processors.

11. Aquaculture efforts in our state are moving too slow. When private aquaculture efforts have available to them smoother start up procedures then the pace will be about right. The permit application review process perhaps could be improved. The formation through the Board of Fisheries of a fisheries enhancement body would probably be a valuable asset to the state. So long as projects are not politically bulldozed into existence and go through the existing channels no harm will come from stepping up the pace. Fisheries enhancement in Alaska needs to advance at a steady pace. The mechanics to advance too fast do not even exist so long as existing regulations stay in place. However, at the same time to advance too slowly with overcaution being the rule rather than the exception many of the states valuable fisheries resources can and are being jeopardized. In view of the fact that it takes years of planning, permit applications and biological evaluations of any enhancement project together with the number of years for construction and the initial returns of any given projects, the period of time from planning to production, can amount to ten years or more. This fact makes too slow a pace for enhancement hazardous to the fisheries resource.

12. In any industry the more money involved dictates a proportionally thinner line between biological and political management of the related resource. Fisheries has a thin line which allows all too often for depletion of the resource. This is yet another reason to insure the success of the salmon enhancement effort.



Paul McCollum
L.Y.K.A.A. Director



Alaska Trollers Association

REPRESENTING ALASKA POWER TROLLERS

205 North Franklin Street
Juneau, Alaska 99801
(907) 586-9400

March 19, 1980

Representatives Bill Miles and Alvin Osterback
Co-Chairmen
House Resources Committee
Pouch V
Juneau, Alaska 99811

RE: HCF 50

Gentlemen:

The Alaska Trollers Association strongly opposes HCR 50, and would like to go on record in the strongest terms in support of both private, non-profit and state supported aquaculture.

The salmon resources of southeastern Alaska are in trouble. Not only have management problems and destruction of habitat reduced the stocks, but pressure from our neighbors in Canada and along the west coast of the U.S. may further reduce the number of fish necessary to maintain a viable fishing industry in Alaska.

By far the most constructive reaction to this admittedly complex situation is aquaculture. Yet aquaculture is by no means yet an exact science, and its diverse problems and unknown areas are best served by a diversity of approach to their solution. An example of this is the spring chinook; none of the groups in Alaska have a completely workable approach, and any reduction in the various solutions being contemplated can only make a solution more difficult to reach.

There has been good cooperation between FRED facilities and those in the private sector. While state facilities can offer stability and long-term certainty of funding, the flexibility of private facilities may allow quicker results. For example, SSRAA will be releasing its first batch of cohos this spring from a completely new facility.

We urge the legislature to invest in the future of Alaska's salmon industry by supporting both state-funded and private aquaculture efforts.

Sincerely,


Lewis Schnaper
Executive Director

BACKGROUND

I. RESPONSIBILITIES

A. STATE RESPONSIBILITIES

1. ENHANCEMENT AND REHAB PROJECTS OF ALL KINDS.
2. WORK WITH REGIONAL ASSOCIATIONS TO DEVELOP COMPREHENSIVE PLAN
3. WORK WITH REGIONAL ASSOCIATIONS TO IDENTIFY BEST REGIONAL ASSOCIATION
HATCHERY SITES; TO DESIGN HATCHERIES; IDENTIFY AND MAKE AVAILABLE
SUFFICIENT BROODSTOCK; TO DEVELOP AND IMPLEMENT SATISFACTORY HARVEST
MANAGEMENT PLANS; TO INSURE THAT ONLY DISEASE-FREE JUVENILES ARE RELEASED;
TO ENTER INTO JOINT VENTURES WITH REGIONAL ASSOCIATIONS FOR LAKE
FERTILIZATION, STREAM REPAIR AND OTHER PROJECTS; TO FURNISH PRIVATE-
SECTOR TECHNICAL ASSISTANCE AS TIME AND BUDGET PERMITS ARE AVAILABLE.
4. TO MANAGE STATE-OWNED HATCHERIES SO THAT IN THOSE CASES WHERE THERE IS
ADEQUATE TERRITORIAL SEPARATION OF STOCKS AND THE HATCHERY STOCKS CAN BE
MANAGED TO PRODUCE A HIGH-QUALITY PRODUCT FOR HUMAN CONSUMPTION, THEN
THE STATE HATCHERY HARVEST SHOULD BE OFFERED SO THAT APPROXIMATELY TWO-
THIRDS OF THE PRODUCTION IS AVAILABLE FOR THE COMMERCIAL FISHERMEN TO

HARVEST (AS WITH NATURAL STOCKS) AND THE OTHER THIRD HARVESTED BY
COMMERCIAL FISHERMEN UNDER CONTRACT TO THE STATE, WITH THE MAJOR
SHARE OF THE REVENUES OBTAINED GOING TO THE STATE'S GENERAL FUND TO
PAY FOR THE OPERATING COSTS, INCLUDING DEBT SERVICE, OF THE HATCHERY
AND RETURN ADDITIONAL MONIES TO BENEFIT OF ALL ALASKANS.

SINCE ALL ALASKANS HAVE PAID FOR THE STATE HATCHERY FACILITIES AND
LIMITED ENTRY PERMITS ONLY A FEW TO BENEFIT DIRECTLY FROM THE HARVEST
AS COMMERCIAL FISHERMEN, OTHER ALASKANS SHOULD BE ABLE TO BENEFIT
FROM THE HARVEST REVENUES. IT IS POSSIBLE TO RETURN TO THE HATCHERY,
WHERE THIS IS POSSIBLE. I MUST EMPHASIZE THAT THE LOCAL HATCHERY
FACILITIES WILL HAVE THIS HARVEST AND GENERATION OF REVENUES
AND ONLY IF IT IS POSSIBLE. I AM EMPHASIZING THIS POLICY, BUT SPEAK
FOR THE STATE AND NOT FOR THE LOCAL HATCHERY. ONLY FOR THESE STATE HATCHERIES WHERE
RETURNING REVENUES TO THE HATCHERY IS FEASIBLE.

- THE STATE SHOULD ESTABLISH A DIVISION OF COMMERCIAL
FISHERIES; TO INCREASE AND IMPROVE THE EFFICIENCY OF COMMERCIAL
FISHERIES AND TO INCREASE AND IMPROVE THE EFFICIENCY OF COMMERCIAL

FISHERIES CAN MORE ADEQUATELY PROTECT AND PRESERVE THE NATURAL STOCKS.
(IN A MIXED STOCK FISHERY, WHICH INCLUDES LARGE NUMBERS OF HATCHERY FISH,
IT IS VITAL TO OVERHARVEST THE NATURAL STOCKS THAT ARE INTERMINGLED IN
SUCH A FISHERY.)

b. CHECK JUVENILES BEFORE RELEASE TO INSURE DISEASE-FREE STOCKS.

b. REGIONAL ASSOCIATION RESPONSIBILITIES

1. WORK WITH THE DEPARTMENT OF FISH AND GAME TO DEVELOP A COMPREHENSIVE
PLAN FOR THE REGION WHICH CONTAINS THE FOLLOWING ELEMENTS:

- a. SHORT- AND LONG-TERM HARVEST GOALS BY SPECIES;
- b. DETERMINATION OF NATURAL PRODUCTION TO REACH THOSE GOALS;
- c. DETERMINATION OF ARTIFICIAL PRODUCTION TO REACH THOSE GOALS;
- d. IDENTIFICATION OF ENHANCEMENT POTENTIALS (LARVA FERTILIZATION, ETC.);
- e. DETERMINATION OF INDIVIDUAL PROJECTS NEEDED TO PRODUCE GOALS
ESTABLISHED FOR ARTIFICIAL PRODUCTION;
- f. DETERMINATION OF WHETHER STATE OR REGIONAL ASSOCIATIONS WILL CONSTRUCT
EACH SPECIFIC FACILITY CALLED FOR BY THE PLAN AS APPROVED BY THE
REGIONAL ASSOCIATION AND THE DEPARTMENT;

