REPORT

"AN ANALYSIS OF SELECTED ELEMENTS OF THE ALASKAN SALMON RESOURCE DEVELOPMENT PROGRAM"

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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:

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AN ANALYSIS OF SELECTED ELEMENTS OF THE ALASKAN SALMON RESOURCE DEVELOPMENT PROGRAM

A REPORT TO THE
AQUACULTURE POLICY STUDY GROUP
OF THE ALASKA LEGISLATURE

December 1, 1979

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TO: Members of the Aquaculture Policy Study Group

FROM: Wallace G. Miller

SUBJECT: Final Report

Attached is the final report, An Analysis of Selected Elements of the Alaskan Salmon Resource Development Program.

The draft report presented earlier has been modified as follows:

-The report has been re-edited to improve its readibility and accuracy.

-An executive summary has been included.

-A brief chapter on goals has been added.

-A comments and response section (Appendix I) has been added to list comments and questions we have received as well as our responses to those comments.

As was discussed during our September meeting the report is a report to the Aquaculture Policy Study Group and as such the recommendations contained in the report should not be construed to be reflective of the views of the members of the Study Group.

While Mr. Wilkerson and I have made every effort to set forth an effective and responsible means for achieving a sound fisheries resource development program in Chapters I through IV, we none-the-less realize that not all of the recommendations will be approved and that others are of a longer range nature and will be subjected to further review and discussion.

We are pleased to have had this opportunity to work with you.

Sincerely,

Wallace G. Miller

Wallace G. Miller
President

WGM/sam

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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 from 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 th. 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.

The recommendation regarding shifting the aquaculture loan program from DCED to ADF & G is predicated upon achieving greater consideration in the loan approval process of such biological factors as proposed site location, construction costs, harvest management considerations and other technical factors. The recommendation is also conditioned upon limiting the aquaculture loan to capital construction as discussed in the chapter on financing.

The final need recognized in Chapter III is for an expanded and coordinated fisheries research program in Alaska. The report recommends that efforts be undertaken to expand federal funding of fisheries research in Alaska and further that consideration be given to the establishment of a joint (federal, state and local) fisheries research facility as one means of providing for the necessary research and coordination among the parties involved in the Alaskan fishery.

Chapter IV discusses goals for the Alaskan fishery. The Alaskan Constitution provides an unusually clear goal for the development of Alaskan fisheries. No additional goals are necessary. The remaining need is for effective programs and activities to achieve them.

CONTRACT REPORT

The 1978 session of the Alaska State Legislature established the Aquaculture Policy Study Group as an advisory body to examine a number of policy matters relating to the Alaska Salmon Resource Development Program. Membership in the Study Group includes representatives from the several regional non-profit aquaculture associations, the Alaska Departments of Fish and Game, Commerce and Economic Development and Revenue, the U.S. Forest Service and Department of Agriculture, the University of Alaska Sea Grant program and members of the Alaska legislature.

In March, 1979 the Aquaculture Policy Study Group retained the consulting services of a consortium of three firms. Miller and Associates, Inc., Olympia, Washington; Leonard Lane and Associates, Anchorage, Alaska; and Mr. William Wilkerson, Attorney, law firm of Eisenhower, Carlson, Newlands, Reha, Henriot & Quinn, Tacoma, Washington.

The consulting services to be provided by the team of consultants were defined to include four basic tasks each of which are briefly described as follows:

TASK #1 - Search for Goals

The consulting team was required to research and examine Alaska state constitutional provisions, statutes and other documentation to determine the extent to which goals for an Alaskan Salmon Resource Development Program had been established.

The consulting team was further instructed to examine existing goals and present possible alternative goals to the Study Group for their consideration.

TASK #2 - Institutional and Policy Analysis

The consulting team was required to examine the roles and missions of existing institutions involved in the Salmon Resource Development Program, define existing problems, and recommend alternative institutional arrangements which would be more suitable for obtaining the goals set forth in Task #1.

TASK #3 - Economic Evaluation Techniques

The consulting team was requested to inventory micro and macro economic evaluation techniques, economic factors and methods of analysis and recommend an effective means for making economic evaluations of evaluating Salmon Resource Development Projects.

TASK #4 - Financial Planning

The consulting team was requested to examine the present means of financing salmon development programs, define problems and recommend a model financial planning framework.

The consulting team prepared analytical information for presentation to the Study Group in meetings held in March, May and July.

A fourth meeting was held in late July. At the meeting, discussions and plans were focused upon initiating alternative financing strategies as a result of the State Superior Court ruling in Wayne Alex, etal., v. Southern Southeast Aquaculture Association, etal. As a result of the redirection received during the July meeting, project research priorities were altered. Increased emphasis was to be placed upon developing alternative financing mechanisms to the unconstitutional mandatory assessment.

The consulting team held up preparation of the final report to the Study Group pending the receipt of clarifications to the court decision and to discuss with the Office of the State Attorney General possible alternative organizational as well as financial strategies which might be available to the regional aquaculture associations in light of the court ruling.

This final report incorporates the effect of this late development and attempts in greater detail than originally planned to provide the Study Group with alternatives and recommendations for their further review and analysis which expressly recognize the severe impact on several of the regional aquaculture programs from the ruling. Additional work and analysis of financial and institutional alternatives will be required prior to the 1980 session as a result of present legal uncertainties.

It should be noted that the contractual work almost exclusively focused upon regional aquaculture associations and their interrelationships with government agencies, consequently this report does not specifically cover private, non-association hatcheries sometimes referred to as "mom and pop" hatcheries. As policies or statutes are formulated, full consideration should be given to any effect the proposed changes would have on this group of hatchery operators.

Finally, the consulting team has received comments regarding the report from a number of sources. Because these comments for the most part focus on important issues, they together with responses to the comments have been included in special Appendix I to the report in the hope that this information could aid in clarifying the report and the issues.

The consulting team wishes to express its deep appreciation to members of the Aquaculture Policy Study Group, Mr. John Sund and legislative staff for their interest and valuable assistance in conducting the studies which are contained in this report.

PREFACE

It may be helpful to the reader to understand why the sequence of subject matter is arranged in this report as it is.

Rather than begin this report with a discussion on goals and proceeding on with a discussion of organizational arrangements, economics and financing, it seemed more appropriate to the consulting team to address these subjects in their natural order of occurrence.

In terms of their natural order, the foremost concern about salmon aquaculture is whether it is or can become economically feasible. If aquaculture programs are not or cannot become economically attractive, then there would seem to be little point in carrying the analysis through the remaining subjects, therefore the economic issue is contained in Chapter I.

If salmon aquaculture is or can become economically attractive, it seems the next most appropriate question to raise is who pays for the program and how can this be accomplished, particularly in light of the recent State Superior Court ruling. Financing issues are discussed in Chapter II.

Assuming that salmon aquaculture is economically sound and a method of financing can be developed and implemented, the question of how to organize to carry out salmon aquaculture seemed appropriate for Chapter III.

Appendix I contains some comments and responses concerning various issues discussed in the report.

Appendices II and III contain listings of the state and federal institutions involved in the Alaska Salmon fishery.

If the economic, financing and organizational hurdles can be cleared, only then does it seem appropriate to talk about both existing and potentially new goals as well as other measures which could be adopted to ensure the long term success of the State salmon resources development program, which is covered in Chapter IV.

Finally, in the interest of readibility, we have prepared this report in such a manner so as to eliminate almost all mathematical equations and formulas.

INTRODUCTION

The objectives of this introductory section is to provide a brief recapitulation of the events and circumstances which led to the formation of the Aquaculture Policy Study Group and explain why, at this late date, it is necessary to raise some very fundamental questions about the Alaska Salmon Resource Development Program.

Much has been written elsewhere, and in greater detail about the size of historic salmon runs in Alaska. In recent years, the 1950's to the mid-1970's, and for a variety of reasons, Alaskan salmon runs declined precipitously. This decline in the fishery with its resulting loss of income, employment, subsistence and recreation was a common concern among commercial, sports and subsistence fishermen. The fishing industry (including salmon, shellfish and bottom-fish) was and is the largest private sector employer in Alaska. In addition, fishing had become so ingrained into so much of Alaskan culture and lifestyle that alternative choices were both distasteful and unrealistic for the many small communities and villages in Southeast and other parts of Alaska.

While the propagation of salmonoid species was initiated in western coastal states and British Columbia in the late 1800's, no similar long-term resource development steps were taken in Alaska. In 1971, the Alaska legislature

created the Division of Fisheries Rehabilitation, Enhancement and Development (F.R.E.D.) (Chapter 113 SLA 1971) of the Alaska Department of Fish and Game. The legislature, among other duties, charged F.R.E.D. with the responsibility to "develop and continually maintain a comprehensive, coordinated long-range plan for the orderly present and long-range rehabilitation ... of all aspects of the state's fishery ..." In addition, the legislation authorized the new division to "encourage the investment by private enterprise in the technological development and economic utilization of the fisheries resources."

The creation of F.R.E.D. was the first expressed statutory authorization for the state to enter into programs to rehabilitate, enhance and develop its salmon fishery, notwithstanding that the framers of the Constitution in 1959 (Article VIII, Section 5) authorized the legislature to "provide for facilities, improvements and services ... to assure further utilization and development of the fisheries."

In 1972, the Alaska legislature proposed and the citizens passed a constitutional amendment which provided the state with a constitutional basis for limiting entry into the fishery (resource conservation) and carrying out aquaculture programs in the state. Clearly, restoring the salmon fishery to higher historic harvest levels was and is a high priority in the state.

Through these and other constitutional and statutory provisions two potentially powerful tools had been created which could be used to restore the fishery: (1) limited entry, combined with improved biological data, management, enforcement and stock regulation; and, (2) the rehabilitation, enhancement and development authority of the F.R.E.D. Division. Both were viewed as complementary means for restoring the salmon fishery.

These tools were soon employed in the restoration of the fishery. Stringent restrictions were placed on harvesting to allow natural brood stocks to increase and build run strength. The F.R.E.D. division began the long, arduous process of acquiring technical expertise, enhancement sites and capital funds to design, develop and place into operational status the facilities, rehabilitation projects and similar activities associated with restoring or creating new salmon runs.

Hindsight suggests that regardless of the methods employed, restoration of salmon runs requires a great deal of time, even under the best of circumstances. Two to four years, depending upon the salmon species involved, is the smallest increment of time which can elapse before improvements can be noticeable. Given variations in climatic conditions, the difficulty in regulating escapement needs, and problems attendant to finding suitable sites for construction of propagation facilities and constructing the facilities

under extremely difficult conditions, delays were inevitable and encountered in the anticipated salmon recovery time table.

In 1974 the State legislature enacted what is commonly known as the "Private Non-Profit Hatcheries Act" (Chapter III, SLA 1974), which authorized the private ownership of salmon hatcheries by qualified non-profit corporations for the purpose of contributing by artificial means to the rehabilitation of the state's depleted and depressed salmon fishery. (Emphasis added by underlining.)

It is difficult at this point to accurately gauge all of the factors which motivated the enactment of this legislation. In part the act reflected a declaration of a choice between private for-profit aquaculture and private non-profit aquaculture. Beyond this, a strong motivating factor was the desire to see if less bureaucratic and costly means of restoring the salmon fisheries' stocks could produce the desired result.

While subsequent legislation during the 1976 and 1978 sessions provided a major financing basis for F.R.E.D. division capital facilities, and for further refinements to the Private Non-Profit Hatcheries Act, the stage was being set in 1974 for the addition of private non-profit hatcheries as yet a third potentially powerful tool to the two already established and at work in restoring the salmon fishery.

Results from the improved management of natural stocks became noticeable in 1976 and by 1978 and 1979 statewide harvest levels reached approximately 80 million salmon. F.R.E.D. artificial production facilities in 1978 provided several hundred thousand additional returning salmon. With the exception of the Prince William Sound Regional Association, the new regional non-profit aquaculture corporations were in the beginning stages of production development and did not contribute significantly to the almost record level returns of 1978 and 1979.

The recent near record level salmon harvests, when coupled with the planned increased production capability of the F.R.E.D. division and the limitations imposed by the court decision on the Private Non-Profit Aquaculture Associations, could combine to produce some curious effects on future development of the fishery. A question exists whether, given the current near record levels of harvest, affected fishermen will be willing to re-impose a mandatory assessment or royalty on their harvest income now that the years of deprivation appear to be behind them. On the other hand, are fishermen willing to absorb the cost of resource expansion if regulation of natural stocks is the only tool to be utilized to achieve this goal for Alaska's renewable salmon resource?

One of the present policies of Alaskan state government is for production facilities to become economically

self-sufficient over a reasonable period of time. Thus, a major issue to be addressed by policymakers over the next few years is the level of fisheries development program costs to be borne by primary benefactors or users. For example, if the F.R.E.D. division continues with its planned expansion of operational facilities, who is to pay for the operating cost of the facilities, all of the taxpayers of the state or those who primarily benefit from the development of the resouce?

Another major issue to be resolved is whether a satisfactory working arrangement can be established among the now competing salmon restoration tools: natural production, state artificial production and regional non-profit corporation production.

Finally, is it possible to effect a timely solution to the financial dilemma of the non-profit regional associations which will pass muster by the court, thus avoiding the need for state subsidies or state collected mandatory assessments which will allow these organizations to continue to contribute to the restoration of the fishery?

Clearly there are a number of additional major and unresolved issues affecting the state's Salmon Resource Development Program. While the original scope of the work planned for this report was somewhat limited, we have attempted to broaden its scope to reflect the possible effects current harvest levels and other issues could have in the considera-

tion and selection of alternative courses of action by the Aquaculture Policy Study Group. Moreover, at the direction of the study group, we have addressed organization of fisheries development activities in the context of a holistic program, identifying the reasons why and means for addressing multi-species development which we believe is in the best interest of the citizens of Alaska.

Chapter I - SALMON AQUACULTURE ECONOMIC EVALUATION TECHNIQUES

Micro Economic Evaluation Techniques

The need to have one or more objective means for evaluating in a micro economic sense, the value of a salmon aquaculture project has two primary sources. First, regional non-profit aquaculture associations need a uniformly applicable methodology for assessing whether or not a planned aquaculture project will provide a satisfactory return on the capital investment and expenses of operating the facility.

Regional associations have borrowed millions of dollars, and will borrow more, for capital facility investments and operating expenses. These monies must be repaid. In addition, start-up expenses must be incurred for a minimum of two to four years, depending upon the species, prior to any returning adults being available for fishermen to harvest. Moreover, if required, a terminal area harvest could be implemented with the income from the terminal area harvest used to help defray facility operating costs and to provide a source of funds for repaying the borrowed capital and related interest charges.

A second objective means for evaluating the value of an aquaculture project is required by government agencies. This measure is somewhat different than the valuation measurement needs of regional associations or the private sector.

Whereas the primary concern of regional associations must by necessity be limited to narrow regional financial and economic criteria, government agencies are often charged with performing socially beneficial acts which are seldom, if ever, accorded a value in the traditional financial market places.

In these private markets, a financial/economic evaluation system for salmon propagation facilities would be concerned only with the income produced from the harvest and sale of adults returning to the facility by association members or as necessary to pay the costs associated with the facility.

Because of the more encompassing responsibilities of government agencies, the value of government sponsored salmon propagation facilities must be extended beyond the boundaries established by the traditional financial/economic evaluation system. For example, salmon harvested by sports and subsistence fishermen, which must be considered "losses" in a traditional financial/economic model, should be valued by government agencies whose responsibilities extend beyond pecuniary returns.

Another example is the "value added" to the salmon through processing. This does not directly enure income to fishermen of regional associations; consequently, this societal benefit is not a factor affecting the economic and financial decisions of fishermen or regional associations. The "value added" of processing, however, can and should be

considered by government agencies in valuing the benefits to be derived from a government sponsored propagation facility.

At a more theoretical level at least, the value of the employment provided by the propagation facility as well as indirect employment (the additional clerk at the grocery store who serves fishermen or the attendant who fuels their boats) could also be considered as benefits to values added by aquaculture projects.

The "value added" micro economic model has some practical limitations. If one attempts to be too precise in using the cost benefit analysis micro economic system for valuing government sponsored propagation projects, it obviously becomes difficult and costly to obtain the necessary financial and economic information needed for evaluating each project under consideration. Similar technical measurement problems also plague the traditional financial/economic evaluation system, in its application to salmon propagation facilities. The discounting of future revenue and expense streams, the proper selection of the discount rate, and similar technical considerations, while professionally satisfying, provide for a level of refinement which may be excessive when compared with the value of obtaining information relating to other formula elements such as improving the state of the art in predicting the number of returning adult salmon. In other words, the choice of the parameters or factors and the degree of refinement to be used in both the traditional

financial/economic evaluation model and the government oriented socio-economic evaluation model, should be generally tempered by the cost and availability of financial and economic information as well as the existing capability to estimate the number of adult returns to a propagation facility.

After carefully weighing all of the factors, parameters and methodologies which could be utilized in valuing the benefits to be derived from a salmon resouce development project, and after giving equal consideration to the availability and cost of acquiring data and taking into account the many unknowns which limit the state of the art in predicting run size, the contracting team recommends the following models, factors and parameters be used to meet the evaluation needs of regional associations and government agencies.

I. Financial/Economic Evaluation Model for Regional Aquaculture Associations.

Because of the private sector orientation of aquaculture development in Alaska and the need to attract increased amounts of investment capital to provide for the orderly growth and development of this means of developing Alaska's salmon resources, the most appropriate micro economic model for evaluating salmon propagation projectsis the use of a return on investment model.

The use of a return on investment model by the

regicnal aquaculture associations meets several critically important needs. First, each aquaculture project developed by the non-profit corporations must pay its own way, or in the alternative be financially supported from excess revenues available from other aquaculture projects of the corporation. It is amply clear from recent events that a major concern of lending institutions (including state and federal agencies) is whether or not specific aquaculture projects are sound investments. Moreover, the state legislature needs such information to monitor on a continuing basis the worth of this program. Given the current absence of any mutually acceptable return on investment model, lending institutions and others have no objective basis for considering the relative merits of requested loans and now must use more subjective and arbitrary criteria in approving or disapproving a loan request.

Additionally, fishermen belonging to a regional aquaculture association are critically concerned about the overall soundness of an investment in an aquaculture project and need to know whether or not borrowed funds can be repaid by the project without requiring higher levels of assessment against the fishermen. Fishermen are also concerned about the net benefit to them from the investment in an aquaculture project. They need to know, or have a believable estimate of the number of salmon which can be harvested by them as a result of their investment in an aquaculture project.

Professional managers of the regional associations also need to have an established and accepted means for evaluating alternative investment opportunities, securing the necessary financing for selected opportunities and being reasonably assured that the returns from the investment will be adequate to pay for the cost of the project.

In summary, the use of a return on investment (ROI) model is the most appropriate means for satisfying the financial assessment needs of lending institutions, the legislature and fishermen and to evaluate the financial risks and rewards to managers and members of regional aquaculture associations.

II. Considerations in the Development of a Return on Investment Model for Salmon Aquaculture Projects.

The standard formula for computing return on investment can be stated as follows:

$$\text{Return on Investment} = \text{'s } \frac{\text{Total Revenues Less Costs}}{\text{Total Investment}}$$

While the ROI formula can be stated in quite simple terms, substantial work can be involved in identifying total revenues, total costs, and the total investment.

Total revenues, for example, are a product of the number of returning adult salmon which can be harvested multiplied by the going ex-vessel price paid to fishermen for a particular species in each of the various geographic areas of Alaska.

The single most difficult part of the revenue equation involves the accurate estimate of the number of adult salmon which will return from a particular given brood year. Rates of return, which can be expressed in terms of the percentage of adult survivors to the number of eggs deposited, vary significantly from brood year to brood year for the same species, vary significantly among species and vary greatly among the various means for artificially and naturally propagating salmon. To further compound the problem of accurately estimating returns, run strengths or survival rates for the same species can vary significantly between broad geographic regions as well as between adjoining watersheds.

Notwithstanding the severe difficulty in accurately estimating salmon survival rates, the F.R.E.D. Division of the Alaska Department of Fish and Game has developed some standard assumptions on salmon survival rates. These rates are shown in Table I, in a somewhat different format than set forth in the ADF&G directive.

Table I

AN ANALYSIS OF ARTIFICIAL & NATURAL SALMON PROPAGATION METHODS

		STAGE I			STAGE II				STAGE III			
	FECUNDITY	Survival-Egg Take to Emerge Stage by Propagation Method(2)			Survival Emerge to Migrant Stage by Propagation Method (3)				Marine Survival by Propagation Method (4)			
		Natural	Hatchery	Incu. Box	Natural	Hatchery	Lk. Fert.	Incu. Box	Nautral	Hatchery	Lk. Fert.	Incu. Box
PINK	Ave. 1600	160	1360	720	-	1224	-	-	5	24	-	7
SOCKEYE	Ave. 3000	300	2550	1350	60	179	-	98	5	11	-	10
CHUM	Ave. 2200	220	1870	990	-	1683	-	-	6	34	-	0
COHO	Ave. 2800	280	2380	-	56	1666	-	-	4	100	-	-
CHINOOK	Ave. 6500	650	5525	2925	130	3868	-	293	4	77	-	1

(1) Survival rates for artificial production based on F.R.E.D. Division Directive.
Natural production estimated by contractor.
All percentages rounded to nearest whole percent, where possible.

(2) Survival - Egg Take to Emerge Stage
Percentile Estimates (10% estimate is shown in the Table)

	Natural	Hatchery	Incu. Box
PINK	7-10%	85%	45%
SOCKEYE	7-10%	85%	45%
CHUM	7-10%	85%	45%
COHO	7-10%	85%	-
CHINOOK	7-10%	85%	45%

(3) Survival Emerge to Migrant Stage
Percentile Estimates

	Natural	Hatchery	Lk. Fert.	Incu. Box
PINK	-	90%*	-	-
SOCKEYE	20%	7%**	-	7%
CHUM	-	90%*	-	-
COHO	20%	70%	-	-
CHINOOK	20%	70%	-	10%

*To fingerling size
**Lake released as emergent fry
***Because of their high value chinook would be hatchery reared rather than placed in an incubation box.