G. MANAGEMENT STRATEGIES FOR HARVEST OF RETURNING ADULTS.

2. DEVELOP AN INCOME STREAM (TAX, VOLUNTARY ASSESSMENT, OR MANDATORY ASSESSMENT) TO PROVIDE COLLATERAL FOR LOANS TO CONSTRUCT REGIONAL ASSOCIATION FACILITIES AND TO PROVIDE OPERATING FUNDS FOR REGIONAL ASSOCIATION ACTIVITIES.
3. DEVELOP COMPETENT CORPORATE MANAGEMENT OF THE REGIONAL ASSOCIATIONS AND DEMONSTRATE COMPETENT MANAGEMENT OF THE FACILITIES CONSTRUCTED AND OPERATED.
4. ABIDE BY THE TERMS OF THEIR PERMITS FOR EACH FACILITY AND ESPECIALLY IN OBTAINING APPROVAL OF THE STATE PATHOLOGIST PRIOR TO ANY RELEASE OF YOUNG FISH FROM THE HATCHERY.

H. HATCHERY AND POP FACILITIES

1. ABIDE BY THE TERMS OF THEIR PERMITS.
2. KEEP ACCURATE RECORDS OF PRODUCTION, EXPENSES AND REVENUES.
3. MAINTAIN ADEQUATE RECORDS OF THE STATUS OF ALL FISH.

4. CONTRIBUTE TO THE STATE'S ECONOMY BY PRODUCING MORE FISH AND EMPLOYMENT.
5. EXPLORE NEW CULTURE TECHNIQUES AND TECHNOLOGIES.

D. ALL ENTITIES SHOULD BE BUILDING HATCHERIES. STATE ON ITS OWN OR IN A JOINT VENTURE WITH A REGIONAL ASSOCIATION SHOULD BE INVOLVED FERTILIZING LAKES, ETC.

II. I'M NOT AWARE OF A LACK OF COOPERATION ON FRED'S PART.

III. REGIONAL ASSOCIATION "LIMITS" SHOULD ULTIMATELY BE DEFINED BY THE REGIONAL COMPREHENSIVE PLAN -- ITS ACCEPTED GOALS AND PLANS FOR "WATER" IS "OUTING WHAT".

AND POP "LIMITS" ARE IMPOSED BY THE PERMITTING PROCESS AND BY THE LEVEL FOR ANY INCOMPATIBILITY WITH THE REGIONAL COMPREHENSIVE PLAN.

THEY ARE COMPLETELY ACCOUNTABLE THROUGH THE PERMITTING PROCESS, THEIR ANNUAL REPORTING REQUIREMENTS, THE NON-PROFIT STATUS AND THE ABILITY OF THE DEPT. TO ENFORCE

COMMERCE AND REVENUE TO MONITOR NON-PROFIT CORPORATIONS AND AUDIT THEIR BOOKS IF NECESSARY TO PREVENT ABUSE.

IV. UNDER LIMITED ENTRY, THE FISHERMEN SHOULD PLAY A LARGE ROLE IN PROVIDING FOR THE EXPANSION OF THE FISHERY.

THEY CANNOT REASONABLY EXPECT TO HAVE THE FISHERY REBUILT THROUGH STATE HATCHERY AND OTHER ENHANCEMENT FACILITIES THAT ARE CONSTRUCTED AND OPERATED BY GENERAL FUND MONIES, WHILE BENEFITTING ONLY A SMALL MINORITY. THEREFORE, THE FISHERMEN SHOULD EITHER BUILD THE FACILITIES THEMSELVES AND HARVEST THE BENEFITS OR AGREE AS THEY SEE FIT OR AGREE THAT WHERE POSSIBLE, RETURNING ADULTS TO STATE FACILITIES SHOULD BE ARRANGED SO THAT THE FISHERMEN SHARE THE BENEFITS WITH THE OTHER MEMBERS WHO ARE PAYING THE BILLS.

THE STATE SHOULD HAVE A POLICY OF GIVING ADULTS TO THE FISHERMEN FOR STOCK FISHERY. THERE SHOULD BE SOME REASONABLE EXPECTATION OF BENEFIT THAT WILL ASSURE ADEQUATE RETURNS TO THE FISHERY TO REEL GROUPS.

V. WHO IS MORE RESPONSIVE -- REGIONAL ASSOCIATIONS OR FRED -- IS A "PEOPLE" PROBLEM AND A VARIABLE SUBJECT TO GREAT CHANGE. IT IS MUCH TOO EARLY TO DETERMINE WHICH REPRESENTS THE BEST STATE INVESTMENT, AND IRRELEVANT. IF ALASKA IS TO KEEP PACE WITH THE OTHER SALMON-PRODUCING NATIONS OF THE NORTH PACIFIC AND MAINTAIN ITS SHARE OF THE COMMON PASTURAGE IN NORTH PACIFIC WATERS, THERE IS MORE THAN ENOUGH TO BE DONE BY REGIONAL ASSOCIATIONS AS WELL AS FRED FACILITIES.

IN ALL THE EUPHORIA OVER LARGE BRISTOL BAY RUNS EXPECTED IN 1980, WE TEND TO FORGET THE DEPLORABLE RETURNS EXPECTED THIS YEAR IN COOK INLET AND NUMEROUS OTHER FISHERIES THROUGHOUT ALASKA. THAT, COUPLED WITH A DISASTROUS PRICE DROP THIS YEAR, IS GOING TO WRITE BANKRUPTCY FOR MANY, MANY ALASKAN FISHERIES THIS YEAR.

VI. WE DON'T KNOW YET -- THE TECHNOLOGY IS STILL DEVELOPING.

IT IS KNOWN THAT THE NEW GENERATION OF HATCHERIES ARE COST EFFECTIVE AND SHOULD BE CONTINUED AND INCREASED. ALL PROVEN METHODS SHOULD BE INCORPORATED, INCLUDING THE OPPORTUNITIES OFFERED LAST YEAR, IN THE COMPETITIVE MARKET THAT EXISTS.

VII. STABILIZED PRODUCTION OF AT LEAST 100 MILLION HARVEST PER YEAR IS NOT TOO MUCH. THE COMPREHENSIVE PLAN SHOULD PROVIDE THE REQUIRED MIX OF NATURAL PRODUCTION PLUS VARIOUS ENHANCEMENT TECHNIQUES TO ARRIVE AT THAT GOAL.

THE DECADE OF THE 30'S PRODUCED A NUMBER OF RUNS IN EXCESS OF 100 MILLION HARVEST. THERE IS NO REASON TO BELIEVE THAT THE OPEN OCEAN HAS DECREASED IN ITS PRODUCTIVE CAPACITY.

THE REST OF THE WORLD IS RAPIDLY INCREASING ITS STOCKS OF SALMON. THE PRODUCTION PRODUCED BY HATCHERIES IN ALASKA WILL NOT HAVE A SIGNIFICANT IMPACT ON WORLD PRICES. IF WORLD PRICES DECLINE AND WE HAVE NOT INCREASED OUR HARVESTS, THEN OUR FISHERMEN WILL BE IN EVER MORE SERIOUS FINANCIAL STRAITS.

ALASKAN PRODUCTION OF SALMON MUST KEEP PACE WITH THAT OF THE OTHER SALMON PRODUCING NATIONS. WE ARE ONLY AT THE BEGINNING OF OUR EFFORTS TO DO THIS.

VIII. YES, ETHOLOGICAL QUESTIONS ARE ADEQUATELY BEING ADDRESSED. THE DETAILS OF THOSE ANSWERS I'LL LEAVE WITH THE DEPARTMENT.

IX. THE ECONOMIC BENEFITS OF SALMON WILL BE MAXIMIZED BY THE PLAN.

THE ALASKA DEPARTMENT OF FISH AND GAME IS TO PROTECT WILD STOCKS BY
MANAGING, IN A MIXED STOCK FISHERY, AT A LEVEL LOW ENOUGH TO PROTECT
THE WEAKEST OF THE MAJOR NATURAL RUNS REPRESENTED IN THAT MIXED STOCK
FISHERY.

THIS IS THE REASON FOR INSURING THAT HATCHERIES ARE LOCATED FAR ENOUGH
AWAY FROM STREAMS SUPPORTING SIGNIFICANT WILD STOCKS THAT THERE WILL BE
ADEQUATE "TERRITORIAL SEPARATION" BETWEEN THE WILD AND HATCHERY STOCKS AFTER
THEY LEAVE THE MIXED STOCK FISHERY.

THE REASON FOR THIS IS THAT THE WILD STOCKS ARE THE WEAKEST OF THE MAJOR
NATURAL RUNS REPRESENTED IN THAT MIXED STOCK FISHERY. IT IS
RECOGNIZED THAT THIS MAY NOT BE POSSIBLE IN ALL CASES AS WHEN MANAGED
THE TECHNOLOGY TODAY. HOWEVER, THE REASON FOR THIS IS THAT
BECAUSE OF THE VERY RAPID RATE OF CHANGE IN SCIENCE AND TECHNOLOGY,
SIGNIFICANT BREAKTHROUGHS ARE TAKING PLACE AROUND THE WORLD EVERY YEAR,
EVEN MORE SO EVERY MONTH, AS THIS SCIENCE AND TECHNOLOGY EVOLVES. AND
THE MORE PEOPLE WE GET INVOLVED THINKING ABOUT AND RESEARCHING THESE
ISSUES -- ESPECIALLY THE PRIVATE SECTOR WITH THEIR OWN MONEY --

THE FASTER WILL THE EVALUATION OF THE SCIENCE AND TECHNOLOGY OCCUR.

AL. NO, WE ARE NOT MOVING TOO FAST.

LITTLE PORT

2800% VARIATION

BIG RUN - BRISTOL BAY

-

DISASTER COOK INLET - MUCH OF SOUTHEAST

DEPEND ON NATURAL RUNS

=

DISASTROUS FLUCTUATIONS IN HARVESTS

CHILE

NORWAY

CANADIAN

JAPANESE

RUSSIAN

200 MILE LIMIT - GREATEST IRONY

COMMON PASTURE

STAKE OUT CLAIM

Japan

1970-

81,000,000 - EGG TO FRY SURVIVAL

UTSUCHI RIVER HATCHERY

1970-

100,000,000

20 MILLION CHUM HARVEST '79

PRICES - MARKETS - PRICES ↓

NO SEAS MUST KEEP PACE OF PRODUCTION IF WE ARE TO HAVE A Viable FISHERY.

STATE SUCCESSES

A. CROOKED CREEK - KASTLOF RIVER

KING RUN - 5,000 - 20% MARKED (RETURN OF HATCHERY FISH)

DEEP CREEK - SPORT HARVEST $\frac{1}{-}$

REDS - TUSTUMENA LAKE - 30 MILES LONG AND SEVERAL WIDE

QUITE LIMITED SPAWNING AREA

REDS LIVE ONE TO TWO YEARS IN LAKE; GROW TO SMOLT SIZE. MUCH GREATER

REARING CAPACITY THAN SPAWNING CAPACITY IN TUSTUMENA LAKE.

B. TITAN - 4 MILLION PLUS RELEASE - 309,000 ADULT RETURN IN 1979

THE PERCENT RETURN FROM SMOLT-TO-ADULT REARING

THE OBJECTIVE OF THE CROOKED CREEK FACILITY IS TO PRODUCE SMOLTS TRY TO
CHALLENGE THE REARING CAPACITY OF TUSTUMENA LAKE BY INCREASING THE
TOTAL NUMBER OF FRY UTILIZING THE REEDS IN THE LAKE WITH A SHORTER
THE LARGER BODY SIZE OF ADULTS FORMING FROM THE LAKE EACH SEASON.

THE LAKE PRODUCTIVITY IS A FUNCTION OF STOCKING DENSITY, WATER QUALITY

AND THE PERCENT RETURN FROM SMOLT-TO-ADULT REARING.

OF SUNLIGHT VARIES FROM YEAR TO YEAR, THEN OBVIOUSLY IT WILL TAKE A NUMBER OF YEARS TO DETERMINE THE OPTIMUM NUMBER OF FRY RECRUITS PER YEAR.

IN LIGHT OF THE EXTREMELY PRODUCTIVE AND HIGHLY COST EFFECTIVE RESULTS FROM LAKE FERTILIZATION RESEARCH, EVEN AFTER THE BIOMASS PRODUCTION CAPABILITY OF THE UNALTERED LAKE WATERS HAS BEEN REACHED, IT APPEARS THAT LARGE INCREASES IN PRODUCTION COULD BE ACHIEVED BY ADDING NUTRIENTS TO THE WATER. THE CROOKED CREEK HATCHERY IS NECESSARY FOR THIS RESEARCH AND PRODUCTION IN LAKE TOSTIHEIDA.

iii. COMPLETE THE COMPREHENSIVE PLAN FOR LAKE RESEARCH. GET IT SIGNED OFF BY ALL

PARTIES. GET IT DONE.



HUGH MALONE

March 7, 1980

House Concurrent Resolution No. 50 (attached), requesting the governor to suspend the issuance of grants and loans for fisheries enhancement, proposes two moratoriums-- one on grants to regional aquaculture associations and a second on loans to regional aquaculture associations until a legal assessment of fishermen is established and sufficient collateral is guaranteed to secure loans.

The state, over the last decade, has embarked on an ambitious program of fisheries enhancement and development. The current wealth of the state provides us with the opportunity to continue and expand this effort. However, before we automatically proceed, it might be wise to take a close look at the existing efforts and determine whether they should be continued in the same manner or whether changes in direction and emphasis should be made.

The House Resources Committee will hold a hearing on HCR 50 on Thursday, March 20, at 3 p.m. in Juneau, in Room 118 of the Capitol. As sponsor of the resolution, I'd like to have it serve as a basis for discussion of aquaculture purposes and direction in general, and I invite your participation. If you cannot attend the hearing, I would appreciate your written comments and would make them available to all members of the committee. The following questions may provide a framework for your comments.

1) What should be the areas of responsibility of the regional aquaculture associations, the "Mom and Pop" non-profit hatcheries, and the state's Division of Fisheries Rehabilitation, Enhancement, and Development? Which entities should be building and operating hatcheries, fertilizing lakes, clearing streams, controlling predation, etc.?

2) Where are there needs for greater cooperation between the private non-profit hatcheries and associations and F.R.E.D.? How can cooperation be fostered, and what degree provides for the greatest efficiency?

3) What limits should be placed on the non-profit hatcheries and regional associations? How accountable are they now to the fishermen, the public, and the resource, and how can this be improved?