(4) Marine Survival Estimates

	Natural	Hatchery	Lk. Fert.	Incu. Box
PINK	3%	2%	-	1%
SOCKEYE	8%	6%	-	1%
CHUM	3%	2%	-	1%
COHO	8%	6%	-	-
CHINOOK	3%	2%	-	3%

Table I suggests that there are at least three distinct stages in the life cycle of a salmon where artificial means can be employed to change the rate of survival of adult returning salmon. In addition, within each stage there are a variety of alternative propagation choices which can enhance survival, each of which have different cost characteristics and yield different rates of return on their associated investment.

As indicated in Table I (Stage I), the basic economic attractiveness of artificially propagating salmon results from the fact that under natural spawning conditions only 7 to 10 percent of the green eggs deposited by spawning salmon produce emergent fry. Under the more controlled conditions of a hatchery, survival rates from the green egg stage to the emergent fry stage of 85% are estimated to be achievable. This 8 to 10 times greater Stage I survival rate provides a major economic justification for artificially propagating salmon. This reasoning is based upon the assumption that the more salmon which are initially produced, the greater the number that will survive to be available for harvest. This should lead to increased fishermen's incomes and provide sufficient economic benefits (e.g. terminal harvests) to pay for the cost of constructing and operating the propagation facility.

There are other alternatives in Stage I to simply choosing between natural production and hatcheries. For

example, incubation boxes, which involve a mere fraction of the cost of hatcheries, under certain circumstances can be considered as an attractive financial and biological alternative to either natural or hatchery propagation methods. Stream rehabilitation (not shown in Table I), a method for improving natural runs, is another example of the type of biological and economic choice which could be made to increase the size of a salmon run or improve survival rates. (Note: In Chapter III we discuss a variety of research activities to be undertaken to improve survival rates at each stage.)

The important point to recognize is that survival rates vary with the type of propagation method, which in turn vary significantly in terms of cost. By combining survival rates and the costs associated with the methods for achieving those survival rates in a return on investment model, a means is available for objectively analyzing and determining which sets of biological and economic considerations will produce the better return for the required investment.

Stage II deals with a second set of economic choices and survival rates from those contained in Stage I. During Stage II for example, emergent fry can be reared to a larger size in a hatchery, which improves their survival rate, but again, certain costs are incurred which have to be carefully weighed against the estimated increase in the number of returning salmon. It is important to recognize

that Stage II economic choices and survival rates may be largely independent of the choices made during Stage I. For example, during Stage I, it may be economically desirable to release unfed pink and chum fry without incurring further costs associated with Stage II types of activities. Alternatively, it may be economically desirable in Stage I, to incur no propagation costs on sockeye salmon by depending upon natural spawning but during Stage II use the newly developing lake fertilization technique as a means of increasing Stage II survival rates.

Another highly interesting Stage II method for improving survival rates is the predation control program established by the Alaska Department of Fish and Game in the Wood River Lake System. Arctic chum are impounded in a holding pen to reduce their predation on outmigrating smolt. According to estimates, up to one million smolts are saved each season by the control project.

Again, the point is made that both Stage I and Stage II propagation methods involve a series of often independent economic choices and differing survival results. The current inability (or limited ability) to clearly distinguish the costs and benefits (increased survival) associated with each stage substantially limits the useability of such data for economic analysis purposes.

Table I, Stage III depicts a very limited series of possible marine survival rates. These rates are largely

predicated upon the current methology in which Stage I and Stage II propagation methods are assumed to be interdependent, which as we discussed earlier, is not always the case. For example, no assumptions or estimates are included which indicate the potential increase in the marine survival of Stage I natural spawning sockeye resulting from lake fertilization during Stage II.

Stage III, Marine Survival also offers an opportunity, quite independently of Stages I and II, to increase the number of returning adults. Methods for reducing predation by beluga whales (or sea lions) in the marine environment, and techniques for reducing shaker (coho, chinook) mortality are but two means which could be used to increase the number of returning adult salmon. The implementation of either or any of these techniques during Stage III, like Stages I and II, depends both upon the expected increase in survival rates as well as the costs to be incurred.

Five critically important observations about salmon survival rates which are apparent from the information contained in Table I need to be made at this point prior to further defining the elements to be included in a return on investment model for salmon aquaculture projects. These are:

(1) There are an increasing variety of opportunities within each of these three stages in the life cycle of salmon to employ artificial methods which will increase salmon survival rates.

(2) The mission of regional aquaculture associations, the F.R.E.D. division and the Salmon Resource Development Program (ASRDP) as a whole, should not be limited to Stage I types of choices (i.e., natural production v. hatcheries v. incubation boxes) but should instead encompass the entire range of biological and economic choices available to them in order to allow the maximum return on investments to be realized.

(3) Too little emphasis has been placed on doing research on improving survival rates and there is a lack of data which corresponds to the alternative economic choices within and across the various life cycle stages. This severely limits the current capability to develop reliable financial estimates of the potential economic benefits to be derived from almost any given salmon propagation endeavor.

(4) Let us assume for a moment, at least, that the F.R.E.D. division were adequately funded to perform the necessary data gathering and research and development of alternative means for increasing salmon survival rates. Let us further assume that such data and means were used in a wide variety of ways by regional associations to increase Stage I, Stage II and Stage III survival rates (in independent as well as an interdependent fashion). As a result of the possible interactions and combinations of propagation techniques, in many instances there may not be a separately identifiable, artifically propagated run which could be

subjected to a terminal area harvest as a means of recovering the capital and operating costs associated with achieving the increased survival rate. A simple example of this dilemma occurs when a regional association incurs costs to rehabilitate a stream bed to improve natural spawning conditions. Because no artificial run was created no terminal area harvest can be employed to recover the investment. Regional associations now regard such projects as non-revenue producing and absorb the attendant costs of the project within available funds. If future aquaculture developments make Stage I - II hatchery type operations economically less attractive than other choices, and at the same time the regional associations are placed in a position of developing and operating new hatcheries simply because they are dependent upon terminal area harvests for a major source of operating revenue it would indeed be unfortunate. Given the growing technological developments in salmon enhancement, it is important that the selected financing mechanisms not lock regional associations into less attractive propagation methods because of harvest considerations.

(5) The bulk of information critical to a return on investment model is biological. Lending institutions must have the capability to evaluate this critical information, or alternatively the lending authority must be placed with those who have the biological expertise to evaluate such proposals (See Chapter III).

III. Elements of a Return on Investment Model for Salmon Aquaculture Projects.

Notwithstanding the present limitations on the availability of reliable information upon which to estimate the number of returning adult salmon, the following propagation factors must be reflected in a return on investment model for salmon aquaculture projects.

A. Salmon Propagation Factors.

1. The Number of Eggs to be Propagated.

If green eggs are used for the initial planning basis it will in turn (together with an estimate of the average number of eggs available per female spawner) provide a basis for estimating the number of salmon required for egg taking purposes as well as the estimated number of adult returns.

2. Stage I Estimated Survival Rates by Species - (Green Egg to Emerge Stage).

(a) Natural production;

(b) Natural production rehabilitation (i.e., stream bed rehabilitation);

(c) Hatchery production;

(d) Incubation box;

(e) Other.

3. Stage II Estimated Survival Rates by Species (Emergent Fry to Migrant Stage).

(a) Natural production;

(b) Natural production rehabilitiation;

(c) Hatchery production

(1) Fed fry;

(2) Fingerling;

(3) Smolt.

(d) Hatchery production (out-station plants)

(1) Fed fry;

(2) Fingerling;

(3) Smolt.

(e) Incubation box;

(f) Lake fertilization (In combination with 2(a), (b), (c) or (d), above);

(g) Other.

4. Stage III Estimated Survival Rates - by Species (Marine Survival).

(a) Natural survival (no human intervention directed at increasing the survival rate of the particular run);

(b) Enhanced survival (human intervention i.e., predator controls applied).

5. Estimated Total Returns - by Species.

Estimate of the number of adult salmon which will return to the area of harvest as a result of propagation methods and any enhanced survival techniques employed.

6. Number of Spawning Stock Required for Run Maintenance - by Species.

Estimate of the number of male and female spawners required to maintain the initial run.

7. Number of Spawning Stocks Required - by Species.

Estimate of the number of additional male and female spawners required to increase initial run size. The decision to increase a run size should reflect the lost opportunity costs (to fishermen) represented by the value of the additional spawners required to build the level of the run.

8. Hatchery or Other Surplus - by Species.

There are often surplus male salmon which are not needed for spawning purposes, therefore an estimate of the amount of the return which cannot be harvested nor is required for spawning purposes needs to be made if the surplus can be sold. (Any value of spawned out carcasses should also be included).

9. Estimated Total Number of Harvestable Salmon - by Species.

The estimated total number of harvestable salmon is the estimated total return less spawning stock required and any surpluses.

B. Salmon Revenue Factors.

Salmon revenue estimates for the return on investment model should be based upon the estimated total number of harvestable salmon and estimates of the ex-vessel prices being paid for the salmon. Salmon revenue should also include any revenues received from the sale of spawned-out carcasses and spawning surpluses.

Considerable variations occur in Alaskan salmon ex-vessel prices by region. The quality of the fish harvested as well as the supply of salmon which is available also affect ex-vessel prices.

In addition to the regional price variations, total project revenues can be based upon a constant dollar basis or on a current dollar basis. A constant dollar basis for estimating revenues would, for example, be 1979 ex-vessel prices extended for the expected life of the project. The current dollar basis would be based upon estimates of future ex-vessel prices during the life of the project. There are advantages and disadvantages to both.

The use of a constant dollar basis works well for short-term projects where the returns tend to be immediate. It works less well when long term (20-30 years) pay-outs on investments are required and inflation is increasing operating costs at a rate which may or may not be commensurate with increases in the market price for salmon.

The use of the current dollar basis attempts to adjust for the effect of inflation on operating costs and to reflect future market prices for salmon based upon inflationary trends as well as the effects of supply and demand at various production levels. While the main advantage of the current dollar basis is that it is an attempt to take future prices and costs into consideration in evaluating the return on investment potential of a particular aquaculture project. A

primary disadvantage of the current dollar basis is the lack of reliable forecasts of future costs and prices for the salmon industry. A further disadvantage is that the relative merits of a project (in relation to an alternative investment choice) can become so obscured by price and cost change assumptions, which may or may not be reliable, that short-term choices tend to be selected over longer-term projects simply because of the uncertainty over future costs and prices.

Despite the advantages and disadvantages of both the constant dollar basis and current dollar basis for estimating costs and revenues, each can be effectively used in a return on investment model.

The following general guidelines may be helpful in selecting whether to use a constant dollar basis or a current dollar basis for use in a return on investment analysis.

1. During times of high rates of cost inflation and high levels of salmon production and where market prices are not increasing at a rate commensurate with inflation, the use of a current dollar basis in the return on investment model will help ensure that spiraling operating costs together with stable production and market prices do not create a future situation whereby all of the salmon production from a propagation project is required to pay operating costs, with no harvest allowance provided to fishermen.

2. If a choice is being made from among like projects (i.e., approximately the same level of capital investment, return timing, operating costs, depreciable facility life, and etc.) the use of a constant dollar basis would be suitable for inclusion in the return on investment model.

3. Short-term capital projects which require little or no continuing operating expense can be comparatively evaluated using the constant dollar basis.

4. When in doubt about which basis is more appropriate and the amount of the investment at risk is significant, use both the constant dollar basis and the current dollar basis and make any decisions on the set of data which indicates the least favorable return on investment.

The salmon revenue factors to be taken into consideration are as follows:

1. Estimated Total Number of Harvestable Salmon (as derived earlier).

2. The Value or Price Per Pound of the Salmon.

The regional ex-vessel price expressed in terms of constant dollars or current dollars over the useful life of the project.

3. The Estimated Weight Per Fish.

4. The Total Value of the Estimated Numbers of Harvestable Salmon.

Item 1, multiplied by item 2 multiplied by item 3.

5. The Value of Surplus and Spawners.

The estimated revenues resulting from the sale of spawned out carcasses and hatchery or other surpluses.

6. The Total Estimated Value of the Run.

Add item 4 and item 5.

C. Cost Factors.

There are a variety of categories of costs incurred by regional associations, not all of which are fully allocable nor attributable to a propagation project or facility. These cost categories, their allocability, and other characteristics are discussed as follows:

1. Regional Association Administration.

Regional Association Administration includes all expenses related to the selection of and expenses incurred by the directors of the regional association. Other allocable expenses (see 2 below) related to operating and maintaining the regional association belong in this category. Under the financing plan presented in Chapter II, none of the costs of Regional Association Administration would be charged to a propagation facility or project.

2. Administrative and Supportive Services.

Included in this cost category are the salaries and wages of the executive director, clerical and secretarial personnel and such expenses as newsletters, assessment bookkeeping activities, accounting, purchasing and payroll services, general planning (consulting) services, office

rent, office utilities and equipment. These costs are fully allocable to Regional Association Administration as well as to Technical Services, Full Production Hatchery Operations and other cost categories. The division in Administrative and Supportive Service Costs between Regional Association Administration and other cost categories should be based upon the proportion of payroll and other expenses attributable to the support of each activity.

3. Technical Services.

This cost category includes the salaries and wages of regional biologists and other technical personnel who perform regional planning activities, conduct stream surveys, conduct tagging and other research activities, plan and conduct egg takes and similar technical activities not involved with the day to day operation of hatcheries or other production enhancement activities. A portion of the Administrative and Supporting Service overhead costs should be allocated to this category in proportion to the services received or expenses incurred. The rental of aircraft, marine vessels and other similar expenses associated with egg takes, stream surveys and other related activities should be direct charges to the Technical Services category of expenses.

4. Full Production Hatchery Operations.

This category includes the direct salaries and wages of hatchery supervisory and operating personnel, fish

food, utilities and other expenses attendant to operating a hatchery or other propagation facility once full returns are being realized. Also included in this cost category are costs attendant to performing a terminal area harvest.

5. Hatchery & Enhancement Projects Start-Up Costs.

This cost category includes all hatchery or enhancement project costs similar to those listed for 4 above or 6 below which are incurred or must be paid during the period of time between initial start-up and when full returns are being realized. Recurring expenses related to a rehabilitation project, lake fertilization project or similar production improvement activity, occurring prior to the full returns being realized should be recorded as a direct start-up charge to each such project.

6. Capital Investment Program.

This cost category includes all capital investments for hatcheries and other propagation facilities as well as such one-time enhancement projects as stream rehabilitation. Costs included for each facility include land, buildings, utilities installation, architect's fees, interest and similar costs relating to the projects. One-time salaries and wages and other direct costs attributable to a stream rehabilitation or similar enhancement project should be recorded as a direct charge to each project.

7. Total Cost.

Includes all costs for cost categories 1-6.

8. Total Propagation Facility (Project) Cost.

Includes allocated administrative and supporting services overhead charges to categories 4 and 5 as well as direct charges to categories 4 and 5 plus the appropriate capital and interest charges from category 6.

D. Economic Analysis Factors.

Based upon the revenue resulting from a salmon propagation project and the project costs as previously defined, it is possible to identify the estimated net revenue (gross revenue less allocable costs), either on an annual basis or for the estimated total useful life of the facility. Net revenue divided by the total investment in the propagation facility (cost category 6) will provide an estimate of the percent return on investment resulting from the project.

E. Propagation Facility Run Breakdown Analysis Factors.

The final element of a Return on Investment Model for salmon aquaculture projects is an analysis of who harvests the runs from the facility. There are three main elements contained in the run breakdown analyses. These include: that part of the run required for spawning stocks; that part of the run harvested by fishermen; and, that part of the run harvested in the terminal area which is used to pay a portion of the facility operating costs.

In summary, the elements which need to be considered in a return on investment model for salmon aquaculture

projects are: Salmon Propagation Factors; Salmon Revenue Factors; Cost Factors; Economic Analysis Factors and Propagation Facility Run Breakdown Analysis Factors. Table II provides an example of how the return on investment model can be applied in evaluating a potential aquaculture propagation project.

TABLE II

Example Return on Investment Analysis

(25 Million Egg Facility)

Analysis of Annual Costs - 25 Year Facility Life

(Chum Salmon)

	Reference Section	Constant Dollars (1)	Current Dollars (2)
SALMON PROPAGATION FACTORS	(A)		
Eggs Propagated	(A-1)	25 Million	25 Million
Estimated Total Returns	(A-5)	500,000	500,000
Number Spawning Stock	(A-6)	14,218	14,218
Hatchery or other surplus	(A-8)	8,530	8,530
Estimated No. Harvestable Salmon	(A-9)	477,252	477,250
SALMON REVENUE FACTORS	(B)		
Regional Expressed price per pound	(B-2)	$0.75	$1.38
Estimated Average Weight per fish	(B-3)	6 lbs.	6 lbs.
Value of Harvestable Salmon	(B-4)	$2,147,634	$3,951,630
Value of Surplus and spawners	(B-5)	$ 38,385	$ 70,628
Total Estimated Value of run	(B-6)	$2,186,019	$4,022,258

TABLE II
(Continued)

	Reference Section	Constant Dollars[1]	Current Dollars[2]
ANNUAL COST FACTORS	(C)		
Technical Services[3]	(C-3)	$ 50,000	$ 92,000
Full production operations[4]	(C 4)	500,000	920,000
Hatchery start-up costs[5]	(C-5)	207,000	207,000
Capital Investment[6]	(C-6)	345,000	345,000
Total annual propagation Facility Cost	(C-8)	$1,102,000	$1,564,000
ANNUAL AVERAGE ECONOMIC ANALYSIS FACTORS	(D)		
Gross Income	(B-6)	$2,186,019	$4,022,258
Total Cost	(C-8)	1,102,000	1,564,000
Net Income		1,084,019	2,458,258
Return on Investment		27%	61%
ANNUAL AVERAGE RUN BREAKDOWN ANALYSIS FACTORS	(E)		
Spawners		14,218 (39%)	14,218 (3%)
Fishermen		240,893 (48%)	296,891 (59%)
Annual Costs		244,889 (49%)	188,891 (38%)
Total Run		500,000	500,000

TABLE II
(Continued)

(1) Item (B-2) based upon 1978 Southeast prices.

(2) Fish price and labor cost inflation estimated at 5% per year. Current dollars based upon average inflation over the 25 year life of the facility.

(3) Estimated annual professional fisheries biological services.

(4) Includes hatchery operations and an allowance to pay for the costs of harvesting that portion of the run for annual costs.

(5) Estimated at 6 years; cost capitalized and amortized over 19 years; 9 1/2% interest rate.

(6) Includes 25% run allowance of terminal area harvest; 2.5 million investment amortized over 25 years at 9 1/2% interest with interest and principal deferred for 6 years.

IV. Elements of a Cost Benefit Analysis Model for Salmon Aquaculture Projects.

Earlier in this Chapter in the general discussion about micro-economic evaluation techniques, it was pointed out that cost benefit models, like return on investment models can be designed to include some very complex refinements.

In a cost benefit analysis model, for example, such refinements as adding certain operating costs incurred by fishermen to the cost side of the equation as well as adding allowances for direct and indirect secondary employment effects beyond the fish processing activity to the benefit side of the equation, while technically correct, involve estimates which are so speculative that their inclusion would severely strain the credibility of the cost benefit analysis.

While cost benefit analysis models can be made overly complex, at the other end of the spectrum the current practices of using ex-vessel prices paid to fishermen and excluding interest costs on capital investments results in an equally inaccurate statement of costs and benefits.

It is also important to recognize that while some of the factors included in a return on investment model can be used in a cost benefit model, other return on investment factors do not apply. While both models can be used to measure the "value" of an aquaculture project, the term "value" has different meanings in each model.

Again, the value of an aquaculture project to a regional non-profit aquaculture corporation must be expressed in terms of ex-vessel prices paid to association fishermen for the salmon provided as a result of the project and harvested by association members if the corporation is to remain financially solvent. Prior interceptions by non-association fishermen and terminal area harvests to pay hatchery operating costs must be regarded as "losses" because they reduce the amount of revenue accruing to the fishermen.

A cost benefit analysis model, unlike the return on investment model, does not have a narrowly defined regional income criterion. Hence, the term value in a cost benefit analysis model is more encompassing. The value of a government sponsored aquaculture project should include for example, consideration of prior interceptions by other domestic commercial and sports fishermen. (The term domestic for a federal agency would include all American fishermen. Alaska state departments may wish to define domestic to include only Alaska's resident fishermen.)

The use of ex-vessel prices, while appropriate in a return on investment model for regional non-profit corporations, is not appropriate in a cost benefit analysis model. If the objective of a cost benefit analysis is to measure the domestic value of a salmon aquaculture project, the "value" must not only include money paid to fishermen but also the value added to the domestic economy as a result of

producing the run and processing the harvest. In other words, the salaries and wages paid to hatchery operating personnel, cannery workers and employees of firms who process fresh and frozen salmon are part of the value to the domestic economy from the aquaculture project which must be recognized in the cost benefit analysis model.

It might appear strange to include the salaries and wages of hatchery operating personnel in both the cost and benefit sides of an equation. Clearly such costs belong in computing the "cost" of an aquaculture project. It is equally clear that the employment of hatchery personnel is as valuable an addition to the domestic economy as the employment of fishermen or others, regardless of the fact that the form of compensation differs.

As can be demonstrated in the following simple example, it is not only important to include the salaries and wages of hatchery personnel as both a cost and a benefit, but further that these costs/benefits do not cancel out and therefore cannot be excluded from both sides of the equation.