4) What should the role of commercial fishermen be in providing for fishery resources? What control should they exert over those resources?

5) Who is more responsive to the fishermen, the public, and the resource-- F.R.E.D. or the regional associations? Which represents the best state investment?

6) Where should the emphasis be placed in aquaculture programs? What are the relative benefits of hatcheries, rehabilitation efforts, and enhancement projects?

7) How many hatcheries are enough? What will be the effects, biologically and economically, of producing more and more salmon?

8) Are the biological questions being adequately addressed by the state and the regional associations? How are the problems of disease control, hatchery siting, brood stock supplies, and separation of stocks being handled?

9) Are we in danger of replacing wild with artificial stocks? What are the ramifications of this?

10) How will aquaculture programs-- state-run and private-- pay their way? how will costs be recovered? Are hatchery harvests appropriate?

11) Are we moving too fast with aquaculture efforts? What would be lost by slowing down and perfecting what we already have?

12) Where are the lines drawn between biological and political management? How can existing problems be mitigated and future ones averted?

A handwritten signature in cursive script, appearing to read "H. Malone". The signature is written in dark ink and is located in the lower-left quadrant of the page.

Re: House Concurrent Resolution # 50
Answers and Suggestions from
Sam. E. McDowell President T.W.A.
Alaska Fisheries Resources Committee Chairman

- Answers to Questions -

- (1) Regional associations must be completely open to public scrutiny of their finances, and accountable to commissioners of ADFA etc.
- (2) Aquacultural associations could recommend projects and furnish first hand fisherman input to ADFA for consideration and final management decisions of our public resources.
- (3) First and foremost the commissioners of ADFA must have final decision on all phases of operations, funding, and etc for non-profit hatcheries and regional associations.
- (4) They should pay their way through assessments on our common property resources. It should be understood that the resource is paying for its own enhancement. Additionally it should be clearly understood that this resource belongs to all Alaskans, and the commercial fishermen have only a special privilege not an absolute right.

March 20, 1980

Re: House Concurrent Resolution #50

(5) The State agencies are the most responsible to the fisherman, the public, and the resource. Their responsibility first to the resource is the law, and when they are responsible to the resource they are automatically responsible to the public and fisherman.

(6) Rehabilitation must be the first goal. This includes both proper fish harvest and escapement.

Stream and habitat enhancement should be highest of priorities and native stocks must be protected.

Hatcheries should be considered only after all facts ~~are~~ are considered and found not to be in conflict with native stocks.

(7) Biological data should be gathered on native stocks as to effect of over-harvest and over-escapement before any more hatchery salmon is dumped into systems that have native stock.

(8) No, there is not enough known on the effects of hatchery stock enhancement on native stocks to allow non-profit hatcheries to proceed without being under-total control by ADFG.

Separation of stocks will cause future major conflicts between fishermen and non-profit hatcheries without being under complete control by ADFG on location of hatchery!

Re: House Concurrent Resolution 450

(9) Yes, and it could prove to be a total disaster to our common property resources, and the pressure of economics can make this happen.

(10) They want, if we continue to allow funding to be allocated on a political instead of a professional basis.

Payment for rehabilitation and enhancement should be supported by a assessment or tax on the resource.

No, hatchery harvest will cause major conflicts and management problems.

(11) Yes, we are moving to fast, and should stop all funding for non-profit hatchery until state hatchery programs are perfected.

First we must learn to manage our native stocks through stream enhancement and etc; before we create additional problems with hatchery stock management.

(12) Proper representation by the total public is a must if salmon enhancement is going to survive the test of time.

Political management must be curtailed and allow our professional RDF & biological management staff manage our common property fishery resources.

Recommendations

- (1) Recall all Grants, loans and or public funding from the Coab Inlet Aquaculture Assn.

Request a complete line item audit be submitted to Commissioner of ADP to for all Non-Profit Aquaculture associations to account for funding.

Our observations of past management Policies of C.I.A.A. convinces us C.I.A.A. Assn. has failed for the following reasons.

They resist the entry of additional Licensed State Certified Commercial fisherman organizations.

Those in control of the Coab Inlet Aquaculture Assn. dictatorialy oppose those interests other than their own. Including Commercial fishermen in other districts of Coab Inlet.

They proceed to spend State money on plans that don't agree with ADP & C. Plans that could cause serious management problems.

They have lost the support of the largest percentage of Coab Inlet fishermen.

until C.I.A.A. can show they have support from the largest percentage of these fishermen, no additional funding should be granted.

We are convinced the short sighted selfish management Policy of C.I.A.A. is not in the best interest of Coab Inlet Common Property fishery resources, and must be stopped!

**An Analysis of Selected Elements
of the
Alaskan Salmon Resource Development
Program**

**A Report to the
Aquaculture Policy Study Group
of the Alaska Legislature**

By the Firms of:

**MILLER AND ASSOCIATES, INC.,
LEONARD LANE AND ASSOCIATES AND,
MR. WILLIAM R. WILKERSON, ATTORNEY, LAW FIRM OF
EISENHOWER, CARLSON, NEWLANDS,
REHA, HENRIOT & QUINN**

December 1, 1979

EXECUTIVE SUMMARY

This report sets forth the contractors' findings and recommendations resulting from an analysis of selected elements of the Alaskan Salmon Resource Development Program. This study does not address either the role of the small private or potential role for large for-profit corporations in the state salmon aquaculture program. Care must be exercised to ensure that policy or statutory changes to the state aquaculture program as a result of this report do not have an adverse effect on small non-regional hatchery operations.

Chapter I of the report addresses the need and provides a means for conducting micro and macro economic analyses of the Alaskan salmon fishery. The report recommends that a Return on Investment technique be used by the regional associations to evaluate potential aquaculture projects. The ROI technique is a means for ensuring that sufficient returns will accrue to the project to contribute to the fishery as well as provide the means through a terminal area harvest for the project to eventually become economically self-sufficient.

A second micro economic analysis technique is recommended for government aquaculture projects. This Cost Benefit Analysis technique differs from the ROI method in several important respects. Regional associations, because of their need to repay loans and remain financially solvent, count as "losses", those aquaculture produced salmon caught by domestic non-association members because no revenue accrues to the association from these prior interceptions. Government agencies,

which have a broader constituency, count prior interceptions by domestic fishermen as "benefits" in their calculations of the value of an aquaculture project. In addition, government agencies are not usually dependent upon assessment fees or revenues from terminal area harvests to provide the income necessary to continue in operation.

A second significant difference in the two micro economic evaluation techniques is the value of the catch used in each formula. Ex-vessel prices are used in the ROI analysis because it is the amount association members are paid for their harvest, and it would be the price paid to the association for fish harvested and sold from a terminal area.

Because the intent of a cost benefit analysis is to measure the benefits created by an aquaculture project, the first wholesale price of salmon is recommended for use because it is more reflective of the total value (harvesting and processing) to the domestic economy than ex-vessel prices.

In Chapter I, explicit recognition is given to the need, from an economic point of view, to recognize not only the different stages in the life of a salmon where artificial means can be employed to enhance survival but also the different methods, their attendant costs, as well as differing survival rates which can be employed in salmon propagation. As this analysis indicates, there are a significant number of economic trade-offs which should be considered in the selection of a propagation method.

In addition to the micro economic analysis models, Chapter I recommends the establishment of at least three macro economic evaluation techniques. Whereas the micro economic evaluation models are designed to be applied to specific projects, the purpose of the macro techniques is to provide the state with the economic tools necessary to measure the value of the fishery from a statewide or regional basis. Based upon analyses and information from these models, the state could explicitly formulate an economically sound basis for the fisheries development program.