Cost Benefit Analysis Example

Costs:	
Hatchery operators salaries and wages:	$20,000
Other costs:	10,000
Total costs:	$30,000

Benefits:

Hatchery operators salaries and wages:	$20,000
Other benefits:	80,000
Total benefits:	$100,000

Cost Benefit Ratio: 3.33:1

If the $20,000 in hatchery operators salaries and wages is excluded from the perceived benefits to the domestic economy from the aquaculture project, and the benefits were valued at $80,000, the cost benefit ratio would be 2.67:1. Alternatively, if the hatchery operators salaries and wages were excluded from both sides of the equation leaving a cost of $10,000 and a benefit of $80,000, the resulting ratio would be 8:1 rather than the correct amount of 3.33:1.

In addition to identifying hatchery personnel salaries and wages as a benefit, or being of value to the domestic economy, the added one-time value of the stimulus to the domestic economy from the construction activity associated with an aquaculture project should be estimated and included as a part of the benefits to be desired from the project.

A most difficult issue in defining value in a cost benefit analysis has to do with predation. Some would argue that the salmon from an aquaculture project harvested by bears, eagles and other predators should be valued as a means of recognizing the social goal of preserving wildlife, which is often a stated goal of some government agencies.

While there is a certain amount of attractiveness to such a proposal, it presents several problems which are difficult to resolve.

First, the amount of predation is so uncertain and speculative that its explicit recognition would severely strain the credibility of the cost benefit analysis. Second, the value recommended for measurement in the cost benefit analysis model is the contribution made to the domestic economy by the aquaculture project. This definition would generally exclude consideration of imputting a value to predation except under unusual circumstances. It is conceivable that predators might be attracted to an artificially propagated run, thus providing a greater harvest opportunity on an adjacent natural run. To the extent that such a circumstance might occur, and further to the extent that the harvesters of the natural run benefit from the substitution, an argument could be developed for adding the number of additional natural salmon harvested to the predator reduced artificial run. Again, such technical refinements, though intellectually attractive, are so difficult to accurately quantify that the credibility and cost of the analysis would be highly questionable.

To conclude, perhaps the most difficult choice is establishing a readily available "price" per pound for salmon to be used in the cost benefit analysis model. As was discussed earlier, the ex-vessel price only partially

recognizes the contribution to the domestic economy from a salmon run. A substantially greater "price" per pound can be quoted for sport caught salmon while salmon used for domestic consumption are often not accorded a "price".

After weighing all of the possible "price" choices, the most representative price which should be used in the cost benefit model is the first level wholesale price for canned or frozen salmon, by species, by region in Alaska. Such an index is not now currently available for Alaskan salmon. However, such an economic valuation index could be regularly published by the Alaskan Department of Fish and Game (or the National Marine Fisheries Service) for use in economic planning by ADF&G and other state and federal agencies. By having a state agency prepare such an economic valuation index, the confidentiality of individual financial records can be maintained. Failure to develop such an index will force the state to assume value added for fish processed at ratios consistent with other industries. The most common estimate of this ratio is 2:1 over ex-vessel prices.

In summary, the factors contained in a cost benefit analysis model are somewhat different from those contained in the return on investment model. The reason for these differences largely results from the varying objectives each serve. The objective of the return on investment model is to provide a means for private non-profit corporations to make economic choices based upon their need to be economically

self-sufficient. The cost benefit analysis model on the other hand is directed at measuring the total domestic economic benefits to be derived from an aquaculture project.

A. Salmon Propagation Factors.

1. The Number of Eggs to be Propagated.

If green eggs are used for the initial planning basis, it will in turn (together with an estimate of the average number of eggs available per female spawner) provide a basis for estimating the number of salmon required for egg taking purposes.

2. Stage I Estimated Survival Rates by Species - (Green Egg to Emerge Stage).

(a) Natural production;

(b) Natural production rehabilitation (i.e., stream bed rehabilitation);

(c) Hatchery production;

(d) Incubation box;

(e) Other.

3. Stage II Estimated Survival Rates - by Species (Emergent Fry to Migrant Stage).

(a) Natural production;

(b) Natural production rehabilitation;

(c) Hatchery production

(1) Fed fry;

(2) Fingerling;

(3) Smolt.

(d) Hatchery production (out-station plants)

(1) Fed fry;

(2) Fingerling;

(3) Smolt.

(e) Incubation box;

(f) Lake fertilization (In combination with 2(a), (b), (c) or (d) above);

(g) Other.

4. Stage III Estimated Survival Rates - by Species (Marine Survival).

(a) Natural survival (no human intervention directed at increasing the survival rate of the particular run);

(b) Enhanced survival (human intervention i.e., predator controls applied).

5. Estimated Total Returns - by Species.

Estimate of the number of adult salmon which will return to the area of harvest as a result of propagation methods and any enhanced survival techniques employed.

6. Estimated Prior Interceptions by Domestic Fishermen by Species.

Include estimates of prior interceptions by domestic sports and commercial and domestic consumption fishermen.

7. Estimated Total Run Adult Run Strength - by Species.

Add together items 5 and 6.

8. Number of Spawning Stock Required for Run Maintenance - by Species.

Estimate the number of male and female spawners required to maintain the initial run size.

9. Hatchery or Other Surplus - by Species.

Often there are surplus male salmon not needed for spawning purposes, therefore, an estimate of the amount of the return which cannot be harvested nor is required for spawning purposes needs to be made if the surplus can be sold or used in domestic consumption. (Any value of spawned out salmon carcasses can also be included.)

10. Net Total Adult Run Strength - by Species.

Item 7 less item 8 plus 9.

B. Salmon Revenue Factors.

The salmon revenue price considerations for use in the cost benefit analysis model are similar to those for the return on investment model except that wholesale rather than ex-vessel prices are used.

The discussion on the use of the current dollar basis and constant dollar basis for evaluating projects using the return on investment model apply equally as well to the cost benefit analysis model.

The salmon revenue factors to be taken into consideration in the cost benefit analysis model are as follows:

1. Net Total Adult Run Strength.

As derived earlier.

2. The Value or Price Per Pound of the Salmon.

The regional wholesale price expressed in constant dollars or current dollars over the life of the project. If a portion of the run is to be destined for the frozen market, the wholesale price for frozen salmon should be used. If the market is largely for canning purposes, the canned wholesale price should be used.

3. The Estimated Weight Per Fish.

4. The Value of the Net Total Adult Salmon Run.

Item 1 multiplied by item 2 multiplied by item 3.

5. The Value of Surplus and Spawners.

Add in any value in terms of domestic consumption or revenue from this source.

6. The Total Estimated Value of the Run.

Add items 4 and 5.

C. Other Benefit Factors.

As discussed earlier, the salaries and wages associated with creating a salmon run are as economically beneficial as the salaries paid to fishermen and processing personnel. The net economic benefit of the one-time stimulus to the domestic economy from the construction of an aquaculture project is another benefit which should be included in Other Benefit Factors. (An estimate of the hatchery personnel salaries and wages and other similar benefits should be made and included in Table III, Other Benefit Factors).

D. Cost Factors.

There are several categories of costs to be included

in a cost benefit analysis. These are as follows:

1. Project Planning and Surveys.

Included in this category are all the costs associated with performing stream surveys, site research and selection, preliminary design and other work preceding construction.

2. Construction.

This category includes all of the costs to construct the facility, perform the stream rehabilitation or similar work.

3. Imputed or Actual Interest Expense.

If interest expense is being paid through a bond issue, for example, the bond interest rate should be applied to the amount of capital funds used for the project. If the project is being funded through a cash appropriation, a cost of capital rate should be included for the project. A typical state rate might be the going rate on state general obligation bonds. A typical federal rate might be the going rate on long term treasury notes.

4. Facility Operations.

This would include all salaries and wages, utilities, fish food and other expenses associated with operating the facility from inception of the operation through full production.

Table III, as follows, is an example of how a cost benefit analysis can be applied to an aquaculture project.

TABLE III

An Example Cost Benefit Analysis

(25 Million Egg Facility)

Analysis of Annual Costs - 25 Year Facility Life
(Chum Salmon)

Factors	Reference Section	Constant Dollars	Current Dollars(7)
SALMON PROPAGATION FACTORS	(A)		
Estimated Adult Run Strength	(A-7)	500,000	500,000
Number Spawning Stock	(A-8)	14,218	14,218
Hatchery or Other Surplus	(A-9)	8,530	8,530
Net Total Adult Run Strength	(A-10)	485,782	485,782
SALMON REVENUE FACTORS			
Regional Wholesale(1) Price Per Pound	(B-2)	$1.35	$2.48
Estimated Average, Weight Per Fish	(B-3)	6 lbs	6 lbs
Value of the Net Total Adult Salmon Run	(B-4)	$3,865,741	$7,101,510
Value of Surplus and Spawners	(B-5)	$ 69,093	$ 126,926
Total Estimated Value of the Rum	(B-6)	$3,934,834	$7,228,436
OTHER BENEFIT FACTORS(2)	(C)	$ 120,000	$ 220,800
TOTAL ESTIMATED BENEFITS		$4,054,834	$7,449,236

TABLE III
(Continued)

Factors	Reference Section	Constant Dollars	Current Dollars(7)
ANNUAL COST FACTORS			
Project Planning and Surveys(3)	(D-1)	$ 10,000	$ 10,000
Construction Costs(4)	(D-2)	$100,000	$100,000
Imputed/Actual Interest Expense(5)	(D-3)	$162,200	$162,200
Facility Operations(6)	(D-4)	$457,000	$667,000
Total Annual Propagation Facility Costs		$729,200	$939,200
Cost to Benefit Ratio		1:5.56	1:7.93

(1) Estimate wholesale price for frozen chum.

(2) Estimated annual salaries and wages paid to hatchery operating personnel.

(3) Estimated at 10% of construction costs.

(4) Estimated $2.5 million construction costs annualized over 25 years.

(5) Interest expense on construction costs at a rate of 9 1/2% annualized over 25 years.

(6) Hatchery operations only, excludes terminal area harvest costs; includes cost for six years start-up amortized over 19 years of production at 9 1/2% interest.

(7) Fish price and labor cost inflation estimated at 5% per year.

MACRO ECONOMIC EVALUATION TECHNIQUES

The return on investment and cost benefit analysis models are micro-economic evaluation techniques that are applicable to measuring the economic value of individual salmon aquaculture projects. While these models are useful in making economic choices on a project by project basis, equal attention should be given to the economic value of all such projects, collectively, as well as the overall economic value of the salmon fishery. There are several reasons why it is important to develop an economic understanding of the salmon industry as a whole. First, the salmon fishing and processing industry employs more people than any other element of the private sector, with the total value of the salmon harvest in 1978 exceeding 230 million dollars at ex-vessel prices.

Secondly, Alaska is currently overly dependent upon revenues from non-renewable resources, and the full development of the salmon fishery could aid in redressing the current disparity in tax revenues from renewable and non-renewable resource sources.

There are other perhaps more critical reasons to assess the economic benefits of the fishery from an overall state perspective. Alaska has a life-style which is in part characterized by the independence desired by its citizens. The capability to maintain this life-style is for many

people dependent upon earning all or part of their income as fishermen or working in seasonal fish processing jobs. Salmon fishing and/or processing provides the major source of income to communities like Ketchikan, Petersburg, Dillingham, Cordova and others. Without a strong, healthy fishery, many of these communities would suffer because their citizens would not have an alternative way of earning an income. Manufacturing and agriculture, which are the mainstays of many similar communities in the lower 48 states, are simply not an option open to citizens in these Alaskan communities.

Finally, if the state is to maintain its current prosperity, it must move out of the current raw material resource exploitation state of economic development to one which is more favorable to the state and its citizens in terms of the income to be realized from increasing the direct and secondary benefits derived from processing, marketing and consumption of salmon.

For these and other reasons, it is critically important that the state have the economic tools necessary to plan and administer its economic future. Currently, however, few economic planning tools are available and the capability to perform macro-economic analyses in Alaska is severely limited. The information and tools needed to perform the proposed macro-economic analysis are rather straight forward. These include:

1. State Tax Revenue Collection Reports Coded by the Standard Industrial Code and Geographic Region.

One of the best ways of measuring changes in economic conditions is through the state tax collection system. The change in the number of corporate and individual tax payers as well as changes in their earning status is critically important information for economic planning.

2. Development of a State Input/Output Economic Model.

An input/output model is a planning tool which can be used to identify the economic or employment multiplier effect of the various segments of industry. It can also be useful in examining the relative balance between imports and exports by industry segment.

3. Employment/Unemployment Reports by Standard Industrial Code.

In order to perform economic analysis it is important to know employment by type of industry within a region. Employment and unemployment characteristics should also include information on the age, sex and household dependency status.

With the development of at least these three economic planning tools, it would be possible to perform the following types of macro-economic analyses.

1. Assume that the State of Alaska is willing to invest some of its non-renewable resource tax revenue into producing future recurring income streams both as a means

for financing state and local government as well as providing a healthy economic climate for its citizens. Assume further that the interest rate on investment opportunities in the major capital money markets outside of Alaska or government securities is nine percent (9%). An investment in an in-state economic development project which yields an interest rate of only seven percent (7%) could be more financially attractive to the state than an out of state investment because of the additional revenue generated from the added in-state employment, personal and corporate taxes.

2. The State of Washington in 1972 received voter approval to invest 415 million dollars of state funds in a statewide capital investment program. Federal and local matching funds were expected to bring the total investment to approximately 1.5 billion dollars. According to the economic planners (Washington State Budget, 1972 Volume II, page 63) "... the construction impact alone will generate 240,000 full-time equivalent years of employment ... and help meet the projected employment needs of 23,000 net new labor force entrants each year." The budget document goes on to report that, "the Washington futures program will not require new taxes ... the expenditures on construction projects ... together with the turnover of those expenditures through suppliers and payrolls will provide additional state sales, and business and occupation tax revenue. Second, the new industries which can be established as a result of these

Washington future projects will also provide new state revenue." The Washington Futures Program represents the type of economic planning capability which the State of Alaska needs if it is to make informed economic choices on investment opportunities.

In summary, the consulting team makes the following findings and recommendations regarding the development of macro-economic evaluation tools for the State.

1. A key ingredient in evaluating the economic value of the salmon fishery to the State of Alaska is the ability to reasonably and accurately estimate the total tax revenue which annually accrues to the State from this industry.

2. Currently, the only information available on State tax receipts from the fishery concerns the raw fish tax. Personal and corporate income tax information for residents and non-residents is not available in a readily usable form.

3. Input/output analyses which identify the direct and secondary multiplier effect of employment and income from in the fishing industry, need to be conducted.

4. Based upon the current lack of reasonably accurate macro-economic information, the State of Alaska is not in a position to evaluate its investment opportunity in the fisheries. Moreover, the current lack of this information effectively precludes the State from explicitly formulating an economically sound fisheries development policy.

5. The State Departments of Revenue, Commerce and Economic Development and Labor should be authorized to develop the necessary macro-economic analysis information and tools so that the state can appropriately assess the economic value of its salmon fishery and formulate an economically sound fisheries development policy.

Chapter II - SOURCES AND METHODS FOR FINANCING SALMON AQUACULTURE PROGRAMS

Mandatory Assessments

Prior to discussing some of the other considerations involved with developing a stable financial basis for salmon aquaculture, the most critical financial issue currently pressing on the regional aquaculture associations is the recent Superior Court ruling in Wayne Alex etal., v. Southern Southeast Aquaculture Association etal. in which the court held that Alaska Statute 16.10.530, which establishes the funding mechanism for private aquaculture, is unconstitutional.

In a letter to Governor Hammond, as a result of the court ruling, the State Attorney General identified five "potential legislative alternatives to the now-unconstitutional statutory scheme for your consideration." These are as follows:

1. Regional aquaculture association programs could be funded through direct appropriation. We believe there would be no legal difficulties with this approach.

2. A statewide tax on the sale of salmon could be imposed, with proceeds of the tax deposited in the state's general fund and regional aquaculture association programs funded through annual appropriations in amounts based on the amounts collected in each region. While such a scheme conceivably could be challenged on the basis that it

violates the constitutional prohibition on the dedication of state tax revenues, we believe such a statute could be drawn artfully enough to pass constitutional scrutiny.

3. Regional taxes could be imposed on the sale of salmon to become effective only upon a majority vote of commercial fishermen in each region, proceeds of the tax would be deposited in the State's general fund and the regional association's programs would be funded through annual appropriations in amounts based on the amounts collected in the region. In addition to the dedicated fund problem, such a scheme could be challenged on the ground that it violates equal protection (treating commercial fishermen differently depending upon the region in which they are fishing) and on the ground that it constitutes an unconstitutional delegation of the power to levy a tax. While there are good arguments that such a program does not violate equal protection and does not constitute an unconstitutional delegation of the power to tax, we cannot predict with certainty how the issue would be resolved by the Alaska courts.

4. The program could be restructured to take advantage of the constitutional authorization of "service areas" -- in effect, utility districts. This approach would require agreements between the state and municipalities in each region, but would avoid the dedicated fund problem and (probably) the delegation problem as well.

5. The Fisheries Rehabilitation and Enhancement Division (F.R.E.D.) in the Department of Fish and Game could be restructured and directed to be more responsive to the concerns of the user groups in the various

regions. Under this scheme, the Department of Fish and Game (through F.R.E.D.) would have primary responsibility for implementing any aquaculture program established for any given region. There are no legal obstacles to such an approach to the problem.

The following comments are directed at each of the alternatives suggested.

1. It would be possible to fund the regional associations for a limited period of time through direct appropriations. The use of this approach must be regarded as a short term measure for several reasons. One of the major policies of Alaska state government is to require that programs which benefit primarily a group of resource users shall become, to the extent possible, economically self-sustaining. If the regional aquaculture programs, and the fishermen who benefit from the expanded harvests, are to operate in a manner which is consistent with this policy, some alternative means of financing fisheries development projects must be found. We discuss further the problems related to this option in Chapter III.

2. A statewide mandatory tax on the sale of salmon could be imposed with the proceeds from the tax appropriated to each region in proportion to their contribution to the taxes collected. A major problem with such a course of action is that one of the major fishing areas now operates in a satisfactory manner on voluntary assessments. Others would vigorously oppose the tax. Whether or not such tax

receipts could be dedicated raises serious legal questions. To subject the program to further legal uncertainties at this time should be avoided at all cost.

3. Again, the legal complexities of alternative number three present risks which may not be necessary or appropriate to take.

4. Alternative #4, suggests that regional associations might be restructured into service districts based upon agreements between the state and the boroughs. This alternative seems to find considerable constitutional support and is discussed in detail in Chapter III.

The implementation of special service districts for regional aquaculture has several attractive features. Regional aquaculture, if it is to grow and make a significant contribution to the fishery, requires two characteristics which are not now present in their organizational make-up. The regional associations need a stable source of financing and a stable organizational structure.

The inherent financial structure of private non-profit corporations has several characteristics which severely limit the use of this form of organization for fisheries development. First, because the corporations are non-profit, they have little capability to raise private venture (risk) capital which is vitally needed to meet reasonable production goals. While it is true that the non-profit corporations can borrow substantial sums from government,

unless that government is very knowledgeable about the investment risks, is willing to undergo long periods of initial start-up costs without a pay back, and is very committed to maintaining its support, the non-profit corporations will not have an adequate financial structure upon which they can develop and grow.

Secondly, just as the non-profit corporations have none of the financial strengths of a private sector for-profit corporation, such as the capability to attract risk capital, neither do they have any of the financial strengths of a unit of government such as an assured tax base. They must now depend upon voluntary contributions for their subsistence.

The private non-profits not only suffer from the lack of a stable source of financing, they also suffer from the lack of a stable organizational structure such as those structures found either in the private sector or in government.

For example, members of the boards of directors of private sector corporations often have a major financial interest in seeing the corporation succeed, and offer considerable expertise relevant to the fixing of sound corporate policy. It is difficult for the regional associations to educate their boards while at the same time expecting them to fix sound policy. Moreover, many of the associations are organized on the foundation of an active board. The goals and programs of the associations are ambitious and there

have been frustrations. It may be difficult for enough fishermen to maintain such an active role or interest without adequate renumeration or status.

Neither the financial rewards associated with service on a board of directors of a for-profit corporation, nor the status conferred in an elective public position are currently present in the regional association. Currently, members of the boards of directors of regional aquaculture corporations regard their service on the board as a "civic duty" or because of a personal commitment to the fishery. Few board members expect to see any significant financial return to themselves as a result of the aquaculture program for a long time, if ever. In essence the sense of "civic duty" or sense of personal commitment to the fishery must be strengthened so that increased organizational stability can be achieved for the regional aquaculture associations.

The use of the special service district could provide a means for achieving both a stable financial base and a more stable organizational base than presently exists. For a further discussion of this option, see Chapter III.

5. The fifth alternative means of resolving the loss of the mandatory assessment would be to restructure the F.R.E.D. division of ADF&G into a regional aquaculture program.

While this type of change on the surface has some attractiveness in that it may offer the possibility of a

somewhat improved financial base (presumably through state appropriations), the same long-term financial problems that are present in alternative #1 are present in #5. That is to say, if one of the major policies of Alaska state government is for the users of government service to pay their fair share for the service and for programs to become economically self-sufficient, ultimately a fair share of the cost of operating a regionalized F.R.E.D. division will have to be shifted to the user groups. Many of the pros and cons of the state's assumption of an active role in funding the program are addressed in detail in Chapter III.

The F.R.E.D. division will have in operational status by the mid-1980's, hatchery production capacity in excess of 600 million eggs being incubated. At some point in time, it is possible that the significant costs incurred in operating these state salmon production facilities will need to be offset by an adequate income stream (e.g. terminal harvest or user assessments). In essence, selection of alternative #5 would be inconsistent not only with current Alaskan state policy, but would mean ever greater costs to the state in the future for operation and maintenance of facilities, this at a time when state revenues (e.g. oil taxes) may be on the decline.

6. A sixth alternative not suggested by the Attorney General would be an Amendment to the Alaska Constitution expressly providing for such regional economic develop-

ment as aquaculture. The drafters of the Alaska Constitution eliminated the junior taxing districts which "plague" government operations in most of the lower 48 states. They limited the general taxing powers to the state and boroughs and expressly authorized boroughs to set up special service districts to provide for services required in the borough. If the state legislature acting on behalf of the unorganized boroughs and the boroughs acting on behalf of themselves, are unable to create a special service district whose boundaries encompass areas included in both the organized and unorganized boroughs, as suggested in alternative number 4, then it would be impossible to create a regional aquaculture association with boundaries comparable to those which currently exist. If we accept the argument that broad regional areas are a logical geographic feature required by regional aquaculture associations, a constitutional amendment may be required to provide the associations with a taxing authority which encompasses a service district which includes area in both the organized and unorganized boroughs (or perhaps two boroughs).

While the framers of the Alaska Constitution expressly intended to avoid the nuisance of junior taxing districts, it may be time to reassess the wisdom of a policy which entirely eliminates any mechanism for infrastructure development in Alaska except as it might exist in an organized borough or through state appropriations. If special service

districts cannot be created to extend beyond the boundaries of the organized borough, a constitutional amendment could be offered to allow this type of infrastructure development. The difficulties of obtaining necessary constitutional amendments are addressed in Chapter III.

In summary, the loss of the capability to have mandatory assessments by several of the regional aquaculture associations is a severe shock to their already inadequate financial structure. Six alternative methods of making up for the financial loss have been discussed. Two alterations, the creation of special service districts or an amendment to the Alaska Constitution allowing for junior taxing districts or service districts to be created which extend into adjacent boroughs or the unorganized borough, are the most attractive alternatives. Both of these alternatives can be consistent with the goal of ultimate economic self-sufficiency of the program. Secondly, these alternatives provide the opportunity to create a more stable regional aquaculture organization as well as provide a more stable source of financing.

Other Financing Issues

Through a series of legislative acts, beginning in 1971, the Alaska Legislature has established a number of mechanisms for supporting or financing the Salmon Resource Development Program (ASRDP). These are each separately discussed as follows:

1. Creation and State Tax Support of the F.R.E.D. Division of ADF&G (1971).

As indicated earlier, one of the expressed purposes of the F.R.E.D. division is to rehabilitate Alaska salmon runs through enhancement or propagation of hatchery runs. By the mid-1980's the F.R.E.D. division will have a salmon egg rearing capacity in excess of 600 million eggs. Major facilities at Klawock (78 million egg capacity), Hidden Falls (65 million), Main Bay (65 million), Snettisham (73 million) Prince Williams Sound (39 million), Kodiak Island (50 million), Cold Bay (52 million), and Moose Pass (84 million) will become operational within the next few years. The State of Alaska will incur a heavy financial burden during the entire decade of the 1980's as these facilities go through expensive start-up periods and achieve stable production. Current state tax revenues from the fishery as well as revenues which could be derived from a terminal area harvest may not equal operating and maintenance costs, in the aggregate, until very late in the decade. The question which will soon confront the citizens of Alaska and the State Legislature, is, who should ultimately pay the operating costs of these facilities? If the strong, current state policy for economic self-sufficiency is continued, either a higher tax would have to be imposed or a terminal area harvest implemented with the proceeds of either or both used to pay the costs.

While there is inadequate information to develop anything approaching reasonable cost standards for hatchery operations which cover all species, a very rough guide is that the cost of running a hatchery which is in full production, and does not require expensive off-site egg take or equally as expensive off-station plants, should be about equal to the harvest value of 1/3 of the run. (An analysis of current operating costs of existing regional facilities has been partially hampered because of the lack of information. Sufficient financial data was collected, however, to indicate that if such costs as Regional Association Administration, Administrative and Supportive Services, Technical Services and Start-up Costs which have been previously defined were only allocated to hatchery operations as would be appropriate, the cost of hatchery operations would be roughly 1/3 of the value of the run in Southeast Alaska. Because operating costs in Central and Western Alaska are as high or higher than those in the Southeast and because the ex-vessel prices paid to fishermen in these regions are much lower than those paid in Southeast, this ratio will not hold for hatcheries in Central and Western Alaska. However, if the changing patterns currently occurring in the marketing of salmon continue, regional price variations should diminish over the next few years and then this rough guide could also apply to these areas.)

If a tax of 33% (which would be the dollar equivalent of harvesting 1/3 of the run to pay hatchery operating costs) were imposed on state hatchery returns, it is unlikely that fishermen would choose to harvest hatchery runs if other choices were available. Given this likely circumstance, the most probable method of recovering the costs of F.R.E.D. division hatchery operations (and for the regional associations) will be through a terminal area harvest. If the choice is made to finance hatchery operations through such a mechanism, there would be little to distinguish between a state operated facility and those operated by regional associations (as long as they are reasonably successful producers).

It is also important to recognize that the F.R.E.D. division's responsibilities extend substantially beyond those of the regional associations, but to the extent that there is an overlap in duties with those of the regional associations as they pertain to the operation of facilities in full production suggests that consideration must be given to shifting the financial and management burden of operating these facilities from the state tax base to a user pay, regional association basis. (Other criteria besides financing must be considered including the managerial and technical capability of the regional associations to manage such facilities.)

The shifting of the cost of managing and operating state salmon production facilities to the regional associations should not be construed to mean that the State of Alaska should lessen its commitment of state financial resources to development of the fisheries. These state financial resources should be commensurately shifted to the far more pressing needs for a comprehensive fisheries research and development program and harvest management systems improvements. Additionally, there may be hatchery facilities, stream clearance and habitat improvement projects, and the like, which can or should occur for a variety of reasons, but which cannot be undertaken by the associations on an economic basis.

2. State Loans to Regional Aquaculture Associations.

Current legislation provides for 25 year loans to regional aquaculture associations of up to 3 million dollars per facility, with a maximum interest rate of 9 1/2%, with deferred payments for six years.

There are several problems with this legislation. First, the 3 million dollar loan ceiling can be artificially restrictive on the choice and size of the facility. Secondly, while returns on pink salmon may be achieved within the six year deferred payment period on the loan, there is little likelihood that this period will be adequate for other species. Difficulties in obtaining sufficient brood stock, initial production and similar problems can and should be expected. A ten year maximum deferment period would seem to

be much more realistic. Additional provisions should provide for an additional time extension of five years (with an approval procedure specified) as well as an early payment clause, should stable production be achieved earlier than the ten year period.

If a ten year deferment period were established, the loan repayment period should be set for a maximum of twenty years after the deferment period, otherwise the capital recovery period will be so compressed it will require an excessive terminal area harvest during the capital recovery period.

Finally, the loan should be for capital investment costs and should not include start-up costs. As will be discussed more fully later on, start-up costs should be expensed against the current period. This will help avoid the need for excessive terminal area harvests during the capital recovery period as well as avoid unnecessary interest expense associated with capitalizing these costs.

3. <u>The Existing Assessment Program (if Re-enacted) Does Not Provide Sufficient Revenues to Pay Administrative Costs, Regional Technical Expertise and Hatchery Start-up and Operating Costs for More Than One Large Facility at a Time</u>.

This financial issue has been partially addressed in a variety of legislative enactments. These include:

(a) The provision of organizational and planning grants to qualified associations of up to $100,000 with a second $100,000 to be matched on a 50/50 basis.

(b) The provision of an appropriation in the State FY 1980 budget to the F.R.E.D. division for allocation to the regional associations in the amount of $400,000 for regional planning activities.

(c) The passage of Senate Bill 232 which provides that 20% of the revenues realized from the measure are to be allocated to the boroughs for local salmon enhancement and related projects; 60% of the revenues are allocated to the state general fund; the remaining 20% of the revenues are to be allocated to the Commercial Fishing and Agriculture Bank which in turn can be loaned or used as a loan guarantee for regional aquaculture projects.

(d) The establishment of the Renewable Resources Corporation of Alaska and Development Fund into which not less than 5% of the receipts of certain revenues will be deposited to be used to enhance and develop renewable resource programs.

The creation and state financing of the F.R.E.D. division, the creation and revision of loans to private non-profit regional aquaculture corporations, as well as these additional acts by the Alaska Legislature evince a continuing interest and struggle to find an acceptable solution to re-establishing the salmon fishery and developing other renewable resources.

While it is also understandable how these various legislative actions have evolved over a number of years, it

is equally clear that the pieces do not fit as well together as necessary. If, however, the variety of programs were to be restructured along the lines described, we believe adequate financial resources could be available to substantially accomplish a Salmon Resource Development Program (or as recommended in the organizational analysis in this report a Fisheries Resource Development Program).

Establish Regional Entities Responsible for Fisheries Development

Through either the creation of special service districts or appropriate constitutional amendment it would be possible to provide regional structures which have the capability to make mandatory salmon harvest assessments. Voluntary assessments could be continued in those areas where they are selected as the financing means.

Establish Regional Aquaculture Program Source and Applications of Funds Model

As our earlier analysis indicated, there are six distinct cost categories for activities associated with regional aquaculture. These are:

Regional Association Administration

Administrative and Supporting Services

Technical Services

Full Production Hatchery Operations

Hatchery and Enhancement Start-up Costs

Capital Investment Program

The costs associated with administering the regional association could be funded from the regional assessment or a like funding mechanism. Administrative and Supporting Services, while a budget category, would be allocated to the other categories (i.e. Regional Association Administration, Technical Services, etc.).

Technical Services could be financed through a redirection of the proceeds from Senate Bill 232. The cost of full production hatcheries would be borne by remaining funds from the regional assessment, and through the operation of terminal area harvests.

Hatchery and Enhancement Start-up Costs could be financed through the redirected funds from Senate Bill 232 and any assessment royalty not required for Full Production Hatchery Operations or the Capital Investment Program. The payment of capital and interest costs would be financed from a combination of remaining assessments and terminal area harvests.

Finally, and to the extent that local fisheries development priorities indicate the need, non-revenue producing projects such as stream rehabilitation for natural runs could be financed with a combination of assessment revenues and Senate Bill 232 funds together with any federal and state funds that may be received for such a project. (This

procedure avoids the necessity of having terminal area harvests on natural runs as a means of recovering the cost of non-revenue producing projects.) Regional associations could perform such projects on a contract basis on behalf of the state.

This proposed Source and Application of Funds Model accomplishes several objectives. First, it can be used as a means for guaranteeing to the state that repayment of state loans will be accorded a preferred position for assessment and terminal area harvest revenues equal to that of paying the costs associated with Full Production Hatchery Operations.

Secondly, the redirection of Senate Bill 232 funds to the regional associations provides a continuing stable revenue base for financing Technical Services and Hatchery and Enhancement Start-up Costs which are highly interrelated activities. The inclusion of start-up costs, to be funded from this source would also eliminate the present practice of capitalizing start-up costs within the present loan program. If the present loan program were modified to include only capital facilities, loan decisions could be more easily made because it would be unnecessary to make speculative or arbitrary determinations about whether the regional associations were properly spending their other income as a part of the loan approval process. The determination of the adequacy, over-abundance or inadequacy of other

income, as well as judgments about how wisely these resources are utilized should be the responsibility of the local borough assembly and the legislature.

According to financial information supplied by the Southern Southeast and Northern Southeast Regional Aquaculture Associations, for calendar years 1978 and 1979, the annual average operating expenditures (excluding capital investments) would have amounted to approximately 1.0 million dollars in these two regions had the assessment revenue been fully realized.

Under the proposed plan, had it been in effect in 1978, and based upon a 3% assessment rate, assessment revenues would have been approximately 1.7 million dollars. In addition, had Senate Bill 232 been in effect in 1978, it could have provided (depending on the percentage of revenue redirected) an additional 2.0 million dollars. Both sources together would have provided almost four times the amount which would have been expended. Had these funds been available, the two Southeast regional associations could have begun developing the necessary capital reserves required to pay future facility start-up costs; conducted the necessary stream surveys; performed stock enumerations and similar activities; and proceeded to develop the fishery in a comprehensive and organized manner through an integrated system of production and financial planning.

Establish Regional Long Range Production and Financial Plan

A third key element to the development of an economically and financially sound regional aquaculture program is the establishment of a production and financial management system consistent with the proposed organizational structure and financing mechanisms.

Once the regional associations have an assured and reasonably adequate revenue base, they should begin the development of a ten-year and perhaps a longer range Production and Financial Plan. (The ten year plan is the minimum necessary to cover the deferred payment period prior to reaching full production and capital repayment.) The implementation of a long range Production and Financial Plan by each regional aquaculture association is critically necessary if these associations are to approach the development of the salmon fishery in a comprehensive manner. Currently, because of the limited financial resources available to them, regional associations have tended to limit their production planning activities to a few projects. Current financial planning practices, because of financial uncertainties, tend to be very much oriented toward short term considerations.

If the organizational structure and the financing mechanism recommended in this report are implemented, it must be accompanied by a major change in the current "hand to mouth" type of planning now dictated by the fiscal constraints. For example, because of the substantial streams

of stable revenues which this report would direct at the regional associations, each regional association must begin to develop a comprehensive list of production alternatives. Enough information about each production alternative must be obtained to provide the capability to evaluate each project using the recommended return on investment model. Once a list of economically attractive projects is developed, the regional association will have to develop a time phased production plan which optimizes the use of the revenues flowing to the association. The corresponding financial plan, which will include a ten year annual forecast of revenues by source (i.e. assessment revenue, Senate Bill 232 revenue) should identify for each category of cost included in the recommended Source and Applications of Funds Model, the estimated level of activity which can be supported by each revenue stream. Because of the long duration between the initial start-up of a facility and the time when the facility reaches full production status, the regional associations will have to very carefully consider and plan for the costs to be incurred during this period so as to avoid over-committing available revenues and having a facility completed without the funds with which to operate it. As recommended in the Source and Applications of Funds Model, Technical Services, Hatchery and Enhancement Start-up costs and non-revenue producing projects could all be financed from the same source of funds, namely the redirected proceeds from

Senate Bill 232. If a regional association were to expend all of its annual revenues from this source on Technical Services and/or non-revenue producing projects and not create a substantial capital reserve to be used for projects during their start-up phase, the association would substantially limit its capability to place more than a few projects in start-up status. (Capital reserves are also necessary as a hedge against periods of low harvest levels.)

While it will require some experience developing the financial trade-offs between current expenditures for Technical Services and non-revenue producing projects with building capital reserves for future facility start-up costs or times of low returns, this type of activity will lead to an optimized and integrated production and financial plan.

Relative Balance Between Operating and Capital Funds

It is difficult to ascertain at this point whether the availability of capital investment funds to the regional associations are in balance with their need for operating and start-up funds. Given the state commitment to a 200 million dollar loan program for aquaculture, the availability of loans through the Renewable Resources Corporation and the Fisheries and Agriculture Bank, capital funds may be available in excess of those required. If there is an imbalance between capital and operating funds, and the operating funds

are found to be inadequate, it may be desirable to merge the Renewable Resources Corporation Development Fund with the Fisheries and Agriculture Bank and redirect the 20% portion of Senate Bill 232 proceeds from the Fisheries and Agriculture Bank to the regional associations to be used for Technical Services and Hatchery and Enhancement Start-up costs.

The diversion of Senate Bill 232 revenues to regional aquaculture plus the assessment income should provide for a substantially greater build-up of necessary capital reserves to be expended during future periods when the regional associations have a number of facilities in the start-up phase of operations as well as provide a more satisfactory means of financing some short term non-revenue producing projects.

Chapter III - INSTITUTIONAL PROBLEMS AND POTENTIAL REFORMS

Introduction

In Chapters I and II we have discussed methodologies for evaluating the economic viability of certain types of resource enhancement activities which are a critical element of Alaska's salmon fisheries resource development program, and several means for assuring the financial stability for such a program. We recognize that the Alaska salmon resource development program (ASRDP) is a relatively new endeavor. Its major elements, the private non-profit hatchery program (PNP) and the division of Fisheries Rehabilitation, Enhancement and Development (F.R.E.D.) within the Alaska Department of Fish and Game, are each less than 10 years old. ASRDP has come a long way in a short period of time toward achieving a basic goal of expanding the available harvest of salmon for Alaska's fishermen. We also recognize that the program's potential has not been reached and positive program results can be expanded if present financial, legal and institutional barriers are overcome.

In this discussion, we will be addressing problems with ASRDP and means of achieving program improvements. The natural tendency of consultant studies to concentrate on program deficiencies is not intended. We believe that the managers of regional associations and the Alaska Department

of Fish and Game have many successes to point to in their implementation of this ambitious and important program.

While achieving stable financing for economically sound ASRDP programs is essential to meet established statutory and program goals, our analysis indicates that revisions to the institutional arrangement of Alaska's fisheries development program are required if the goals enunciated in statutes and regulations by the state, and in program goals and statements of regional associations are to be met. The detailed institutional review contained in Appendix II to this report indicates that there are a large number of programs, each of which can and does affect ASRDP, which are not centrally coordinated. The wide variety of government agencies and private activities impacting on ASRDP presents a critical need for greater horizontal coordination and cooperation among such programs, greater coordination with federal and local agencies, and increased cooperation between the private and public sectors. This discussion concentrates on some of the potential institutional reforms which could be implemented to positively impact those programs with primary responsibility for achievement of fisheries resource development goals and objectives for Alaska. We do not suggest all of the detailed reforms relating to improved coordination among regulatory agencies, financing agencies, construction entities, and other programs affecting ASRDP should be the responsibility of the Aquaculture Policy Study Group. The study group should, however, focus

their attention on necessary reforms in those agencies having primary responsibility affecting fisheries resource development.

We have identified a number of federal institutions and programs which have significant impact on overall fisheries development in the United States. Many of these programs impact on Alaska fisheries development, and it has been suggested to the study group that, to date, the State of Alaska may not have received its "fair share" of benefits from federal programs impacting on Alaskan fisheries. We offer the observation that there are many federal agencies which enjoy special working relationships within Alaska who provide positive support to ASRDP. Noteworthy is the U.S. Forest Service, which has established cooperative agreements with the Alaska Department of Fish and Game, and informal arrangements with many of the regional associations to maximize the effectiveness and impact of its programs on the important Alaska salmon fisheries resource.

We briefly identify in outline form other federal institutions affecting ASRDP (Appendix III). We will discuss means of improving relationships between key federal and state agencies affecting ASRDP.

Finally, perhaps the most critical element to the success of an Alaska fisheries development program is the commitment of the legislative and executive branches. A major reason why this study has been conducted is the concern

shared among persons within executive and legislative branches that the salmon fisheries development program is not producing satisfactory results as measured against the original goals of primary programs. This concern was reflected in the most recent legislatively approved budget for the F.R.E.D. division and for regional associations. The members of the study group were well aware in formulating this study that the key programs in ASRDP could be the subject of ever greater scrutiny in the future, particularly in the face of projected tight budgets and declining revenues.

Among the general program recommendations which have evolved from our analysis of existing institutions and policies are the following:

1. There is a need for increased cooperation and coordination among major program elements of ASRDP;

2. ASRDP should be expanded or altered to include consolidation and coordination of programs affecting the development of species other than salmon, i.e., establishment of an Alaska Fisheries Resource Development Program (AFRDP);

3. There is a need for improved and expanded research, data and information affecting AFRDP;

4. Region-specific planning, programs and institutional arrangements which will maximize the benefits of the program consistent with area needs should be established;

5. There is a need to identify the appropriate level of activity for individual program elements within

AFRDP; this should be done on a continuing basis and not merely through established budget processes;

6. Improved relationships with federal, local and private sector programs affecting or having potential impact on AFRDP is necessary;

7. There is a need to develop institutional reforms which ensure greater financial stability for existing and new programs; and

8. There is a need to develop an information base sufficient to evaluate program successes and failures in the future.

(Note: Because of the present financial difficulties of the regional association program, the consulting team was directed when the study was nearing completion to spend more time evaluating institutional arrangements which could affect the future of the regional association program. We suggest that further, more detailed analysis by the study group of financial and institutional alternatives affecting the regional association program will be required prior to the 1980 legislative session.

Identification of Primary Programs to be Included in Alaska Fisheries Development Program (AFRDP)

In the series of meetings with the Aquaculture Policy Study Group the consulting team sought to identify those programs primarily involved in fisheries development

activities at the state level. As indicated in Appendix II, there are a number of other programs which have an impact on fisheries development activities in Alaska, but the study group has designated the following programs and activities as includable in the primary program category:

A. Alaska Department of Fish and Game.

   1. Fisheries Rehabilitation, Enhancement and Development Division (F.R.E.D.);

   2. Commercial Fisheries Division;

   3. Sport Fisheries Division;

   4. Shellfish Program.

B. Private Nonprofit Hatchery Program/Regional Associations.

C. Office of the Governor/Bottomfish Coordinator.

D. Department of Commerce and Economic Development (Division of Business Loans).

E. Department of Transportation (construction of facilities).

F. Alaska Commercial Fisheries Entry Commission.

G. Department of Community and Regional Affairs.

Because the initial focus of this project was to be on the salmon fisheries development program, major concentration on reforms affecting programs involved in this arena resulted. This is consistent with the goals, makeup and interests of the study group. However, we strongly believe that the salmon development program and its major elements cannot be planned or managed independent from other fisheries and that in the future it becomes critically important to

integrate the salmon development program with those for shellfish and bottomfish.

Statement of Project Findings and Needs

A. There is a Need for Increased Cooperation and Coordination Among Major Program Elements of AFRDP.

1. General Statement of Problems and Needs.

The detailed program outlines included in Appendix II indicate a need for greater horizontal coordination among a wide variety of programs and agencies in Alaska which impact on the successful operation of AFRDP. There is a need for clear direction as to the relative roles and responsibilities of each such entity: (a) as they relate to the overall goal of fisheries development; (b) as they relate to interrelationships of such programs in achieving established goals for the total fisheries development program; and, (c) as necessary to ensure that such programs and activities are not operating at cross purposes from one another. Increased coordination can be provided through the Office of the Governor or the State Legislature. Some lead agency could be assigned this responsibility by the Governor or the Legislature.