Chapter II sets forth sources and methods for financing salmon aquaculture programs.

Prior to discussing the financing recommendations it seems appropriate to clarify a misconception about the financial structure of the regional aquaculture corporations. They are non-profit, meaning they cannot sell stock and raise risk capital from speculators. They have three primary sources for financing: fishermen and processors; terminal area harvests in which the association uses part of the harvest to pay operating costs and repay loans; and the state.

Currently all state operated propagation facilities are supported by state appropriations. It is the recommendation of this chapter that ultimately all regional and state production facilities be operated on an economically self-sufficient basis. We do not believe that the regional associations, even if the mandatory assessment were re-enacted, will have adequate revenues available to them to build enough facilities over the next decade to make a significant contribution to the harvestable

number of salmon. We believe an additional state investment in the program, over the next decade, could significantly expand the production capability of the regional associations and allow them to develop to the point where they can assume the managerial and financial responsibility for operating both regional as well as state production facilities. Such an investment will provide two substantial benefits to the state: increased tax revenues and citizen employment from an expanded and more stable fishery and reduced operating costs because the cost of operating state production hatcheries would be shifted from state sources to the primary beneficiaries of the production.

Chapter II discusses the relative advantages and disadvantages of six alternative means for making up the revenue lost as a result of the successful court challenge of the mandatory assessment. As of this writing, option #3, which would provide for a state collection of a regional tax has been reviewed for its constitutional considerations and is being prepared in draft form for further discussion by the Fisheries Council.

Chapter II also contains recommendations regarding the state aquaculture loan program. If a replacement revenue is found for re-establishing the assessment revenue, and if some new revenue stream could be established to provide for the orderly expansion of regional aquaculture programs, then the state aquaculture loan program should be modified as follows:

- (a) The \$3.0 million loan limitation should be removed;
- (b) The loan should be limited to capital construction costs (as defined in Chapter 168, Laws of 1978);
- (c) The term of the construction loan should be established at 20 years;
- (d) The deferment period should be increased from six years to a maximum of 10 years.

Other recommendations contained in Chapter II include establishing common aquaculture cost categories and a source of funds and applications model. Establishment of common cost categories would aid both the regional associations and the state by providing planning and analysis information. The source and applications of funds model is a standard financial planning technique not only for matching revenue streams to cost categories but is also used as a means for relating long range production expansion to sources for financing the expanded production.

Chapter III contains a discussion of institutional problems and alternative means which could be implemented to overcome these problems. Four general categories of needs are discussed in the chapter. These are: the need to develop means for ensuring that the salmon, shellfish and bottomfish elements of the Alaskan fishery are managed, at least from an overall policy point of view, on an integrated basis; the need to improve coordination among federal, state and regional associations in developing the Alaskan fishery; the shifting of the aquaculture loan program to ADF & G; and, the need to expand and provide for increased coordination of an Alaskan fisheries research program.

The chapter sets forth a variety of alternative means for meeting the identified needs.

In order to improve coordination and provide for a balanced policy management approach over all of the elements of the Alaskan fisheries, the report recommends the establishment of an Alaskan Fisheries Resource Development Program which encompasses all species. Several options are set forth for achieving this balanced management approach including: an Alaskan fisheries resource development coordinator within the Office of the Governor; establishing lead agency responsibility for the Alaskan Fisheries Resource Development Program; and, establishing a separate office or agency for the program. The assignment of ADF & G as the lead agency over the fishery is the preferred option.

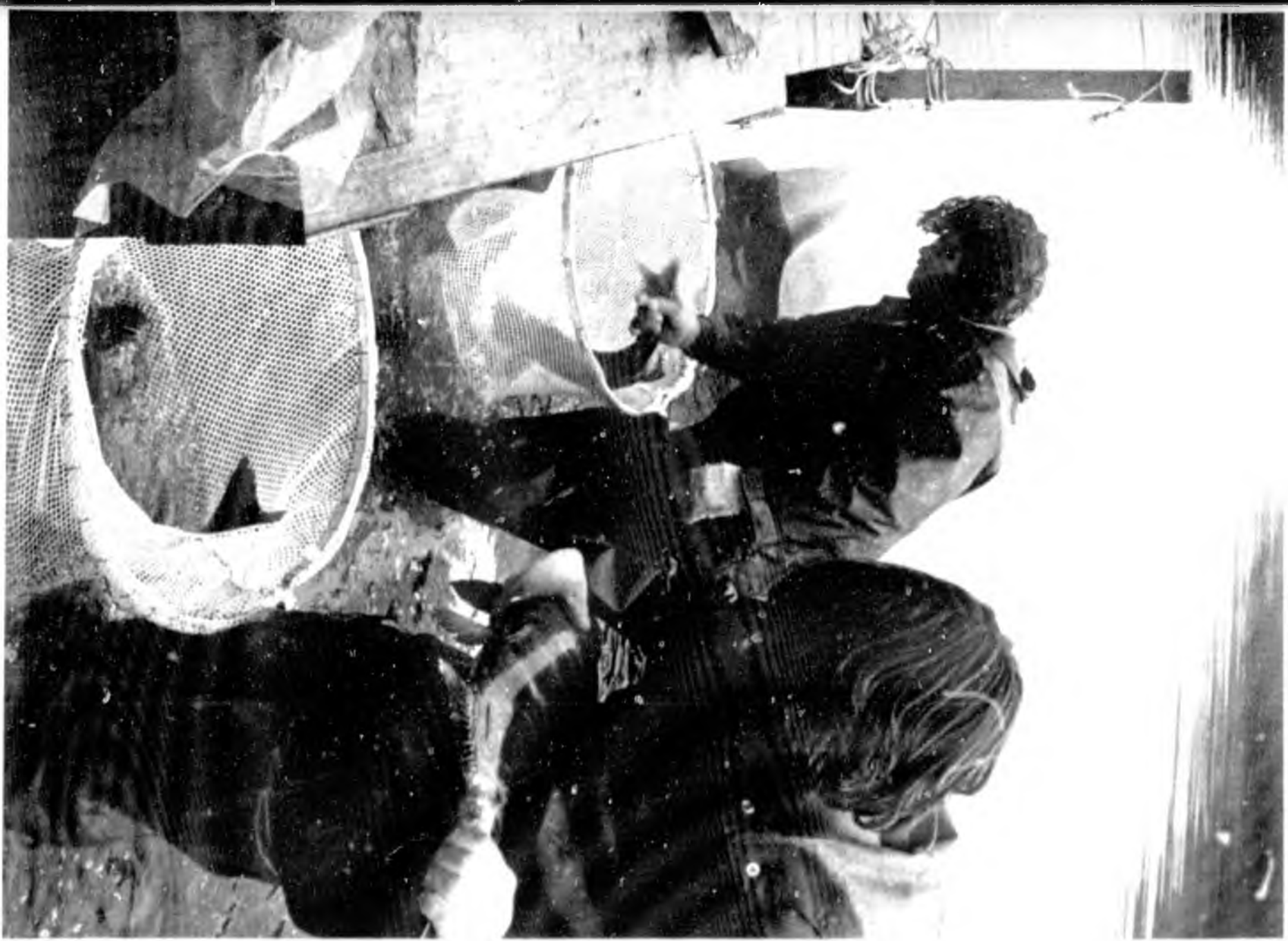
With regard to the need to improve coordination and cooperation among the various elements of the fishery, the report contains a number of optional ways of achieving this need. This includes: enacting a legislative mandate which requires cooperation in certain activities; providing a one stop permitting process for both state and regional fisheries development activities; the use of cooperative agreements between ADF & G, regional associations and federal agencies; the expansion and strengthening of ADF & G regional staffs to improve coordination and support to regional associations; the establishment of a continuing regional association structure to improve coordination among association members; as well as a number of other possible options.