Following are a number of specific issues which must be addressed to increase cooperation and coordination among major program elements of AFRDP. These include improved relationships among:

(a) ADF&G Commercial Fish, Sport Fish and F.R.E.D. divisions.

(b) ADF&G and regional associations.

(c) ADF&G, DCED and regional associations.

(d) All Regional Associations.

(e) ADF&G salmon and shellfish program elements, regional associations, and the Office of the Governor/Bottomfish Coordinator.

Increased coordination and cooperation are necessary for a variety of reasons. In some instances, improved relationships among these entities is absolutely essential to the future success of ASRDP. For instance, policies adopted by ADF&G regarding egg take and brood stock could effectively eliminate any prospect of success for individual hatchery programs or other activities undertaken by the regional associations.

In some instances, existing laws infer that coordination of activities among AFRDP entities is required or should occur. However, we suggest that there are situations where this legislative mandate is not strong enough. For example, legislation establishing the fisheries enhancement loan program, A.S. 16.10.500 et seq., provides authority in the Department of Commerce and Economic Development (DCED) to make loans and grants to regional associations for fisheries enhancement. There is no provision in the statute requiring or defining the necessary relationship between DCED and ADF&G regarding any aspect of the program.

This absence of a statutorily established coordination requirement could be resolved through legislative action.

In certain cases, relationships among program activities have not even been addressed by the legislature or the executive branch. For example, the newly established activities within the Office of the Governor relating to bottomfish development have evolved to date without identification of potential and necessary relationships between that office and fisheries development activities by ADF&G and the regional associations. If the legislature considers expanding the authority of regional associations to include other species, coordination with development activities of the Bottomfish Coordinator will be required.

Finally, there are situations where the legislature may wrongfully presume that coordination and cooperation among such entities is established and routinely occurring. One such instance involves the relationships among divisions within ADF&G. Testimony during study group meetings and a number of previous studies have indicated that the relationships among the F.R.E.D. division and the Commercial and Sport Fish divisions are less than fully cooperative. While considerable effort in recent years has been made to establish coordinated goals and objectives for these

programs, it does not appear that such activities have produced a result wherein each is working in as coordinated a fashion as possible toward a common fisheries resource development goal.

2. Need for Improved Relationships Between ADF&G Commercial Fish, Sport Fish and F.R.E.D. Divisions.

There are a number of indications that despite considerable efforts in recent years to establish policies and practices which will effect improved relationships between the state's resource development program and management activities of the commercial and sport fish divisions, there remain areas of conflict between these divisions. As hatcheries come on line, the need for coordination and communication among such divisions will become all the more important. Management to maximize harvest and protect viable natural runs is all the more complex with the interjection of hatchery runs.

Relationships between harvest and hatchery managers are affected by statutes and policies protecting natural runs. A.S. 16.10.420(10) provides:

> A hatchery (shall) be located in an area where a reasonable segregation from natural stocks occurs, but when feasible, in an area where returning hatchery fish will pass through traditional salmon fisheries.

The existing policy of the Alaska Department of Fish and Game (see Alaska Fishery Management Policy Manual, Policy #1, (1974) provides as follows:

> The management of naturally occurring wild stocks will not be unduly hampered by locating the hatchery at the proposed site . . . . If complexities arise in managing mixed stocks, including both hatchery fish and wild fish, it will be the state's policy to manage the collective resource in a manner that favors protection of the wild stocks. (Emphasis added.)

As indicated at page 25 of the proposed Policy and Procedures, even "minor runs of salmon" must be given first priority consideration when a massive supplementally produced salmon run is imposed in fishing areas where wild fish are harvested. ADF&G acknowledges that this policy may lead to larger than required returns to the production sites. Over-protection of certain weak natural stocks at the expense of harvest of productive hatchery runs seems inconsistent with goals of the PNP hatchery program.

The department states that "long-term and continuing analysis will be conducted to assess benefits and disbenefits resulting from the fish cultural activity prior to any decision to sacrifice or overharvest wild stocks." (C.F. AK. Fish. management policy #7, page 4). The issue of protection of natural runs in areas where hatchery stocks have been introduced (e.g., Washington) is one of great controversy. This is in part because of failure of fisheries managers to address the potential problem prior to the evolution of major hatchery programs. At this time, the

State of Washington is struggling with the definition of "viable natural run" at a time when as much as half of the state-wide production of salmon is through artificial propagation. This has occurred in part because of the lack of imposed relationships and some conflict between harvest managers and hatchery managers at the outset of the resource development program. Alaska should make every effort to avoid repeating this experience.

A review of Washington's 1979 proposed salmon management plan is illustrative of a major change in approach to harvest-hatchery management patterns. The plan suggests harvest of certain natural runs prior to full production from planned facilities in the same area. In some instances, this "writing off" of natural runs is occurring before construction of a facility has even started. We do not begin to suggest this policy for Alaska. However, it does indicate the potential significant changes that may evolve in terms of harvest management practices as the hatchery program evolves.

The present policy regarding natural runs can also impact on the necessary development of brood stocks and egg takes for existing and planned hatcheries. At page 26f of the draft Policy and Procedures, ADF&G proposes the following:

> It is recognized that an objective of salmon fisheries harvest management is the attainment of an appropriate magnitude and distribution of brood stock to drainages in all management

> units. It is not always possible through management of mixed stock fisheries to ensure the appropriate escapement to a specific stream or stream segment, but generally, desired escapement ranges can be obtained over larger geographical units. Hatchery brood stock goals, as an additional part of the desired escapement [sic]. Where possible, brood stock development plans will include harvest management procedures or recommendations which will enhance the potential for achieving hatchery brood stock requirements without significantly reducing harvest from other stocks. Where restrictions on mixed stock fisheries to create additional donor escapements are requested, Board of Fisheries approval will be required, unless the Commissioner determines that no substantial impacts on established fisheries would occur.

The proposed brood stock policy of ADF&G further states that hatchery egg take schedules will be formulated to realistically provide for brood stock while "minimizing impact on natural recruitment."

This policy may present problems even now as the demand for eggs and brood stock for hatcheries coming on line is immediate (particularly during bad run years). A policy of "long-term and continuing analysis" prior to any decision to sacrifice or overharvest wild stocks not only impacts on the ultimate harvest of hatchery stocks by Alaska fishermen, it also may affect the front-end potential and timing of ultimate production by state and regional association hatcheries. Definition of "viable natural runs" is not a matter which should be deferred any longer than

necessary. Legislative direction regarding alteration of harvest management and brood stock policies may be necessary to resolve this problem.

A second problem reflected in the draft Policy and Procedures is the lack of guidance regarding the interface between the resource development and management divisions within ADF&G as they might affect regional association resource development activities. Appropriate alteration to the above policies will require joint research stream surveys, site selection and planning by these divisions and the associations. The regional comprehensive planning process should be instituted in a fashion which more directly requires effective interface between harvest management and resource development programs. Representation of each activity on regional planning teams is suggested by ADF&G Policies and Procedures; inter-divisional cooperation can be further achieved by assuring development of harvest management plans in concert with hatchery planning activities (which can positively improve relationships with regional associations as well).

At page 26a of ADF&G's proposed Policy and Procedures, it is stated: "There is a need to clarify the relationships between the management of hatchery returns and the issuance of a private nonprofit hatchery permit." ADF&G proposes development of a basic harvest management plan before a private nonprofit hatchery permit is issued or approved by

the commissioner and the Board of Fisheries. The basic plan would be developed by department area biologists in consultation with the applicant. The regional planning team would review the plan as part of the application review process to determine the proposed hatchery's compatibility with finalized or preliminary "comprehensive regional plans" required under A.S. 16.10.375. Ultimately, the basic harvest management plan would be part of the "regional comprehensive plan". Why should harvest management plans be formulated separately and in a different manner than other elements of a comprehensive plan? Are basic harvest management plans merely to be developed on a project-by-project basis and then incorporated into regional plans?

We believe that the comprehensive regional planning process must be upgraded to develop a multi-species harvest plan for the region which will allow hatchery locations to maximize harvest. This will require much new data as to existing and planned runs by species. Establishment of a comprehensive harvesting plan as part of the regional salmon plan is not to suggest that regional associations should in any way be involved in actual management of salmon stocks (i.e. delegation of regulatory authority). It is to suggest that policies which in any way segregate harvest and hatchery management and planning activities should be changed to ensure fuller coordination.

3. Need for Improved Relationships Between Regional Associations and ADF&G.

We have indicated that past relationships between regional associations and ADF&G have been less than cooperative, and improvements are still necessary. Lack of cooperation and coordination among these entities can jeopardize the future success of all programs.

Regional association managers have stated that in many cases they have had difficulties with ADF&G regarding methods selected to enhance the resource. They have had problems in obtaining state approval to take brood stock and eggs for existing facilities and proposed new facilities and the quality of relations during the evolution of the regional planning activity has varied. These factors indicate little evidence of clear commitment by ADF&G officials to assure on a priority basis the successful evolution of the regional association program or vice versa.

A.S. 16.10.375 provides that the Commissioner of ADF&G shall have developed regional plans for salmon enhancement. The plans are to be developed by regional planning teams consisting of ADF&G personnel and representatives of qualified regional associations. Ultimately, a state-wide plan is to be developed. Regional plans have been developed in some regions and not in others pursuant to this statute. Some are more comprehensive than others. No state-wide plan has been completed.

Legislative recognition of the need for comprehensive regional planning with input by regional user groups is a most progressive policy. In fact, this fisheries development planning effort appears more sophisticated than those existing in other states. However, the legislature needs to address means of upgrading this process to achieve express goals and effect improved relations between ADF&G and the associations.

First, at present, regional plan approval is the exclusive prerogative of the Commissioner of ADF&G. This level of control has been the subject of some criticism. Association representatives and others have indicated that while their voices are exercised through this process, whether they are heard or not is by no means assured. We believe that ultimate management authority should reside at the professional management or state agency level. However, it may be that the level and quality of association input into the planning process will better reflect the legislative policy of regional input if a dispute resolution mechanism, or at least a discussion process, were developed to satisfactorily air differences of opinion with regard to adopted plans.

Second, we question whether comprehensive planning in the various regions should be allowed to run at a pace which depends exclusively on the commitment of local users to establishment of regional associations and approval by ADF&G of same. To date, the basic thrust of the planning

process has been that regional plans themselves can be as simple or complex as those individuals involved choose to make them. Likewise, the amount of time, effort and money which is spent in developing comprehensive plans varies by region. Differentiation between short-term planning necessary to start a reasonable number of development projects and long-range planning must occur.

If there is truly a need for comprehensive planning with user participation on a regional basis, and we think there is, tying the level and quality of planning to the progress a particular region makes in organizing regional associations makes no sense. In fact, a decision whether a regional association is a necessary entity in a particular region may well depend in part on the findings of a comprehensive planning activity. The voluntary aspects of the hatchery development program are appropriate; however, comprehensive resource development plans for a region are necessary regardless of the election to establish regional associations. While this point is moot in certain regions from an organizational standpoint, it is not in others. Moreover, if the legislature expands regional association activities to include projects relating to other species, short and long-range planning to define new goals and programs will be necessary. Finally, we suggest throughout this report means of upgrading the planning process. This contemplates a <u>long-range</u> planning effort, with commitment to

development of necessary data and information. Recent efforts to speed the development of regional plans based on this year's appropriation to existing associations is inconsistent with this proposal (see below).

Third, relationships between ADF&G and the regional associations are affected by the quality and content of comprehensive salmon resource development plans. As the regional associations improve their management and technical skills, and this is occurring, they will be frustrated by present limits in the quality of planning.

We believe establishment of a truly effective comprehensive salmon resource development plan will necessitate substantial technical support services, research, stream surveys,tagging and other activities by or on behalf of the planning teams. This is particularly true if the management plan is to include those elements suggested as necessary below. It should be noted that the planning process cannot be carried out without adequate financing, region-by-region, in budgets of both ADF&G and the regional associations.

The quality of regional plans is also affected by present state policies protecting all natural runs. The proposed Policy and Procedures by ADF&G establish long-range and short-term objectives to be included in the regional comprehensive plan. Present policies may not apply over the long-term, and long-range planning which does not reflect likely changes in such policies will not be adequate. This

further states the need to address the issue and to begin to identify viable runs now.

ADF&G defines the focus of long-range comprehensive planning to include determination of public needs by species and user groups, proposal of numerical objectives by species to meet these needs, determination of numerical goals for natural stock maintenance and rehabilitation, determination of numerical goals for enhancement strategies by species, and integration of long-term user group needs with technical considerations on the biological potential of the resource. Short-term objectives involve essentially the same analysis for incremental time periods within the long-range (17 year) plan. We do not believe these objectives for comprehensive resource development plans, particularly for the long-term, are sufficient. While the establishment of numerical objectives may make some sense, it is the road map to establishment and achievement of those numerical objectives which should be the basic content of the comprehensive salmon resouce development plans for each region and for the state.

Establishment of a comprehensive management plan might include at least the following basic elements:

1. Establish guidelines for salmon production.
2. Identify program objectives (it appears that this is the primary area of concentration presently contemplated for the regional planning process).
3. Describe and assess present natural production.

4. Determine and assess present artificial production.

5. Determine potential natural production.

6. Identify viable stocks and nonviable stocks that have potentially valuable characteristics.

7. Determine appropriate regional stocks by species.

8. Identify acceptable enhancement possibilities. These must be consistent with harvest management strategies.

Further consideration must be made for short-term and long-term policies for egg availability and development of brood stock. These policies must reflect the goals of maintaining reasonable fisheries and protecting viable natural runs during program implementation. All proposed projects in a region must be measured against the goals, policies or standards which will result from this analysis. This may require establishment of a construction and operating review process to ensure program activities consistent with approved plans.

Another major aspect affecting relations between ADF&G and regional associations involves the duplicity of roles to be assumed by the department. On the one hand, ADF&G is to help organize and help maintain viable regional associations. A.S. 16.10.380 provides that the Commissioner of ADF&G shall assist in and encourage the formation of qualified regional associations for the purpose of enhancing salmon production. On the other hand, the legislature has

also authorized the Commissioner to issue permits for salmon hatcheries to regional associations organized as non-profit corporations under A.S. 10.20 and regulate many operational aspects of the program. Thus, not only is the Commissioner the superseding authority over all regional planning activities as discussed above, he is also directed to assist regional associations and at the same time regulate all efforts pertaining to enhancement of salmon by the association-private non-profit corporation. Achievement of cooperation and assistance between ADF&G and the regional associations will be difficult, at best, given the nature and diversity of relationships presently existing. It will take strong management direction by both the state and the associations to recognize and deal with these sometimes conflicting roles. Establishment of clear biological, economic and management standards against which performance can be measured, and upgrading of the planning process may help offset the fact of these conflicting roles.

A.S. 16.10.443 states that the department shall make every effort "within the limits of time and resources" to advise and assist applicants in the planning, construction and operation of salmon hatcheries. The level and quality of assistance by the department to regional associations has varied from region to region and is affected by personalities and budget. Most association managers have indicated that relationships with local ADF&G officials at the technical

staff level have been quite positive and they have received considerable assistance from such persons. However, they have received less cooperation and support from the central office as a general rule. Procedures to clearly delineate reporting relationships and for expediting decision making on issues of concern to the associations need to be improved. Establishment of policies and procedures involving interrelationships between ADF&G and the associations should be developed with the cooperation of the associations. Moreover, top level management control and commitment to the success of both regional association and F.R.E.D. programs is essential. Association managers must have clear access to the director of the F.R.E.D. division, the commissioner and board members.

A third major issue and necessary element to improve on relationships between ADF&G and the regional associations involves clarification of the activities to be undertaken by both. We have suggested in Chapter II the evolvement of defined roles and responsibilities over a ten year period. Of course, it is difficult at this point to finally determine the types of projects and programs which should be undertaken by regional associations other than planning until their financial viability and organizational stability is secured. However, assuming that problems relating to financing can be resolved on a satisfactory basis, clear definition of roles and responsibilities of ADF&G and the associations for both short-term and long-term

operations is essential. Specific program activities to be undertaken by ADF&G and regional associations in a particular region can and should be addressed, in part, in the development of comprehensive regional plans. However, guidance from the legislature as to the division of responsibilities is also appropriate. The study group and/or the Fisheries Council should be continued to assist the legislature and the Governor in continuing to define these roles.

To date, regional associations have built hatcheries and other artificial propagation projects, performed habitat rehabilitation, conducted (region-specific) research, they have created greater public awareness of the need for salmon resource development, participated in regional planning activities, and institutionalized themselves to varying degrees. At the same time, ADF&G has built hatcheries and other artificial propagation projects, performed habitat rehabilitation, conducted research, created greater public awareness of the need for salmon resource development, and participate in regional planning. Again, ADF&G exercises considerable regulatory authority over regional association projects and programs and controls the regional planning process. Based on present mandates, there is considerable potential for duplication of activities between the regional associations and ADF&G, and unhealthy competition between these entities for limited dollars and projects. The potential for the operation of certain programs at cross purposes from

one another, and perpetuation of adversary relationships are equally serious problems resulting from the lack of clear guidelines, priorities and authorities for each program.

The legislature can direct a phasing-in of operational authorities (or segregation of same) over a reasonable period of time, with final program assignments reflecting the relative maturity, skills, interests and financial capacity of each. Regional associations could, over time, become responsible for operation of production facilities operating at full or near full capacity consistent with approved comprehensive plans. This would reflect the legislature's goal of continuing to attract reasonable sums of private monies, to maintain user group participation in ASRDP, and would avoid long-term commitment of budget for operation and maintenance of hatcheries at a time of projected declining revenues. Projects of higher risk and supportive of the production program, but presenting costs or risks which would not naturally be borne by the private sector, would in large part be undertaken by ADF&G. For example, research operations and facilities would also be ADF&G's responsibility. Stream surveys might be the responsibility of the state, but conducted by associations on a contract basis. Joint participation in planning for production facilities and support services, including clear assignment of tasks can occur as institutions mature and obtain the financial commitments consistent with evolving assignments

which will further contribute to an improved and coordinated program.

Another element critical to the joint success of ADF&G and regional association programs, discussed in Chapter II, is assurance over time that financial resources will be sufficient to support a program which will begin to achieve established numerical production goals as part of an upgraded comprehensive regional plan. At present, it appears that the regional associations and ADF&G are strictly limited by statute and available financial resources as to the number and types of production projects they may undertake, regardless of the final outcome of the assessment litigation. Review of proposed long-range association plans reflects a fairly conservative approach to expansion of existing programs. While this may make sense under present circumstances, we suggest that Alaska will not begin to reach appropriate production goals in a reasonable period of time if it is unwilling to assume greater risk and undertake projects more aggressively than indicated by its present course. Improved planning, research and data, and coordination of program activities are steps that will minimize risk over time. The legislature and the Governor must recognize, however, that legitimate expansion of AFRDP consistent with its established goals will require approval of actions and management decisions that involve some yet unanswered questions. ADF&G and the associations cannot achieve reasonable production goals within the present financial, budget and statutory limits.

4. Need for Improved Relationships Between or Alteration of Roles of ADF&G and DCED.

A.S. 16.10.500 et seq. provides authority for a fisheries enhancement loan program. The Commissioner of the Department of Commerce and Economic Development (DCED) is authorized to make loans to qualified regional associations holding permits pursuant to A.S. 16.10.400-470 for the planning, construction, and operation of hatchery facilities. Thus, the financing of regional association activities largely within the authority of DCED. We have indicated above an apparent lack of an appropriate cooperative relationship between ADF&G and DCED by statute. The proposed Policy and Procedures by ADF&G, on page 60, recognizes that coordination between ADF&G and DCED is necessary for orderly review and approval of permit applications and loan applications.

DCED operates a number of financial assistance programs and conducts other activities related to the economic development policies of the State of Alaska. It is perhaps for this reason that the financing program for the regional association hatchery program was assigned to that agency.

The financial viability of proposed artificial propagation is directly related to a number of biological factors and harvest management strategies, among other things. These criteria involved in the evaluation of individual projects, or a broad-based regional program, require

consideration of a number of factors which require the expertise of persons familiar with the science of fisheries production. Further the bulk of analysis related to the financing of regional association projects, not to mention those to be undertaken by ADF&G, involves scientific information not traditionally considered by lending officers.

It is (or should be) clearly recognized that there are technical risks inherent in aquaculture programs which dictate training and experience not common to persons with traditional financial backgrounds.

Given the choice of continuing the aquaculture loan program within DCED, and establishing biological expertise within that department, we believe a more practical option would be to provide ADF&G with the capability to perform the loan function. With this accomplished, transfer of authority for financing of fisheries enhancement facilities from DCED to ADF&G would reduce the need to depend upon interagency relationships to ensure that program and loan approval are coordinated.

5. Need for Improved Relationships Among All Regional Associations.

Regional associations are at varying levels of maturation, and in some instances, have not been formed to the point of approval by the Commissioner of ADF&G. We have

observed in recent meetings with the study group a growing inclination for association managers to discuss among themselves various problems and potential solutions. Communication as to research and planning results, means of operation of facilities, and other activities is occurring. However, members of the study group and others have reported and our own observations have indicated the need for improved relations among the associations. Some of the improvement is necessary because of differences in personalities, and in other cases a misguided spirit of competition among the associations appears to exist.

There is good reason for allowing associations to establish resource development programs at their own respective paces within each region, although in some instances the pace of program and project development has unnecessarily been slowed because of regulatory problems, obtaining necessary approvals, and the like. The experiences of the more mature organizations will be most helpful to those in the beginning stages of development. Much research, data and information has been performed and compiled by some regional associations. The sharing of such information should occur as a matter of course, and it may be necessary to establish a system among the associations to ensure that this occurs. This could be mandated by the state legislature.

It is critical for each association to understand what the others are doing. The potential for duplication of

tasks unnecessarily among the associations exists without a clearly established system of communications. It is suggested that the study group or perhaps an upgraded Fisheries Council be continued into the future, perhaps with a specific mission to ensure continued communication and improved relationships among association representatives (and state agencies).

6. Need for Improved Relationships Among Salmon, Shellfish and Bottomfish Development Program Elements.

We have suggested that the development of Alaska's abundant fisheries resources be viewed and organized as a single program (AFRDP). Competition for research, management, development and investment dollars among program elements at federal, state and local government levels and from the private sector is presently unavoidable among salmon, shellfish and species development activities. This competition among species has been heightened by new opportunities available as a result of enactment of the Fisheries Conservation and Management Act (FCMA).

Assuming the goal for development and utilization of fisheries resources off the shores of Alaska is to maximize potential benefits to the citizens of the state consistent with principles of sound conservation and enhancement, establishment of programs and activities to achieve that goal based upon treating each fishery independent of one another and on a haphazard basis makes no sense. Certainly salmon, shellfish and bottomfish species are at varying

stages in terms of development, utilization, management sophistication, market potential and value, industrial development, and understanding of resource status and potential. All such factors will be reflected in the ultimate budget commitment and programs of the state to affect reasonable maintenance, development and utilization of these renewable resources. However, the organizational and professional disciplines to be applied to proper utilization of all species of fish are relatively the same. The fixing of sound state policies, budgets and management principles for each fishery with maximum avoidance of conflicts, and the sharing of information, expertise and program experiences to maximize effectiveness of each is essential.

In the development of its "Alaska Fisheries Plan," ADF&G acknowledged that salmon stocks can and need to be rehabilitated. Numerical objectives were established by ADF&G to provide minimum annual harvests of 40 million salmon at the end of seven years and 100 million salmon at the end of eighteen years. These goals would be achieved through a combination of enhancement, rehabilitation, management, development research and habitat protection at a cost of 300 million dollars over fifteen years according to the proposed plan. ADF&G acknowledged that implementation of the plan would "require a major effort on the part of fishermen, industry and government alike . . ."

The level and quality of government and private sector planning, management and development activities for shellfish and bottomfish lag far behind those for salmon. The maturity of programs and dedication of state resources to maintenance and proper utilization of these important species differ as well, largely because the legal and economic opportunities affecting the harvesting and production of each has varied.

The study group is well aware that salmon harvests may no longer predominate fisheries development activities because of these newly available opportunities and the economic reality of need for diversified harvesting activities by fishermen formerly able to target primarily on salmon. There has been much talk, and considerable study, planning, and now, pilot projects related to necessary economic development activities to maximize benefits to Alaskans of utilization of offshore fisheries. Most representatives of the industry, fishermen, processors, bankers, public officials and other participants at regional and national conferences on 200-mile limit fisheries (despite differing findings from a variety of consultant reports), indicate that by necessity this new industry will not develop separate and apart from existing fisheries and industry. This reality further establishes the need for a holistic fisheries development and utilization policy and program.

As noted above, responsibility for development activities relating to these fisheries presently resides in a number of different agencies and offices. The need for program activities and budget for each have not been addressed in the context of a single program or policy; priorities affecting each have not been established nor have relationships or coordination among them been imposed. We have been directed by the study group to assess on a preliminary basis alternative means of converting ASRDP programs to the broader program context of AFRDP. Our review is not only to include potential organizational arrangements affecting state activities, but also alteration of the missions and structure of regional associations. To this latter point we will now briefly speak.

It is our view that an altered regional association form which allows such associations to become involved in diversified activities necessary to the development of all fish resources consistent with local priorities and needs is appropriate. This suggested diversity and expansion of authority may seem odd at a time when the financial arrangements for a number of the regional associations are severely restricted. However, certain features of the existing program are most applicable to development needs and opportunities in other fisheries. These include:

1. There is a clear need for involvement of fishermen and other sectors of the industry

in the protection, utilization and development decisions affecting all fisheries.

2. There is a need for fishermen and other sectors of the industry to participate in the financing of all fisheries development activities (the legislature's recent re-enactment of A.S. 43.75, which taxes all species harvested in Alaska waters to finance fisheries development indicates support for this rationale).

3. There are varying needs and interests by region with regard to fisheries development. For example, salmon fisheries development may be a priority to fishermen in Southeast Alaska, while projects related to bottomfish development may be more relevant in the Aleutian Chain.

4. The more flexible the regional association structure is in terms of meeting clear regional needs and reacting to priority development activities, the greater the likelihood of financial and institutional stability.

5. A feature of the regional associations is their clear mandate and need as an organization to be responsive to the variety of interests among local fishermen. We believe that over time, a balanced approach to fisheries produc-

tion will evolve as a result of this program, and that this will occur on a multi-species basis if the mandate and membership of such associations is broadened to include development of and planning for other fisheries.

6. The need for a holistic fisheries approach, if appropriate for state programs, is also necessary for regional associations. This is especially true if the role of user groups in regional fisheries planning (regional planning teams) is to be upgraded.

7. Regional fisheries planning can and should address potential gear and harvest arrangements on a multi-species basis.

Certain other features will need to be built into the regional fisheries development program as a result of the recent Superior Court decision and the need for a secure income and financing stream. If the program assumes more of a local quasi-governmental character than at present (e.g., borough or municipal fisheries development service areas), assumption of a more diverse economic development program may be appropriate. The legislature should address whether newly instituted associations could finance, construct and operate needed infrastructure, marina space, processor facilities (for lease) and other activities much as do port facilities, economic development districts or other local

governmental entities. However, care must also be taken to preserve certain of the private sector features of the present associations in deciding what activities they might undertake.

Assuming that the appropriate institutional arrangements for regional associations necessary to expand their basic authority can be made, necessary relationships will need to be established between such associations and the existing Office of the Governor/Bottomfish Coordinator. Governor Hammond has created a bottomfish task force, whose membership includes state legislators, agency commissioners, and private sector representatives, to define specific goals for the state and to design a work plan for industry development relating to the state's bottomfish development opportunity. In a draft report by the bottomfish program coordinator, dated May, 1979, a program management and organization structure which would have all bottomfish program elements operate at the direction of the bottomfish coordinator, with advice from the bottomfish task force, was proposed. This program proposal suggests that the Department of Commerce and Economic Development would pinpoint areas of industrial weakness and offer strategies and guidelines to strengthen the economic incentive for harvesting bottomfish. The Department would also provide loans to the industry through state loan programs, the Commercial Fishing and Agriculture Bank, and the Alaska Industrial Development

Authority. ADF&G would monitor the biological characteristics of the bottomfish resource to provide information for managing the resources for optimum sustainable yield and to assess harvest potential. ADF&G would sample commercial harvest efforts and identify areas of potential conflict between bottomfish fisheries and those of traditional salmon and shellfish fisheries. The Department of Community and Regional Affairs would draw up strategies to assist local communities in alleviating specific local physical and social-economic impediments to development.

While relationships with other fisheries development activities at federal, state and local levels are suggested by the Bottomfish Coordinator's report, establishment of a holistic fisheries development program is not. The proposed program plan to achieve bottomfish development goals and objectives is an impressive start toward the establishment of specific program activities to achieve the state's bottomfish resource utilization goals. However, only limited program budget monies are committed to the resource management aspects of the proposed program. Resource development and enhancement is only vaguely referred to and the relationship between salmon and shellfish fisheries development programs and that for bottomfish is not seriously addressed. The concept of top-level management control over all elements of the Alaskan fishery with provision for coordination among agencies and programs is essential to the success of AFRDP.

B. There is a Need for Improved Information, Data and Research Results for AFRDP.

1. Introduction.

We have discussed the clear need for improved data and information regarding fisheries development activities from economic, financial and biological perspectives, by both state agencies and regional associations, if financing for expansion of the fisheries resources of the state is ever to be secure. Lack of information and proof of success of existing programs has affected budget reductions and instability which makes short and long-range planning very difficult.

We have also described the likely prospect of competition for dollars among salmon, shellfish and bottomfish development program activities, and have suggested that lack of a holistic view of the fishery and an understanding of its needs will make it difficult for the Governor and the legislature to make proper budget decisions. Not only is a methodology for assessing potential returns on investment and relative program costs and benefits necessary, provision of technical data and information upon which to base such assessments will be required.

Finally, we have referred to the need for greater coordination and expansion of research activities related to AFRDP. This section will describe certain non-financial data and information needs for both ADF&G and regional

associations as well as the expanded research and development requirements associated with development goals for the Alaska fisheries. This section will also describe alternative institutional arrangements which are necessary to meet the goal of improved information, data and research.

2. Need for Improved and Expanded Research for AFRDP.

While there is a major need for improvement of data and information for budget purposes, increased biological information regarding existing and proposed projects and to accomplish the objectives of AFRDP also are necessary. A first step in improving Alaska's research program is establishment of categories of research which will afford biologists a common basis to fix research priorities and goals.

For salmon, we would place federal, state and private sector research into three categories. The first category would include evaluation of the potential for maintaining and enhancing artificial and wild salmon. The second would include development of improved techniques to increase the numbers and quality of artificially propagated salmon. A third category would involve assessment of environmental factors causing variations in the abundance of anadromous species. A further description follows:

Category 1: Evaluation of Potential for Maintaining and Enhancing Artificial and Wild Salmon.

Evaluation should extend to existing wild and artificially produced populations as well as proposed new

production because of the need to monitor the Alaska salmon production system as a whole. Priorities and areas of investigation will need to be continuously re-assessed as information is gathered.

The following specific areas are suggested for priority investigation:

(a) Evaluate the economics of enhancement - benefits versus cost or return on investment to improve knowledge about the economics of fisheries.

(b) Determine population levels and behaviors of wild and artificially produced stocks, and population interactions for the purpose of reducing negative impacts. This would include determination of catch distribution and migratory routes for mixed stock fisheries.

(c) Assess environmental limits for productive capacity of wild and artificially produced stocks.

(d) Determine and solve disease problems as they relate to stocking policies.

(e) Identify valuable stocks, including measures of isolation or inbreeding, and examine opportunities for new introductions both in nature and artificial facilities.

Category 2: Improved Techniques to Increase the Numbers and Quality of Artificially Propagated Salmon.

Research should be aimed at improving the cost effectiveness of artificial propagation systems through

modification of existing technology or the development of new culture techniques, including increased survival of artificially propagated salmon. It follows that newly developed techniques must ultimately be shown to contribute significantly to the fishery under carefully controlled pilot-scale rearing and/or release experiments. Examples of recommended research are given under the five following headings:

1. Physiology: Development of physiological, biochemical, and endrocrinological measures to assess the effect of the rearing environment on smolt quality. Development of smoltification indices as a tool to predict optimum time for release and techniques to enforce, advance, or delay smoltification.

2. Genetics: Development of brood stock management and breeding regimes to identify and enhance those characteristics of salmon that produce the greatest benefit to the fisheries. Develop strain of disease-resistant, fast-growing, early-maturing salmon. Test the application of various brood stock techniques and breeding regimes to particular artificial propagation strategies.

3. Disease: Development of new methods for diagnosis and prevention of hatchery diseases.

4. Nutrition: Development of cost-effective feeds using new or under-utilized nutrient sources.

5. Behavior: Development of a technology to control migratory and homing patterns in appropriate circumstances.

Category 3: Environmental Considerations.

Enhancement, which is defined as all means of increasing production--both natural and artificial--of anadromous salmon, not only is dependent upon the successful rearing of the animal, but also the ability of the animal to survive in its total environment. Information is required to assess the effect of habitat alterations on the fish. Emphasis should be given to delineating environmental factors, good and bad, causing variation in the abundance of anadromous species.

1. Habitat Maintenance.

Studies to be directed toward improving existing habitat, including in-stream flow and temperature requirements and barrier passage.

2. Evaluation of the Animal and its Habitat.

To assess environmental changes, it is necessary to measure the response of the animal to such changes.

Establishment of these research categories suggests the need for a long-range research program in Alaska to improve salmon resource development activities for natural and artificially produced salmon from the point of egg take or implantation (including improved incubation methods) to

the emerge stage, to survival through the full migratory pattern of the fish. Research related to the stages of a salmon's survival and growth should be undertaken on a cooperative basis with the federal government, University of Alaska, and others with research capabilities consistent with the jurisdictional interests of each. For example, assessment of the salmon in the ocean environment, which is within the jurisdiction of the federal government should be a priority of the National Marine Fisheries Service. It appears that research relating to environmental concerns are now a priority of the U.S. Fish and Wildlife Service, and to a lesser degree the U.S. Forest Service. Research relating to hatchery operations and performance and that relating to the natural environment in fresh waters, including certain research relating to environmental considerations, would appropriately be the priority of the state. Discussions with study group members indicate that this division among federal and state research activities is evolving on an informal basis.

Biological standards for construction and operation of hatcheries and other artificial propagation projects need to be established as part of the comprehensive planning process. ADF&G has done some work in this area. However, the adoption of final standards will require further research and analysis on the impact of such projects on existing natural runs; the viability of projects in the face of

competing beneficial uses of watersheds, and a wide variety of other critical biological issues will also require additional research before final standards can be established.

The establishment of guidelines to evaluate potential areas for the construction and operation of hatcheries and other projects, and evaluation of performance of such projects will necessarily require improved data and information regarding stock identification (i.e. tagging, scale studies and various other marking methods), and stock assessment through improved means of counting salmon in various stages of the life cycle. Such data and information will be necessary in order to make improved management decisions, including those related to the development program.

For bottomfish, the draft report to the bottomfish program coordinator of May, 1979, describes a role for ADF&G in the development of fisheries management plans for offshore fisheries. While the management authority over such resources largely resides within the North Pacific Fisheries Management Council, ADF&G is recommended as the state entity responsible for overseeing the activities of the Council and recommending sound management practices to enhance protection of bottomfish resources. Data and information research activities relating to both shellfish and bottomfish lag behind that available and presently being conducted for salmon. Included among those proposed activities to be undertaken by ADF&G for bottomfish which relate to the above research, data and information goal, are the following:

1. Coordinate research activities and cooperate in the design of needed projects with other research agencies.
2. Sample commercial harvests for biological, effort and technical data in a manner and volume which is statistically significant.
3. Assess resource independently of the commercial harvest (survey, tagging) and analyze data collected.
4. Collect and distribute to the public relevant biological and technical information generated by resource agencies, including ADF&G.
5. Identify areas of conflict between the bottom-fish fishery and present historical fisheries and recommend measures to resolve these conflicts in a manner resulting in optimum yield from these interacting fisheries.

Discussions with a number of persons in the industry, federal and state policymakers, and others, indicate that the single most important effort to be undertaken by government in the next few years to ensure the appropriate development of off-shore fisheries is related to the research and data goal. The concern has been expressed that investments in some fisheries may be lost because so-called under-utilized species may already be on the decline as a result of over-harvesting by foreign fleets. Mistakes of the past regarding

other species which allowed overharvesting without consideration of resource impact should not be repeated. The potential to enhance presently depressed species needs to be evaluated. The role of the state in protecting resources off its shores cannot be minimized. If new industry or benefits are to accrue to Alaska by development of off-shore fisheries, there is a legitimate state interest in doing that which is necessary to protect these resources. The state can best accomplish this by preparing to be an effective advocate before and assistant to the federal resource manager.

While research relating to shellfish management and development is in a more advanced stage than for most bottomfish species, this may not be true on a world-wide basis. Accessing foreign data and information developed with regard to off-shore fisheries may begin to offset some of the information gaps.

The proposed research, data and information program to be undertaken by ADF&G pursuant to the report of the bottomfish coordinator is an ambitious one. Priorities will need to be established between this and other fisheries research and information development programs. Clearly, ADF&G will need adequate funding if it is to begin to accomplish the suggested goals.

2. <u>There is a Need to Coordinate Research and Development and Information Systems Among Federal and State Agencies and Regional Associations</u>.

We have sought to identify certain research cate-

gories and information needs which over time must be met in order to maximize the productivity of AFRDP. Another factor necessary to the accomplishment of this goal is improved coordination among federal, state and private sector research activities. Avoidance of unnecessary competition for dollars among state agencies and duplication of activities among all research entities, as well as the establishment of priorities for research consistent with guidelines and criteria, can and should be accomplished with or without legislative action. However, a legislative mandate for improved research coordination may be required.

Perhaps the single most important means for ensuring greater coordination of research would be the establishment of a comprehensive joint research facility in Alaska. As has been previously discussed, Alaska may not be receiving its fair share of fisheries research benefits when compared to other states. Particularly in view of the fact that it produces as much as eighty percent of the nation's bottomfish resources, is the largest producer of salmon, and is a major source for shellfish. In Washington, a joint research facility is being funded in large part by the federal government and is to include state, tribal and university research facilities as well. Justification for the joint facility included the obvious need for improved research coordination, increased information and greater likelihood of joint projects, an expanded skill base for research as a result of centraliza-

tion of research staffs in a single facility, and the avoidance of unnecessary duplication. Such a facility may be more appropriate for Alaska and is necessary to attract quality research staffs, appropriate levels of funding for state-federal projects, and to respond to the major research requirements evolving from development of new off-shore fisheries. Such a facility could be jointly funded by the federal and state governments.

A second major step at improving coordination among research entities is to clarify research responsibilities among programs within AFRDP itself. As previously indicated, a major thrust of an improved AFRDP will require clearer definition of the roles and responsibilities of state agencies and regional associations. It has been suggested that a long-term policy could be established to specifically provide that research activities by or in behalf of the state be the responsibility of ADF&G. Were this accomplished, assurances must be provided that regional association needs will be met, possibly by legislative mandate. Establishment of a comprehensive regional plan for salmon fisheries development and other species can and should include fixing research priorities for the region. Of course, continuous upgrading of the comprehensive plan based on experience and information developed over time will be required.

A third means of improving coordination among research activities may be found in action already undertaken

by the legislature. The Science and Technology Act of 1978 established a statutory framework for the creation of the Alaska Council on Science and Technology (ACST), a comprehensive planning mechanism to guide important research activities in support of state objectives and to ensure the efficient transfer of resulting data and information. This act reflects legislative recognition of the importance of the role of science and technology in public policy and decision making.

The Council's activities are to include:

1. Objective evaluation of the need for specific research;

2. Set priorities for state research requirements;

3. Identify and evaluate immediate and future options available to solve a particular problem or implement an idea; and

4. Coordinate data and information exchange among research organizations to avoid unnecessary and costly duplication of effort.

The Council's authority is not limited to fisheries research activities. Additionally, its involvement in evaluating and coordinating priorities for research by the private sector, the federal government, and others, appears somewhat limited.

We believe ACST can provide an appropriate model for ensuring coordination and fixing of appropriate research priorities for fisheries in Alaska. It might be possible to

establish a sub-committee to ACST to deal specifically with fisheries research activities. (Note: That Council membership includes representatives with fisheries-related research backgrounds from the University of Alaska, the U.S. Department of Commerce and ADF&G.)

An alternative approach might be establishment through legislation or executive order of a fisheries research council or work group, to perform many of the fisheries related tasks of ACST. A council would be responsible for establishing cooperative agreements with federal research agencies and private research laboratories; reviewing and incorporating research priorities established by regional associations through proposed regional planning processes; and, working with the state legislature in the development of budget proposals to fund an improved and expanded research program. The committee could also oversee the funding, design and construction of a joint research facility. Membership on the committee might include representatives from the U.S. Forest Service, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Bureau of Indian Affairs, ADF&G, the Legislative Affairs Agency, the Alaska Department of Transportation, the Office of the Bottomfish Coordinator, and representation from the Regional Associations and Native Corporations, among others.

A fourth means for improving research is the establishment of cooperative agreements between federal and

state agencies to ensure research consistent with the needs and priorities of AFRDP. ADF&G has in effect a cooperative agreement with U.S. Forest Service, although this agreement does not significantly address research coordination as discussed above. There is considerable interest and precedent at the federal level in providing for coordination with state activities through interagency agreement.

The legislature can mandate that the regional associations and the state negotiate cooperative agreements with all appropriate federal agencies. These agreements should not necessarily be limited to fisheries agencies or affect the research function alone. Research conducted by environmental agencies, industrial development agencies, economic planning programs, and others will occur and coordination is appropriate if AFRDP is to achieve its lofty goals.

A fifth important means of upgrading the research and information development elements of AFRDP is establishment of a uniform reporting and accounting system for each association. State agencies (DCED and ADF&G) and legislators have to date been relatively critical of the level and quality of information available to them regarding internal activities of the associations. While an annual report by the regional associations is required, a more sophisticated budget and accounting system by which the legislature can evaluate individual regional programs and ADF&G projects will be

helpful. Economic data and financial information consistent with the methodology described in Chapter I should be required.

In analyzing economic and biological projections, as well as total program results over the long-term, it will be necessary for regional associations and ADF&G to work from much common data. This is necessary to compare the effectiveness and efficiency of different programs and approaches to resource development undertaken by the associations and federal and state agencies. Any improved system must be simple and yet report out information necessary not only to evaluate the programs, but also to reduce and minimize administrative burdens and costs to the associations. Obviously, the regional associations must participate in any program effort at information and data system development. The state-wide comprehensive planning process might be an appropriate vehicle for accomplishing this.

C. There is a Need to Improve Relationships With and Expand the Contribution of Federal, Local and Private Sector Programs Affecting or Having Potential Impact on AFRDP.

1. Introduction.

We have identified in outline form a number of federal fisheries programs which have direct and indirect impact on achievement of the goals of AFRDP (see Appendix III for outline presented to the study group), and have discussed the need for federal and state research coordination. Improved relationships with local governments have been

discussed during the last two years because of the enactment of the FCMA. A number of commentators have indicated the need for local governments to develop infrastructure, processing capabilities, and other necessary support services tc the growing bottomfish industry if Alaska is to maximize the benefits to be obtained from this important resource. We have suggested that local government involvement in the development of all fisheries resources is growing in importance as a result of the recent decision by the Superior Court affecting the authority of regional associations to raise revenues for salmon production and the reenactment of A.S. 43.75 relating to fisheries taxes on all species harvested in Alaska waters or off its coast. The law provides for sharing a proportion of such revenue with local governments after the end of fiscal year 1980. This will necessitate greater interaction between state program elements of AFRDP and local governments. Finally, the considerable efforts of the state through regional planning processes and the regional association program to increase the input and stake of various elements of the fishing industry in AFRDP have been identified.