This aerial photograph of SSRAA's Central Incubation Facility (CIF) shows hatchery buildings, rearing ponds and raceways. The facility is located six miles south of Ketchikan and has a capacity of 28.16 million eggs.



SSRAA's board of directors, composed of 21 members, represents commercial, sport and subsistence fisheries, as well as those of processors, municipalities, Chambers of Commerce and native corporations. The board meets monthly to discuss ongoing activities and to make decisions on proposals.



Much of the field camp work is labor intensive. Here, crews at a completely floating camp on Carroll Inlet (30 miles from Ketchikan) check ripeness of female chin salmon to ensure that eggs are ready for extraction.



Eggs and milt are removed at the remote camps and are flown in ice chests to Herring Cove where they are unloaded and taken a short distance to the Central Incubation Facility.



SSAA board directors Ed Linkous (troller representative) and Lee Burger (sportfish representative) take a close look at coho salmon which have recently emerged from eggs. Thirteen of the 21 board directors are commercial fishermen and there is a shared interest between sport and commercial fishermen.



Coho salmon seem undaunted by the presence of a hand in their rearit pond. This spring SSRAA will release 550,000 coho smolt and about 2.5 million chum, the results of eggs taken in 1978 and 1979.



This cono smolt, shown in relationship to a man's hand, is about six weeks away from being released to sea. These fish have been reared by SSRAA now for 17 months.



One of the last steps of the hatchery work for SSRAA involves removing the fry from raceways and then putting them into tanks which are placed on barges and towed to remote camps. This photo, taken March 19, marks SSRAA's first of many egg releases.

PROPOSED 1980 LAKE FERTILIZATION AND STUDY SITES



Alaska House of Representatives



HUGH MALONE

FOUCH V
JUNEAU
99801P. O. BOX 9
KENAI
99611

March 7, 1980

House Concurrent Resolution No. 50 (attached), requesting the governor to suspend the issuance of grants and loans for fisheries enhancement, proposes two moratoriums-- one on grants to regional aquaculture associations and a second on loans to regional aquaculture associations until a legal assessment of fishermen is established and sufficient collateral is guaranteed to secure loans.

The state, over the last decade, has embarked on an ambitious program of fisheries enhancement and development. The current wealth of the state provides us with the opportunity to continue and expand this effort. However, before we automatically proceed, it might be wise to take a close look at the existing efforts and determine whether they should be continued in the same manner or whether changes in direction and emphasis should be made.

The House Resources Committee will hold a hearing on HCR 50 on Thursday, March 20, at 3 p.m. in Juneau, in Room 118 of the Capitol. As sponsor of the resolution, I'd like to have it serve as a basis for discussion of aquaculture purposes and direction in general, and I invite your participation. If you cannot attend the hearing, I would appreciate your written comments and would make them available to all members of the committee. The following questions may provide a framework for your comments.

1) What should be the areas of responsibility of the regional aquaculture associations, the "Mom and Pop" non-profit hatcheries, and the state's Division of Fisheries Rehabilitation, Enhancement, and Development? Which entities should be building and operating hatcheries, fertilizing lakes, clearing streams, controlling predation, etc.?

2) Where are there needs for greater cooperation between the private non-profit hatcheries and associations and F.R.E.D.? How can cooperation be fostered, and what degree provides for the greatest efficiency?

3) What limits should be placed on the non-profit hatcheries and regional associations? How accountable are they now to the fishermen, the public, and the resource, and how can this be improved?

4) What should the role of commercial fishermen be in providing for fishery resources? What control should they exert over those resources?

5) Who is more responsive to the fishermen, the public, and the resource-- F.R.E.D. or the regional associations? Which represents the best state investment?

6) Where should the emphasis be placed in aquaculture programs? What are the relative benefits of hatcheries, rehabilitation efforts, and enhancement projects?

7) How many hatcheries are enough? What will be the effects, biologically and economically, of producing more and more salmon?

8) Are the biological questions being adequately addressed by the state and the regional associations? How are the problems of disease control, hatchery siting, brood stock supplies, and separation of stocks being handled?

9) Are we in danger of replacing wild with artificial stocks? What are the ramifications of this?

10) How will aquaculture programs-- state-run and private-- pay their way? How will costs be recovered? Are hatchery harvests appropriate?

11) Are we moving too fast with aquaculture efforts? What would be lost by slowing down and perfecting what we already have?

12) Where are the lines drawn between biological and political management? How can existing problems be mitigated and future ones averted?

A handwritten signature in cursive script, appearing to read "H. Malone". The signature is written in dark ink and is located at the bottom left of the page.

TESTIMONY PRESENTED TO THE

HOUSE RESOURCES COMMITTEE HEARING
ON HCR 50
MARCH 20, 1980

This testimony was not heard
on 3/20/80 due to lack of
time

MY NAME IS CURT KERNS. I'M THE CHAIRMAN OF THE ALASKA FISHERIES COUNCIL,
ON LEAVE OF ABSENCE FROM THE UNIVERSITY OF ALASKA, AS THE AQUACULTURE EXTENSION
AGENT FOR THE PAST THREE YEARS. PRESENTLY, I'M WITH THE PRINCE WILLIAM SOUND
AQUACULTURE CORPORATION. I'M A CERTIFIED FISHERIES SCIENTIST BY THE AMERICAN
FISHERIES SOCIETY. FOR THE PAST TEN YEARS, MY EDUCATION AND EXPERIENCE HAVE BEEN
DIRECTED TOWARDS SALMON RANCHING.

THE PACIFIC SALMON IS THE DOMINANT FISH OF THE SURFACE WATERS OF SOME 2,500,000
SQUARE MILES OF THE SUBARCTIC PACIFIC. BUT THIS MOST MAGNIFICENT OF ORGANISMS
IS TIED INEXORABLY TO LAND, TO FRESH WATER BY ITS REPRODUCTIVE PHASE. THE
AVAILABLE EVIDENCE SUGGESTS THAT IT MAY VERY WELL BE THIS FRESH-WATER PERIOD
THAT IS THE LIMITING FACTOR TO SALMON POPULATIONS -- EVEN DURING THE HISTORICALLY
HIGH HARVEST PERIOD OF 1936 TO 1939. WHY ELSE, IT IS REASONED, WOULD SALMON
METABOLIZE ALL THE CALORIES NECESSARY TO SWIM, IN SOME CASES, 1500 MILES UP
RIVER, FEEDING LITTLE, JUST TO FILL A COUPLE OF SQUARE YARDS OF SPawning GRAVEL?

THE ENERGY USED IN MIGRATING UPSTREAM COULD BE BETTER USED IN PRODUCTION OF MORE EGGS AND TILT IF SPawning GROUNDS WERE AVAILABLE CLOSER TO SALTWATER, THUS PRODUCING MORE FRY. FISHERIES SCIENTISTS HAVE IN YEARS PAST DISCUSSED THIS POINT, AND WILL CONTINUE FOR YEARS TO COME.