Alteration of the regional association institutional form to better assure financial and organizational stability, upgrading of the association's role in regional planning, and expansion of the ASRDP program concept to AFRDP provide the means for increasing private sector and local government

involvement in AFRDP. This section will concentrate on the need for improvement of federal and state relations.

2. There is a Need to Build a Case for a More Equitable Federal Contribution to AFRDP.

Although it was impossible to obtain detailed budget statements regarding commitment of federal dollars to programs and activities relating to AFRDP, we would suggest that a number of factors indicate that Alaska may not be obtaining a fair share of federal research monies commensurate both with its resource availability and potential when compared with other states. While the overall federal presence in Alaska is perhaps greater than in any other state, competition for limited dollars is again a fact of life among the states when it comes to monies which would contribute positively to accomplishment of the goals of AFRDP. There are a number of possible reasons for the less than appropriate federal expenditures relating to Alaska's fisheries. Alaska's Congressional delegation is small, and in recent years has been forced to concentrate the bulk of its efforts to the D_2 lands issue.

Secondly, Alaska is not perceived as conveniently located by most persons in the lower forty-eight states. Federal regional offices and major district offices for the Western region are located in large part in

Seattle and Portland. Fisheries policy is generally made in these offices or in Washington D.C. Most of the major regional and local fisheries research facilities are located outside the State of Alaska. These and other factors may have tended to reduce Alaska's input into federal decision making and budget allocations.

An expanded federal contribution to AFRDP is clearly justified. First, the federal presence in Alaska is greater than in any other state in the union. Second, considerable degradation of fisheries resources in Alaska occurred during years in which the federal government was responsible for management of the resource (before statehood). Third, a major proportion of the nation's fisheries resources are off the shores of Alaska. Fourth, with enactment of legislation affecting native claims to fisheries, and the trust responsibility of the United States over such claims, the need for expansion of fisheries resources to meet subsistence and other needs of Alaska natives will be heightened in coming years. Finally, the State of Alaska is among the most economically dependent of any of the states on its fisheries.

Research needs related to Alaska's unique fisheries problems (e.g., weather, methods of stream classification to be applied to the large number of Alaska streams, migration patterns, etc.), dictate establishment of research priorities to achieve the goals of AFRDP. An articulation of these

needs will help Alaska better justify expanded federal and state expenditures. Coordination of research activities with federal agencies through cooperative facilities and agreements will be a further important step towards justifying increased contributions to meet the goals of AFRDP.

3. There is a Need for Greater Federal-State Regulatory Coordination.

We have identified a number of federal requirements and regulations which can (and do) significantly increase costs and reduce the productivity for AFRDP. The regional associations have experienced the need to obtain an excessive number of permits from federal agencies merely to begin their operations. These requirements are also imposed on ADF&G. Regulations affecting the development of the bottom-fish industry are perhaps even more difficult because of the broad jurisdictional authority of the federal government over coastal zones outside three miles. While many and perhaps all of the permit requirements are justified, the process for obtaining necessary approvals can be greatly simplified. The first step should be a concerted effort by the state to consolidate its permit requirements, eliminate duplication, and provide services which may include a one-stop licensing process for AFRDP activities.

Alaska has already enacted legislation for a one-stop licensing program, and this program could serve as a vehicle to minimize regulatory impacts on AFRDP. The state

program could reasonably be applied specifically to fisheries resource development projects on a priority basis. A necessary next step would be the expansion of this program to include federal regulatory activities. AFRDP activities, including the development of salmon hatcheries, other enhancement projects, infrastructure development, and necessary support services for a growing bottomfish industry, could also provide an appropriate model means for bringing about coordinated and consolidated non-fishery related federal and state regulatory processes.

Because Alaska has not yet developed its coastal zone management program to the point of full implementation, and because coastal zone management is viewed by the federal government as a potential vehicle to achieve rational development through simplified processes, monies are available to incorporate measures of regulatory reform and coordination into this process. As part of a special AFRDP program effort (perhaps to be undertaken by the study group or Fisheries Council at the direction of the legislature), policies, processes and initiatives which will ensure improved coordination by federal and state regulatory activities should be developed.

It is noteworthy that most existing fisheries statutes, not to mention upland regulatory activities, specifically authorize coordination, and in some cases, the federal government has appropriated funds for the establish-

ment of such processes through programs other than coastal zone management. Yet, implementation of model programs for specific interest areas (e.g., fisheries development) are in effect only on a limited basis to date. Impetus towards development of off-shore fisheries can be utilized as a further rationale for incorporating a model permitting project for AFRDP, which could be funded in large part by the federal government.

4. There is a Need to Identify Federal Programs Which May Contribute to Accomplishment of the Goals of AFRDP.

Most states have difficulty identifying on a continuing basis the many federal programs which may be utilized to contribute to accomplishment of broad state policies. The State of Alaska can and should make special efforts to identify federal activities and funding sources, not to mention those in the private sector, which can be utilized to contribute to the accomplishment of the goals for AFRDP.

A major argument against seeking federal financing for fisheries development programs is a legitimate concern over the "strings attached" to such funds. Given the level of federal presence in Alaska, this concern is clearly justified. Thus, in the framing of an overall Alaska fisheries resource development program, attention must be paid to the true cost of federal funding. It is suggested that loss of resource management authority or local government

planning control over development activities is hardly worth the sacrifice for additional federal dollars.

The legislature can mandate identification of information and data needs for effective intergovernmental advocacy and relations, coordination with the federal government as discussed above, and a continuous monitoring of federal programs to ensure maximum support for AFRDP. Because working with the federal government can involve considerable time and effort, any monitoring and fund seeking activity should be measured by the legislature, over time, on a cost-benefit basis. Building the expertise in working with the federal government is a necessary element of this program.

5. <u>There is a Need to Evaluate AFRDP Program Goals in Relation to the President's Recently Announced National Policy on Fisheries</u>.

In May, President Carter announced a national fisheries policy aimed essentially at increased utilization by Americans of fisheries resources off the shores of the United States. The attractiveness of the development of off-shore fisheries has led to what can be termed a reversal of existing federal policies relating to fisheries activities. As indicated in prior study group meetings, the U.S. Office of Management and Budget has indicated in the past no special treatment of fisheries related programs is justified and all such programs must be considered as in competition with

other resource and economic development projects. While this reversal in policy indicates greater federal interest in fisheries development, the study group must understand that the impetus for the change in policy is not salmon fisheries development.

We are aware of considerable national interest in the proper development of Alaska's fisheries consistent with this new policy. While the state is taking a number of actions to take advantage of the national policy, this is not a coordinated or priority activity at this time. We suggest that a major state effort be undertaken to upgrade AFRDP and effective presentations of state oriented proposals to federal policymakers are essential to achieving a more appropriate federal contribution to the state program.

Alternative Institutional Arrangements for Consideration by the Study Group and the Alaska State Legislature

A. Introduction.

We have discussed a number of potential reforms to AFRDP which we believe are necessary to accomplishment of the broad fisheries development goals and objectives established by the state legislature and the executive branch for expansion and utilization of all the state's fisheries resources to the maximum benefit of its citizens. We have directed attention to the need for sound economic evaluation of AFRDP projects and programs prior to and during the course of

their operation, means of achieving greater financial stability for AFRDP program elements, and evaluation of institutional needs to achieve broad program goals. This review suggests a number of alternative institutional arrangements and possible reforms which should be considered by the legislature during the 1980 session. It is the purpose of this section to assist the study group in addressing certain alternative approaches to reform of AFRDP.

Alternative approaches include:

1. Options to assure greater central management control and horizontal coordination among all programs directly and indirectly involved in the development of Alaska's fisheries;

2. Options which reflect the need for planning and program implementation on the basis of identified regional needs; and

3. Options responsive to the particular organizational needs and problems extant within the present regional association program.

B. Options Relating to Centralized Management of Alaska's Fisheries Development Program.

We have identified a number of institutions at the state level directly involved in or impacting on AFRDP. Additional to those are a number of specific programs which indirectly affect accomplishment of fisheries development goals of various programs. (See Appendix II.) The needs and

missions of these many programs or offices must also be considered in the development of any proposed alternative organizational structure for AFRDP.

Option 1 - Maintain Present Organizational Structure, With Firm Legislative Mandate for Inter-Agency Cooperation and Coordination of Activities, and With Reforms to Individual Programs Responsive to Above Findings and Conclusions.

This approach would contemplate no alteration of the organizational structure of AFRDP as it presently exists, but would require legislative and executive action on a program-by-program basis to effect coordination and many of the necessary reforms. Authorities of various program activities would be altered or expanded to allow the programs to perform in a manner consistent with approved recommendations.

Legislative mandates to coordinate program activities already exist in a number of cases. In many instances, however, effective implementation of enacted programs has not occurred. Thus, a weakness of this approach is the lack of assurance that coordination among the wide variety of AFRDP activities will occur through clearer direction from the legislature.

Specific identification on a program-by-program basis of each activity which must be coordinated may be difficult from a legislative perspective because it would require a large number of amendments and detailed definition

of agency relationships. Certain of the program elements (e.g., office of the bottomfish coordinator, division level program activities, etc.), are not specifically established by state legislation. In other cases, reorganization deemed appropriate by the executive branch may be inhibited by legislation which specifically authorizes and refers to division and office level activities.

While we have proposed a number of reforms which could require legislation affecting the various programs of AFRDP, we doubt that the goal of centralized coordination and consolidation of program as has been suggested can be achieved without some stronger mandate and clearer form of direction to the executive branch. A lack of accountability for such coordination, except on an individual program basis, would imply that AFRDP program results can be achieved through piecemeal management and without significant centralized direction. We do not believe this can be realistically achieved.

Option 2 - <u>Present Structure, but Defined Through Executive or Legislative Action, With Lead Agency Responsibility for Certain Program Activities Within AFRDP</u>.

This organizational alternative contemplates establishment of a lead agency which would be responsible for directing implementation and coordination of all activities related to AFRDP. While the basic authority of each individual

program, division or other activity would not be altered except as pursuant to accepted recommendations, their responsibility to respond and work cooperatively with the lead agency in establishment and implementation of AFRDP would be clearly established either by legislation or executive order.

This alternative will help elevate the priority of fisheries development within Alaska's government, provide greater visibility to fisheries development goals and programs, and should assure greater horizontal coordination and efficiency and improved management. While there will be debate as to which program or activity most appropriately would serve as lead agency, it is suggested here that there is a best choice among the candidates. Clearly, fisheries development involves more than just an understanding of salmon and other species. A lead agency must have or be able to draw expertise on such issues as the economics of fisheries, infrastructure development, construction of capital facilities, administration projects, project financing, among other things. No single agency presently has this broad capability.

However, we believe that the agency with the clearest mission and most relevant skill base to the task of over-seeing AFRDP is the Alaska Department of Fish and Game. We have discussed the problems of separating financial and operational aspects of the regional association program and recommended transfer of the financing program from DCED to

ADF&G. Such a consolidating action would not be necessary in other instances. What is necessary is establishing that by statute a lead agency be provided with sufficient management authority and control over various agencies and program elements to achieve and direct cooperation and support for AFRDP.

We believe that ADF&G is best suited to serve as lead agency because their understanding of resource issues is critical in the development of management, conservation and enhancement strategies for all species. As noted in our discussion relating to establishment of a methodology for economic evaluation of programs and assessment of financing needs of such programs, most proposed criteria or standards are clearly related to accurate assessment or projection of biological factors. However, a typical weakness of state fisheries management agencies is that mid-level and top management personnel often lack the broad range of professional and management experience necessary to oversee the variety of disciplines involved in a major resource development program. Thus, if ADF&G is to assume a lead agency role, it may be required to add personnel who have the experience and skills to carry out the goals of AFRDP.

We are impressed with the institutional arrangement in effect for Alaska's bottomfish development program. While we do not believe it is essential for a program coordi-

nator to reside within the office of the Governor, it would appear that this has contributed to greater visibility and attention to the off-shore fisheries opportunity than might have occurred had the program been located within a single department at the outset. Over time, and particularly if ADF&G or some other department is established as a lead agency for AFRDP, it will make sense to move the function to that lead agency.

A second feature of the state's bottomfish development activity is the establishment of a bottomfish task force, comprised of individuals within state government. The task force serves in an advisory capacity to the bottomfish coordinator and the Governor. Establishment of a similar advisory task force which includes industry representatives to work with the lead agency in the evaluation of AFRDP options, to offer new ideas and proposed actions, and to assist in the oversight of program activities makes sense. Such a task force would be primarily involved in the evaulation of centralized or state-wide management aspects of the program with regional associations and regional planning teams being primarily involved in dealing with local problems and interests. The legislature has already mandated that a comprehensive state-wide salmon development plan be established. This planning process should

be expanded to include other species consistent with proposals for AFRDP, and a top level task force could be involved in the development and evaluation of this comprehensive plan. A primary goal would of course be to ensure the integrity and protection of regional plans unless they are inconsistent with approved state-wide policies. Finally, we have suggested a continuation of the study group or the Governor's Fisheries Council. The functions defined for a task force could be assigned to either of these groups if they were properly funded. This would help avoid unnecessary duplication and possible competition.

Option 3 - Maintain Present Structure, but Establish Within the Office of the Governor an Alaska Fisheries Resource Development Coordinator.

This organizational alternative contemplates top level oversight and policy management of the wide variety of AFRDP programs from the Office of the Governor. This process would in many ways mirror Alaska's current bottomfish development program. With many agencies involved in fisheries development, the exercise of special top level management to ensure coordination and effective prioritization of the use of limited funds would be most helpful. Moreover, a coordinator's office within the Office of the Governor would elevate the level of public visibility for the fisheries development program, it would offer the opportunity for greater policy direction and control from that office, and

it would provide an office responsible for ensuring that agencies not operate at cross-purposes. Again, an AFRDP task force could operate in a manner consistent with the bottomfish program.

If this option were elected, the coordinator would need sufficient staff and direction either by executive order or from the state legislature to clearly define its functions and powers over existing agencies, and in establishing program goals and priorities. This is not to suggest establishment of a new bureaucracy, but merely a coordinating office with sufficient staff to perform assigned tasks consistent with established goals for AFRDP.

Some negative concerns about this option might include the appearance of the establishment of a new super agency or "czar" responsible for operation of fisheries programs at the expense of powers of other agencies. Moreover, it might be difficult for this office to maintain control over a wide variety of program elements with only limited day-to-day oversight and incidental involvement in program operations. The potential for conflict between the office of the AFRDP coordinator and mid-level and top-level management in the various agencies could also be a limiting factor to this approach.

Establishment of an AFRDP coordinator within the Office of the Governor could also be subject to the vicissitudes of politics. The legislature may be hesitant to place necessary powers in such office, and may tend to limit

necessary powers.

Finally, creation of an AFRDP coordinator within the Office of the Governor for any long-term period may tend to remove further centralized management and state-wide policy and planning activities from those proposed to be accomplished at regional levels. Line agencies have local staffs and experience or responsibility for close relations with regional entities. An AFRDP coordinator would not (unless his office was to be expanded to include field representation) participate in development of local plans and policies. An expanded office may have to be developed to deal with fisheries development activities if the new office were to expand its operations and involvement into regional development and planning activities.

Option 4 - Establish a Separate Fisheries Development Agency or Office Through Executive Reorganization Authorized or Approved by the State Legislature.

Establishment of a fisheries development agency or office under the Governor, with assignment of existing programs from a wide variety of agencies to such new agency or office is a possibility. (For example, assignment of all salmon, shellfish, and bottomfish development activities, loan programs and facilities construction programs, within a single agency might be possible.) This agency would have the specific responsibility to work directly with regional associations in a manner consistent with newly established

policies. Some positive aspects of this alternative include clear high-level visibility for AFRDP by establishment of a special program and agency; single agency control over budget and responsibility for all elements of AFRDP; and, separation of major development and management activities. This organizational option may more clearly separate development and management from a regional association perspective, with key association relationships evolving with the development agency rather than the harvest management agency.

Some negative aspects include likely competition for dollars between fisheries development and fisheries management agencies, perhaps greater difficulties in coordinating fisheries development and management activities which are necessary to the success of both programs, and the possibility of a larger bureaucracy with increased program costs. Moreover, it would be difficult to include all program development activities within a single agency. For example, activities pertaining to infrastructure development, data collection applicable to both management and development programs, a wide variety of state regulatory activities, and the like, would not likely be included in this "umbrella agency."

C. Organizational Alternatives Affecting Greater Regional Coordination Between State Agencies and Regional Associations.

It is our view that the peculiar needs of the many diverse regions of Alaska must continue to be addressed by

the study group and the state legislature. We have already suggested a number of reforms to affect improved relationships between the state and regional associations. Among major recommendations are:

1. Expansion of regional association authority to become involved in development activities related to species other than salmon (i.e., an active role in AFRDP);
2. Upgrading the regional planning process and regional association involvement in that process;
3. Upgrading of data and information and benefits of research to be available to regional associations and establishment of procedures to ensure sharing of information and research among regional associations and state agencies;
4. Consolidation of regional association financing and operational programs within a single agency;
5. Establishment of clear biological, economic and management guidelines against which all development projects and their performance can be measured;
6. Establishment of a one-stop model permit program for fisheries development activities;
7. Mandatory cooperation between ADF&G and

regional associations regarding specified activities;

8. Establishment of a coordinated research program, including construction of a joint or consolidated research laboratory and coordinated research planning mechanisms and methods to fix research priorities consistent with AFRDP program goals;

9. Mandatory coordination of AFRDP activities through development of cooperative agreements between ADF&G, regional associations and appropriate federal and state agencies;

10. Establishment of a ten-year operations plan which ensures development and clear delineation of responsibilities of regional associations and state agencies, to be assumed over the long-term, and which seeks to build requisite skills in such associations and state agencies to ensure accomplishment of AFRDP goals; and,

11. Alteration of the regional association form to include greater local government involvement, this to ensure stability of financing and improved operations.

Options relating to regionalization of Alaska's boards of fish and game were embodied in house bill 193, introduced during the 1979 legislative session. While we

have reviewed this proposed legislation, and would expect the study group to focus on this or similar approaches, we have directed our attention to alternative institutional arrangements relating specifically to the operations of regional associations and ADF&G, including those outlined above. For purposes of this discussion, we assume a basic goal of facilitating greater responsiveness of AFRDP to regional development needs. Alternative institutional arrangements would appear to include:

1. No alteration in ADF&G or regional associations (this option would assume that the financing problems for regional associations might be resolved without altering the regional association form);
2. Expansion of ADF&G regional staffs to better address local development needs and implement a coordinated program to include increased support services to regional associations;
3. Legislative establishment of regional offices, empowering a regional administrator to fix ADF&G regional policies and implement approved programs--such legislation would include clear definition of relative roles and responsibilities of ADF&G regional offices and regional associations.
4. If an AFRDP coordinating office is established

in the office of the Governor, somewhat similar to establishment of an office of the bottomfish coordinator, it may be appropriate to establish regional offices to ensure a direct link between regional associations, fisheries development program staffs, and the Office of the Governor.

5. If development activities are in any way separated out from fisheries management activities, regional relationships between these functions would have to be established for purposes of regional planning and program implementation and operation.

In assessing institutional arrangements to further improve the level and quality of consideration of regional interests and increased coordination among regional associations and development program staffs, certain key issues must be addressed. Included are:

1. Assessment and identification of roles, responsibilities and powers of both regional associations and program staffs in planning and in the development of policies and implementation of programs. Again, we have suggested that the evolvement of AFRDP, including final institutional arrangements consistent with goals and recommendations herein, will involve

approximately a ten-year planning and implementation cycle. Assignments of responsibilities and powers will be dependent upon the maturation of various program elements and their relative capacity to perform assigned tasks. In many instances, experimentation will be required on a model project basis (e.g., regional association involvement in development projects related to species other than salmon).

2. Appropriate assignment of technical staff support on the basis of needs of each particular region;
3. Arrangements to ensure resolution of disputes and conflicting policies among the regions;
4. Establishment of a methodology for implementation of state-wide policies on a region by region basis;
5. Establishment of a methodology for making responsible and equitable budget decisions as they affect each particular region;
6. Establishment of means to assure coordination between regional officials and all programs directly or indirectly involved with AFRDP; and,
7. Identification of means to establish relationships between regional officials and external activities (e.g., federal, private) affecting

in the office of the Governor, somewhat similar to establishment of an office of the bottomfish coordinator, it may be appropriate to establish regional offices to ensure a direct link between regional associations, fisheries development program staffs, and the Office of the Governor.

5. If development activities are in any way separated out from fisheries management activities, regional relationships between these functions would have to be established for purposes of regional planning and program implementation and operation.

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fisheries development activities in the region.

We have not focused on developing a detailed institutional arrangement related to the organization of regional agency staffs. This is a matter which may appropriately be addressed by the study group prior to the 1980 session, at least to determine necessary first steps to be considered and reviewed during the course of the proposed ten-year reorganization plan. While we have developed a number of concepts regarding the regional organization structure, these have not been sufficiently tested or evaluated to be included in this report.

D. Organizational Alternatives Affecting Regional Associations.

1. Introduction.

As discussed in Chapter II, the recent Superior Court decision ruling that A.S. 16.10.530 is unconstitutional forces us to consider a number of alternative institutional arrangements to the present regional association program. This would have been necessary in any event because of the need for greater financial and organizational stability for the program.

The State Attorney General has suggested the need for legislation and has identified five "potential legislative alternatives to the now unconstitutional statutory scheme" in a letter to the Governor dated July 20, 1979. We have

suggested a sixth option which would require alteration of certain constitutional provisions and have elaborated on alternative options pertaining to establishment of service areas. We also explore alternative approaches to financing regional associations in the future.