WHILE FISHERIES BIOLOGISTS CONTINUE THE DEBATE, I SUGGEST THAT WE PAY VERY CLOSE ATTENTION TO WHAT OTHER NORTH PACIFIC RIM COUNTRIES ARE DOING: JAPAN'S 1979 CHUM SALMON HARVEST, BASED ALMOST EXCLUSIVELY ON HATCHERY PRODUCTION, WAS 18 MILLION FISH. HER INCUBATION CAPACITY IS APPROXIMATELY 1.2 BILLION, WITH NEW WAYS CONSTANTLY BEING SOUGHT TO INCREASE THAT NUMBER. RUSSIA'S HARVEST IS STEADILY RISING, LARGELY DUE TO DRAMATICALLY INCREASED HATCHERY PRODUCTION -- WHICH IS SLIGHTLY IN EXCESS OF THAT OF JAPAN'S. AS RUSSIA DOES NOT HAVE THE WATER LIMITATIONS THAT JAPAN HAS, HER PLANNED HATCHERY PRODUCTION FOR THE YEAR 2,000 IS ABOUT 3 BILLION. IN 1977, THE SAKHALIN ISLAND HATCHERIES ALONE PRODUCED 844 MILLION PINK AND CHUM SALMON FRY. INCIDENTALLY, ONE SAKHALIN HATCHERY IN 1978, THE KALINSKY, HAD A RETURN OF APPROXIMATELY 1 MILLION CHUMS. THE STREAM THE HATCHERY IS ON IS ABOUT TWO FEET WIDE AT ITS NARROWEST. CANADA HAS EMBARKED ON A PROGRAM TO DOUBLE HER SALMON CATCH TO 50 MILLION SALMON.

THE PASTURES OF THE PACIFIC MAY NOT YET BE FULL. BUT WITH THE RAPID ADVANCES BEING MADE IN BIOTECHNOLOGY, NUTRITION, PATHOLOGY, AND OTHER AQUATIC SCIENCES, AS SURELY AS WE SIT HERE TODAY, THEY WILL BE. THAT DAY MAY BE 20 OR 30 YEARS HENCE, BUT THEY WILL BE FILLED. THEN AN INTERNATIONAL CONFERENCE WILL BE CALLED. EACH NATION (CHINA AND KOREA WILL BE PRESENT BY THEN) WILL SEEK TO "GRANDFATHER" IN THEIR EXISTING SHARE. WE ARE LITERALLY IN A RACE FOR THE PASTURES OF THE PACIFIC.

GIVEN THAT SALMON SUPPORT THE UNITED STATES' SECOND MOST VALUABLE FISHERY; THAT 80 TO 90 PERCENT OF THE U.S. CATCH ORIGINATES FROM ALASKA; THAT ALASKA IS ADJACENT TO IMPORTANT NORTH EASTERN PACIFIC SALMON GRAZING PASTURES, AND THAT ALASKA HAS THE VAST MAJORITY OF AVAILABLE WATER SUPPLIES IN THE UNITED STATES SUITABLE FOR SALMON CULTURE -- ALASKA HAS THE MOST IMPORTANT ROLE OF ANY AREA IN NORTH AMERICA TO PLAY IN THE DEVELOPMENT OF SALMONID RESOURCES.

BASED UPON REVENUES FROM THE COMMERCIAL CATCH AND FROM NON-RENEWABLE RESOURCES, ALASKA HAS THE FUNDS NECESSARY TO CARRY OUT THIS ADVANCEMENT. WE CAN RESTORE THE RIVERS TO HISTORICAL LEVELS, PERHAPS EVEN SOMEDAY PRODUCE MULTIPLES OF THOSE HISTORICALLY HIGH CATCHES. THE STABILIZATION AND GROWTH THAT THE ALASKA SALMON

RESOURCE DEVELOPMENT PROGRAM CAN BRING, WILL MAKE A SIGNIFICANT CONTRIBUTION TO THE ECONOMY BENEFITING ALL ALASKANS IN SOME WAY FOR THE GENERATIONS TO COME.

OVER FIVE YEARS HAS GONE BY SINCE THE ENABLING LEGISLATION WAS PASSED IN ALASKA. WHILE IT MAY SEEM AS IF LITTLE HAS CHANGED, THAT LITTLE PROGRESS HAS BEEN MADE AND THERE REMAINS YET EVER SO MUCH TO BE DONE -- WE HAVE MADE SIGNIFICANT ADVANCES. FIVE YEARS AGO, OUR INCUBATION CAPACITY WAS ABOUT 25 MILLION EGGS. BY THE END OF THIS YEAR, IT WILL APPROACH THREE-QUARTER BILLION. IN 1975, 58,000 ADULT FISH RETURNED. IN 1979, CONSERVATIVE ESTIMATES, BASED ON MARKED FISH RECOVERY, PLACE THE NUMBERS IN EXCESS OF 1,300,000.

ALASKA HAS EMBARKED UPON A SIGNIFICANT SOCIAL EXPERIMENT WHEN WE CREATED THE PRIVATE NON-PROFIT CONCEPT, AND THE REGIONAL ASSOCIATIONS. UNION CARBIDE, METERRUSSE, AND GROWIN ZELLERBACH WISH WE HAD PROCEEDED SOMEWHAT DIFFERENTLY. BUT TO CONTINUE AT ALL, WE MUST HAVE THE PRESENT DIVERSITY OF EFFORT. TO KILL THE REGIONAL ASSOCIATIONS OR THE PUBLIC SECTOR IS TO DOOM OUR ENTIRE EFFORT.

THE PATH HAS NOT BEEN SMOOTH, AND THE THE WORK TO BE DONE IS YET GREAT. BUT FOR THE SAKE OF THE RESOURCE, FOR THE SAKE OF TODAY'S AND TOMORROW'S ALASKANS, WE MUST

CONTINUE. CAREFULLY, RESPONSIBLY, EVEN CAUTIOUSLY. BUT WE MUST CONTINUE.

CURT KERNS, CHAIRMAN
ALASKA FISHERIES COUNCIL

Ladd Macaulay
Douglas Island Pink & Chum Co., Inc.
Box 630
Douglas, Alaska 99824

March 20, 1980

Representative Hugh Malone
Alaska House of Representatives
House Resources Committee
Pouch V
Juneau, Alaska 99811

Dear Mr. Malone:

Thank you for the opportunity to discuss the State of Alaska's private fisheries enhancement and development program.

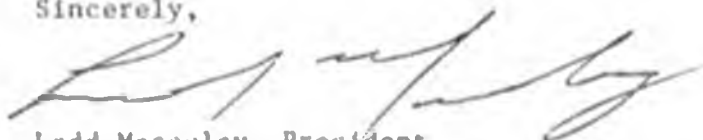
As a representative of the private non-profit Douglas Island Pink & Chum hatchery corporation, I have attached a summary of the Kowee Creek Hatchery activities since 1975. The 6 million fry release hatchery was constructed and operated with private funds until 1979; at which time a \$3,100 CLTA grant was received to assist in our first hatchery return egg-take.

A second hatchery is now being constructed at Sheep Creek, located south of Juneau. This 20 million fry release facility is being financed with the assistance of the Fisheries Enhancement Loan Program. I believe this facility will go on record as being the most cost-efficient hatchery financed by the State of Alaska.

The Prince William Sound Regional Aquaculture Association has been, I believe, one of the major guiding lights to the non-profit fisheries enhancement program and their beliefs and concerns are heavily endorsed. Hopefully, any decision made by the House Resource Committee will carefully weigh the consequences it will have to the private sector, both regional and non-regional.

Again, I thank you for the opportunity to provide a brief accounting of our activities and to endorse our support of the Prince William Sound Aquaculture Association.

Sincerely,



Ladd Macaulay, President
Douglas Island Pink & Chum Co., Inc.

1979

ANNUAL REPORT

PRIVATE NON-PROFIT HATCHERY

HATCHERY NAME/LOCATION

KOWEE CREEK HATCHERY
DOUGLAS ISLAND
SOUTHEAST ALASKA

PERMIT HOLDER NAME/ADDRESS

DOUGLAS ISLAND PINK & CHUM CO., INC.
BOX 630
DOUGLAS, ALASKA 99824

NAME/PHONE

LADD MACAULAY
907-586-9511

This is the fourth annual report prepared for the benefit of the public, federal government, state government and corporate members. The following is a brief summary of our last four years activity:

YEAR: 1976		(1976)	(1976)		(1977)	
<u>Dollars Spent</u>	<u>Species</u>	<u>Females taken</u>	<u>Eggs</u>	<u>Location</u>	<u>Fry Release</u>	<u>Adult Return</u>
	Chum	40	120,000	Haines	60,000	
	Chum	26	48,000	Fish Creek	26,000	
\$ 3,757.35		66	168,000		86,000	0

YEAR: 1977		(1977)	(1977)		(1978)	
<u>Dollars Spent</u>	<u>Species</u>	<u>Females taken</u>	<u>Eggs</u>	<u>Location</u>	<u>Fry Release</u>	<u>Adult Return</u>
	Chum	52	135,980	Fish Creek		
	Chum	9	32,894	Youngs Bay		
	Pink	862	1,732,612	Fish Creek		
\$ 14,464.78		923	1,901,486		1,773,791	0

YEAR: 1978		(1978)	(1978)		(1979)	(1979)
<u>Dollars Spent</u>	<u>Species</u>	<u>Females taken</u>	<u>Eggs</u>	<u>Location</u>	<u>Fry Release</u>	<u>Adult Return</u>
	Chum	182	462,098	Fish Creek		
	Chum	10	25,390	Sawmill Creek		5
	Pink	1,397	2,370,709	Fish Creek		20,000
\$ 3,952.44		1,589	2,858,197		2,100,000	20,005

YEAR: 1979		(1979)	(1979)		(1980)	(1980)
<u>Dollars Spent</u>	<u>Species</u>	<u>Females taken</u>	<u>Eggs</u>	<u>Location</u>	<u>Fry Release</u>	<u>Adult Return</u>
	Chum	106	318,000	Fish Creek		
	Cnum	12	36,000	Sawmill Creek		
	Chum	4	12,000	Sheep Creek		
	Pink	1,452	2,178,000	Kovale Creek		
	Pink	415	622,500	Fish Creek		
\$ 8,679.11		1,989	3,166,500		2,375,000 (EST.)	20,000 (EST.)

<u>TOTAL DOLLARS</u>	<u>TOTAL FEMALES</u>	<u>TOTAL EGGS</u>	<u>TOTAL FRY RELEASE</u>	<u>TOTAL ADULT RETURNS</u>
\$31,003.68**	4,567	8,094,183	3,959,791*	20,000

*The estimated 1980 fry release of 2,375,000 is not included.

**Figure includes \$200.00 spent in 1975.

SUMMARY OF CASH RECEIVED AND CASH EXPENDED AS OF DECEMBER 31, 1979

Short term loan.....	\$ 340.00
Cash in bank 1/1/79.....	1,747.53
Assessments received.....	3,050.00
CETA grant.....	3,184.00
Sale of brood stock.....	973.40
Refund of over-payment on bill.....	<u>28.18</u>
TOTAL CASH RECEIVED	\$ 9,323.11
Cash in bank 12/31/79	\$ 694.00
TOTAL EXPENDITURES	\$ 8,629.11
TOTAL ASSESSMENTS RECEIVED	\$27,175.00
TOTAL ASSESSMENTS OUTSTANDING	\$ 175.00

EXPENDITURES	1975	1976	1977	1978	1979	TOTAL
Operational Costs	\$200.00	\$ 607.17	\$ 489.74	\$ 327.36	\$4,733.95	\$ 6,358.22
Equipment	_____	792.34	5,335.33	3,266.23	3,532.07	12,925.97
Temporary Facility	_____	2,221.28	268.33	_____	_____	2,489.61
Permanent Facility	_____	136.56	8,371.38	358.85	363.09	9,229.88
TOTAL COSTS	\$200.00	\$3,757.35	\$14,464.78	\$3,952.44	\$8,629.11	\$31,003.68

I.R.S. STATUS: Ms. Ruth Lane, for I.R.S., per a telephone conversation on 2/19/80, has confirmed that the corporation has been classified as 501-C-3. A 501-C-4 classification prior to the C-3 status has also been recognized. Written confirmation is forthcoming.

OPERATING BUDGET FOR 1979

Two CETA employees were hired during the months of July, August and part of September for egg taking purposes. All other work was performed on a volunteer basis.

FACILITY CONSTRUCTION

The Kowee Creek Hatchery is still not considered 100% complete. The insulated cave doors were hung and the concrete flume leading from the cave has been extended. Two of the main intake pipes, the electrical wiring and the front entry to the cave have yet to pass corporate inspection.

INCUBATORS

The NOPAD Incubator has been used for four years and its' performance has been more than satisfactory. No other incubator design is being considered at this time.

MORTALITY

No significant mortalities occurred this year. Less than a 10% loss is anticipated for the total chum egg take and a 20-25% loss is anticipated for the total pink egg take.

ANNUAL MANAGEMENT PLAN

The migration routes of both the pink and chum were not studied in 1978. All that can be stated at this time is that the Kowee Creek pink salmon arrived on site seven days after the pink salmon appeared at Fish Creek. (see attachment)

HARVEST MANAGEMENT OF SURPLUS FISH

It has been estimated that between 20,000 and 30,000 adult pink salmon returned to the mouth of Kowee Creek during the month of August. The return was from the 1.8 million fry release of 1978. It should be noted that 2.4 million eggs had been taken from Fish Creek and none from Kowee Creek in 1978. In 1979, however, 2.2 million pink salmon eggs were taken from Kowee Creek and only .6 million from Fish Creek.

The weir that was designed for Kowee Creek was not constructed. The cost of materials would have been over \$5,000 and it was decided that wire fencing and sandbags would serve the same purpose. The results were neither satisfactory nor economical. The salmon broke through the fencing more than once and the majority were never harvested. In 1980, a floating pen arrangement is being considered for harvesting and holding purposes.

Only brood stock pink salmon were harvested in 1979 and that was by the use of a dip net. The use of a herring net and ripening pens were also an integral part of the harvesting efforts. After harvesting, the pink salmon were hauled by truck to a local cold storage plant where some were canned for experimental purposes and others sold for crab bait use. Samples of smoked fillets were also sent to Japan. Further marketing use of brood stock salmon is being planned for 1980.

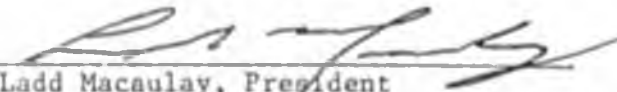
In summary, the elimination of the egg picking stage, the 1½% adult pink salmon return at Kowee Creek, the issuance of the Sheep Creek Hatchery permit and the brood stock market samples sent to Japan are major indicators of the steady contribution and growth of our private non-private corporation.

DECLARATION AND SIGNATURE

I declare that the information given in this is, to my knowledge, true, correct and complete.

2/29/80

Date Signed



Ladd Macaulay, President

Douglas Island Pink & Chum Co., Inc.