2. Potential Institutional Arrangements, Assuming No Constitutional Revision.

Option 1 - Active Legislative Involvement in Regional Association Program.

Article VIII, Section 5 of the Alaska Constitution provides:

> The legislature may provide for facilities, improvements, and services to assure greater utilization, development, reclamation, and settlement of lands, and to assure fuller utilization and development of the fisheries, wildlife, and waters.

The legislature could on an annual basis approve specific facilities and services (or appropriate funds on a more general basis) and directly appropriate funds to the associations for specified purposes. The level of funding of approved projects and services could be established with or without reference to fisheries taxes collected by legisla-

but an appropriation would be required (see Article IV, Section 7 of the Alaska Constitution prohibiting dedicated funds). Any taxes collected for fisheries development would be by the state assessments as declared unconstitutional in Alex v. SSRAA would not occur.

This option suggests legislative control of all activities to be undertaken by regional associations, much as if they were individual state agencies. Funds for planning have been appropriated this past year for regional associations, and appropriations to DCED's loan fund for the program also occur.

More direct legislative involvement in the program than at present arguably presents problems. First, subjecting the program to the vicissitudes of the appropriations process on an annual basis offers limited financial stability. Second, the concept of user pay is not present, and commitment to the program may be limited because of the heavy front-end investment in both the F.R.E.D. and regional association programs without special arrangements to offset this burden with contributions from those who would achieve the primary benefits. Third, regional associations would have to annually lobby for financial support. Fourth, there would be excessive competition for limited dollars among the associations and F.R.E.D. Fifth, this financial plan does not provide for any reduction in operating and maintenance costs to the state over time. Because of these problems, we suggest that this option be considered only as an interim funding source.

Option 2 - Establishment of Special Service Districts Consistent With Constitutional Provisions.

Article X, Section 5 of the Alaska Constitution

provides that a borough assembly may establish service areas to provide special services within its boundaries, and authorize "the levying of taxes, charges or assessments within a service area to finance the special services." Article X, Section 6 provides that the legislature may do the same for unorganized boroughs. We have suggested in Chapter II that alteration of the regional association program to conform with the service area concept could provide greater organizational and financial stability than does the present form.

Conversion of the regional associations to a service district, however, presents some problems. The first problem is the obvious alteration of the regional corporations to a quasi-governmental arm of local government. This may present a philosophical problem for legislators, association members and local governments themselves who may not be pleased with so strong a user controlled form of governance. Additionally, some may not accept this arrangement as an acceptable alternative to private non-profit or for-profit aquaculture.

Second, borough boundaries do not conform with those presently established for the associations. The legislature can likely fix relatively the same service area boundaries as for regional associations in the unorganized boroughs. It will be more difficult for organized boroughs to extend service areas beyond their boundaries (see Article

X, Section 5 of the Constitution). Article X, Section 13 of the Constitution authorizes cooperative agreements for joint administration of any functions or powers among local government units. Extending jurisdiction of a service area to parts of another organized borough, but perhaps not all of it,presents obvious problems. Reaching agreements among these local boroughs will not be easy, as powers to be divided among the governments will be the subject of dispute. Pressures for changes of governmental roles and controls could be a constant as local interests become concerned with their perceived share of program benefits. Cooperative agreements can be broken or altered under difficult circumstances. There is a valid question whether persons outside the borough but included in the service area will be satisfied that they are truly being represented by borough officials whom they do not elect.

The present association boundaries are founded for good reason. Fishermen are licensed to fish in specific areas in Alaska and the benefactors of the program (and those to be assessed) are easily defined. Borough boundaries, if used, may also present a special "free rider" problem for the regional association program. To the extent boroughs represent smaller districts and are not drawn to reflect where fish are hatched or harvested, aquaculture by such a small service area may inhibit investment in the resource because there is less assurance of returns to the investor

(payers of the assessment).

Another critical issue in the establishment of service areas will be to preserve to a reasonable degree the level and quality of input and control user-benefactors are to exercise for both development and planning activities. The organization and functions of the service area are again a matter for the legislature. It is likely that local officials will expect a greater role in the operation and management of the service area, as they are ultimately accountable for performance. Moreover, to the extent these entities are to provide financing for construction and operation of local port facilities and infrastructure, the impact of such programs on other municipal and borough functions must be considered.

A special effort to resolve problems related to this service area option is necessary, as it offers a number of positive benefits. First, the legislature may be more inclined to accept greater risk and fund more liberally activities of a local government entity. Legislators are used to dealing with such entities; they recognize that accountability for failures or success will exist; local agencies will be able to offer certain services, administrative assistance, and data and information more easily to service districts than to the associations; and, service areas present a more mature organizational form with a wider experience base than do the organizations of existing

regional associations.

Expansion of the authority of the regional associations consistent with the concept of AFRDP fits especially well with this possible alteration of the association form. Many of the development activities related to utilization of off-shore fisheries involve funding for infrastructure, port facilities, marina and dry-dock space, etc. These activities are often funded in large part by local government entities (e.g., port districts). Additionally, attraction of federal and state matching funds for such purposes will be easier for local government entities than the present associations, and the local citizenry can be taxed to the extent they may benefit from local development activities. Local government permits will be easier for approved service area actions than perhaps is the case at present for the associations.

Finally, there are some specific legal questions regarding the service area option which need to be considered prior to the 1980 legislative session. First, does the legislature have authority to establish service districts or areas within the organized borough? If so, can the legislature extend such service area boundaries into another organized borough or the unorganized borough? A positive determination as to these questions would make it possible to establish service area boundaries consistent with those for existing and planned regional associations more easily, and without

constitutional amendment.

Second, can the legislature mandate that organized boroughs establish service areas for fisheries development and further require that the borough reach cooperative agreements with other boroughs for extension of the service area into their area of jurisdiction? Again, a positive determination will resolve in part boundary problems relating to the service area option.

Third, can the legislature authorize organized boroughs to levy taxes, charges or assessments within a service area (perhaps beyond its boundaries) in behalf of a fisheries development service district established by state legislation and performing most of its functions (other than taxation or assessments) separate and apart from the organized borough? This issue arises if the legislature seeks to separate the regional fisheries development program authority from the taxing authority, with the local government entities (organized boroughs) passing tax or assessment receipts directly through to the program. The problem of dedicated funds from a local government entity needs to be addressed if a positive determination is made that such separation can occur. A related and similar question involves what level of control or authority over fisheries development activities must be exercised by borough officials if the service district concept is adopted.

Fourth, in the case of the unorganized borough,

what entity would be responsible for taxing or assessing fishermen in behalf of the association or service district established by the legislature? Additionally, in the case where a borough service area is extended into the adjacent borough or unorganized borough, who collects taxes or assessments from fishermen licensed to fish in areas outside the borough, but in the service area?

Fifth, we are concerned about preserving the voluntary assessment aspects of the existing program. Presently, fishermen in a given region must elect to form regional associations and assess themselves for aquaculture development activities. We have discussed the possibility of diverting a portion of state-wide fish taxes (A.S. 43.75) to the regional association or its predecessor organization. Another possibility is to increase this tax, in lieu of an assessment or separate local or state-wide tax for aquaculture. Regional fishermen might then have the option to elect <u>not</u> to pay a certain percentage of the state tax (e.g., that percentage added to the existing tax). Will a state-wide tax, with provision that a service district exercise an option either for or against an additional tax for purposes of fisheries development, stand the constitutional test under the due process and equal protection doctrine? A related question involves who must be represented in the organization of the service district and who must be taxed to pass this constitutional test?

Sixth, in the face of the Superior Court's holding that "an incorporated non-profit association may not become a 'service area', either by inference or express legislative declaration," and that the "hybrid creature legislatively conceived cannot survive the constitutional infirmities and defects present at its birth . . .," is it realistic to assume that the regional associations can maintain any of their private or corporate characteristics? Further, is it even possible for some new agency to assess and collect taxes in behalf of or pass through state taxes to a regional association which retains these characteristics? Could such monies be collected by or through to Salmon Authorities established by A.S. 16.10.600 et. seq.?

3. Potential Institutional Arrangements, Assuming Constitutional Revision.

Potential constitutional revisions to resolve the legal problems affecting the regional association assessment problem and to affect greater organizational stability include:

(a) Amendment to Article X, Section 5, which allows for establishment of service areas, to allow extension of the boundaries for provision of special services beyond those of an organized borough.

(b) Amendment to Article IX, Section 7, which prohibits dedication of the proceeds

of any state tax or license to any special purpose, to allow for dedication of fisheries tax monies (e.g., A.S. 43.75) to regional associations for construction and operation of fisheries development facilities (Article IX, Section 13 requiring appropriations to withdraw monies from the Treasury may also have to be amended).

(c) Amendments to Article X, Sections 1 and 2, which seek to limit potential duplication of taxing authority by allowing the State to delegate its taxing authority to organized boroughs and cities only, to allow assessments or levies by associations established by law for a public purpose. Again, any amendment to the Constitution could be difficult, particularly if its purpose is limited to a single interest or program.

The first of these amendments would be helpful to resolve potential boundary problems discussed above if the regional association form were to be altered to conform to the service area concept.

The second of these amendments would allow the state to collect a tax on fish harvests and direct those

taxes back to the regional association for use in a manner consistent with the present assessment and without an appropriation by the legislature.

The third of these amendments would allow for significant alteration of the regional association form and increase capability to finance its operations. It contemplates the establishment of "junior" taxing districts in any variety of forms. There are many examples in the lower 48 states which might serve as appropriate models for an altered regional association program. We have suggested that port authorities in Washington and Oregon provide an excellent model for "junior" governmental economic development activities similar to those of AFRDP. Port authorities operate pursuant to statute, elected officials administer them, they have bonding and taxing authority (with ceilings on each), and are subject to considerable voter controls.

Economic development districts have been formed pursuant to federal and state statutes to perform a variety of tasks and are somewhat less visible, more limited in authority and political accountability, and largely have been formed in major centers of commerce. METRO, a local authority in King County, is an example of an organization formed for specific purposes (e.g. transportation, sewage control) to deal with governmental problems shared across jurisdictional lines.

While infrastructure development and other economic

development activities may well be inhibited in Alaska as a result of present constitutional prohibitions, the framers obviously felt strongly that the spectre of junior taxing authorities presented more ominous concerns for Alaska's citizens. This may or may not still hold true, but we wonder if the regional association financing problem and the 200 mile limit fisheries opportunity are sufficient impetus to reverse so strong a policy. This is particularly true if there are alternative legislative remedies to deal with this problem.

To conclude, amendment to the Constitution could affect greater flexibility than presently exists for the legislature to alter the basic form of regional associations and to provide greater organizational and financial stability. However, the process to amend the Constitution is by no means an easy one, and to amend certain of the above provisions for the purposes stated herein may not be realistic. We suggest this is an option which may ultimately have to be considered if further legislative attempts fail to achieve a fisheries development program consistent with the constitutional mandate contained in Article VIII, Section 15, that the powers of the state not be restricted to prevent economic distress in the fishery or promotion of the "efficient development of aquaculture in the state".

Chapter IV - SEARCH FOR GOALS

Introduction

We have discussed in the previous chapters a variety of program and other changes which may be necessary to achieve the basic fisheries resource development goal articulated in Article VIII, Section 15 of the Alaska Constitution: ". . . to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State." Article VIII, Section 5 of the Constitution further provides: "The legislature may provide for facilities, improvements, and services... to assure fuller utilization and development of the fisheries..." These constitutional provisions clearly set forth the fisheries resource development goals for Alaska.

A second series of goals articulated in the Constitution may provide a basis for providing a role for local government units in fisheries resource development activities. Article X, Section 5 authorizes the borough assembly to establish "service areas to provide special services within an organized borough." Article X, Section 6 authorizes the legislature to do the same in the unorganized borough. The legislature, pursuant to this latter section is to allow "for a maximum of local participation and responsibility." Finally, Article X, Section 13 provides for intergovernmental cooperation or joint administration among local, state and federal governments. This second series of constitutional

provisions seem to encourage local involvement in fisheries resource development activities, as well as suggest the form such involvement could take.

Bearing in mind the desire on the part of the framers of the Alaskan Constitution to have the constitution be a broad policy document, we do not see a need for additional goals for the fisheries resource development program. In fact, the constitution is unusually clear about "the efficient development of aquaculture" and in other states similarly worded language has been construed to be a constitutional mandate.

While some may agree or disagree as to whether it makes sense to read the aquaculture provisions together with those provisions which encourage local government involvement in fisheries development, the concept of regional planning and the involvement of the regional associations in the fisheries resource development process, seem to at least go part of the way toward the constitutional intent of local involvement.

Recommendations

Based upon our review of the fisheries resource development goals which are constitutionally established, we see no need at this point to either add to or alter these constitutional provisions. Rather than focus further attention upon resource development goals, we believe it would be more productive to instead focus attention on the

means established for achieving those goals.

The recommendations discussed in Chapters I-III suggest that the legislature, the Governor and their constituents should concentrate on a number of improvements to the existing fisheries development program. The basic framework for a resource development program has been initiated with the notable exception of a framework which will assure financial stability to key program elements. Further improvements in the program which meet the spirit as well as the intent of the stated constitutional goals will require in general terms at least the following:

(1) Establishment of an overall policy management approach to fisheries development on a multi-species basis (AFRDP);

(2) Improved direction, fixing of program and financial priorities, and coordination among AFRDP program elements;

(3) Establishment of methodologies for the biological, social and economic evaluation of program activities;

(4) Significantly improved and expanded resource data and information;

(5) Expansion of fisheries research in Alaska and improved coordination among federal, state, university and private research activities;

(6) Increased financial stability for state and regional fisheries development programs;

(7) Upgraded planning which addresses region-specific fisheries development needs with input from local user interests and adequate technical support from state agencies;

(8) Establishment of a financial support base and income streams which will ensure the economic self-sufficiency of the aquaculture program, as appropriate, over a reasonable period of time;

(9) The phasing in of all proposed actions over a multi-year program development cycle, with continued monitoring of progress and reevaluation of priorities and needs; and,

(10) The continued commitment of the Office of the Governor and the Alaska Legislature to the implementation of effective programs designed to meet the constitutional goals.

Each of the above statements is directed at strengthening the existing fisheries development program. Each addresses basic needs identified by the study group and the contractors. While there will be disagreement with some or all of the recommendations addressed in this report, it is our hope that the program recommendations contained in this report will contribute to the accomplishment of the basic goal of the Aquaculture Policy Study Group: "to improve on the considerable effort by the State of Alaska to date to provide for the efficient development of aquaculture in the

State," and to "assure fuller utilization and development of the fisheries." The Constitutional framers and citizens of Alaska have fixed these goals; it is for the Governor and the legislature, with help from their constituents, to ensure that the effective programs and activities to achieve them are implemented.

APPENDIX I

COMMENTS AND RESPONSES

APPENDIX I

COMMENTS AND RESPONSES

Chapter I - Salmon Aquaculture Economic Evaluation Techniques

Comment: From whose perspective is the micro-economic analysis being conducted?

Response: The report clearly identifies two "investor" perspectives. The Return on Investment micro-economic analysis technique is recommended for regional associations who are the "investors" in their regional programs and facilities. The Cost Benefit Analysis technique is recommended when governmental agencies are the "investors" in government programs and facilities.

While there a number of other interested parties including sportsmen, taxpayers and processors, for example, the investors and not these groups bear the financial responsbility for aquaculture projects and programs.

Comment: The recommendation that additional state tax revenues be diverted to regional associations is inconsistent with the Governor's policy of user pay. Secondly, why shouldn't the PNP's be operated without government subsidies?

Response: There are two issues involved in this comment. During the first meeting of the Policy Study Group a decision was made to exclude consideration in this study of opening up the salmon aquaculture program to large for profit corporations, consequently this option is not addressed in this report.

With regard to the second issue, because the PNP's are non-profit they cannot attract risk capital because there is no profit incentive to make such investments. The current levels of assessment will not provide a sufficient amount of revenue to allow the regional associations to make a sufficient contribution to the harvestable number of salmon over the next decade or two. Currently the State of Alaska pays for all operating costs for state facilities. What we are recommending in the report is for the state, over the next decade to invest some of its one-time oil revenues in the regional aquaculture program so they can make a more significant contribution to the fishery. In addition, we recommend that once state hatchery facilities reach full production status that these facilities be managed by the regional

associations with the operating costs for these facilities as well as regional facilities be paid for by a terminal area harvest. This approach will allow the state to shift its growing cost burden of operating hatcheries from the general tax payers to the primary beneficiaries of the facilities.

In summary, we are not proposing a "government subsidy" of the PNP's. We see an opportunity and a need for the state to invest in a program which will not only return more state tax dollars in the future but also allow the state to reduce its expenditures.

Comment: Why do you recommend that hatcheries not be required to carry the full cost burden of administration, start-up and other cost items?

Response: In both the Return on Investment and the Cost Benefit Analysis models, all costs associated with a facility are included in the analysis to aid the decision makers in assessing the economic viability of projects.

In the Source and Applications of Fund Model we are recommending that start-up costs be expensed and not capitalized. We believe it is critically important to minimize the size of the terminal harvest required to pay operating costs. If the operating costs can be contained to the point where no more of the artificial run is required to pay these costs than would return to spawning grounds for natural runs, we can avoid establishing two sets of harvest regulations - one for the natural run and one for the artificial run, so we avoid the regulatory problems in mixed stock fisheries. We also avoid the problem of harvest area compression which could result from having two sets of regulations.

The cost studies we presented to the study groups during the May meeting indicated that operating costs, with start-up costs capitalized, and the payback of the capital investment would in most examples consume about 50% of the run which led us to search for ways to minimize the cost burden placed on hatcheries and avoid the harvest regulation problems.

In the long run, once the regional associations are of a sufficient size to spread administrative and technical service costs over a larger base of operations and when expensive egg takes are no longer required because of the runs being established, hatcheries can be operated on an economically self-sufficient basis.

Comment: Is there a threshhold ROI value, using your computational methods, below which the aquaculture project would be considered economically unsound.

Response: Typically in ROI analyses, any investment which would not provide a return on the investment equal to what could be earned by putting the money in a bank and drawing interest is regarded as a threshhold measure.

Chapter II - Sources and Methods of Projects Financing Salmon Aquaculture

Comment: On page 68, you state that, "the existing assessment program (if re-enacted) does not provide sufficient revenues to pay administrative costs, regional technical expertise and hatchery start-up and operating costs for more than one large facility at a time." I disagree with this statement.

Response: One of the primary concerns of the Aquaculture Policy Study Group prior to the court decision overturning the mandatory assessment program was whether or not the assessment revenue and revenue from terminal area harvests would be sufficient to provide for an orderly expansion of the regional aquaculture program.

In our examination of the financial information provided to us it did not appear that there would be sufficient revenues available, and we therefore recommend that additional revenue equivalent to that available from assessments would be necessary to allow Southeast Alaska to annually produce 5 million harvestable salmon at the end of 20 years.

Three factors could have a significant influence on this recommendation. If, based upon the regional plans, regional associations decide on a slower growth rate or on a program which emphasizes rehabilitation of natural stocks, it is possible that current revenues could be sufficient to carry out the desired program.

A second factor could be a decision to produce pink salmon because of the early returns.

The third factor is the high rate of technical development now occurring in the fishery. The use of relatively inexpensive incubation boxes and lake fertilization could result in substantially lower unit costs which would in turn reduce the level of revenue required.

One final point should be noted. We acknowledge in the report that the 200 million in funds available for loans appears to be adequate for the near future. In theory, at least,a regional association could borrow the funds to start a second or third facility. As a practical matter, however, unless some way is found to drastically reduce construction and or operating costs, the present $3.0 million loan ceiling does not provide enough funds to construct a facility and operate it until sufficient returns are available to help pay part of the cost. In addition, if start-up costs are capitalized, rather than expensed we get back to the problem of requiring a disproportionate share of the run required for operating costs and loan repayment and the attendant harvest regulation problems discussed earlier.

Comment: The six alternative financing proposals are all tax mechanisms in one form or another. Did you consider a private sector solution?

Response: We considered a number of financing alternatives, however it boils down to three choices. These are: the fishermen and processors and how much they can reasonably be expected to pay; a terminal area harvest which requires facilities in production; and, the state's willingness to make a short term investment (over the next decade) in the fishery. As we indicated earlier we did not examine the financing option of large for profit corporations.

Comment: There are tremendous potentials and problems (both biological and economic) with the terminal area harvest concept. It needs to be more carefully examined as a method of financing.

Response: We fully agree with the comment. It is clear from the legislation that some level of terminal area harvests was contemplated as a source of financing. When the regional plans are completed, assuming they include site and species-specific information, the harvest management implications of these plans need to be carefully reviewed. Because of our concern over potential problems we have stressed the importance, and do again, of the need to minimize any difference in the harvest rate on natural and artificial stocks.

Chapter III - Institutional Problems and Potential Reforms

Comment: Why should the state have an Alaskan Fisheries Resource Development Program? Shouldn't we be concerned with getting the Alaskan Salmon Resource Program working first?

Response: We fully agree that a Salmon Resource Development Program needs to be in place and fully functioning. We also are concerned that unless some effort is made to coordinate the entire fishery (bottomfish, shellfish and salmon) overfishing, for example, on one segment of the fishery could have severe effects on other segments.

In addition to a concern over the significant degree of interdependence among the species, we are seeing a growing number of multi-species fishermen (fishermen who fish for salmon and crab, fishermen who fish for salmon and bottomfish, and etc.). It takes only a little imagination to predict that some form of limited entry will soon be required across the entire fishery. If steps are taken now to rationally plan fleet sizes and composition now, perhaps Alaska can avoid the excessive gear and attendant harvest regulation problems which have made salmon harvest management so difficult not only in Alaska but Washington, Oregon and California as well.

In summary, we believe that some level of activity which overviews the entire fishery could help avoid potential future problems and help Alaskan decision makers formulate sound overall fisheries management policies.

Comment: The discussion on research is too cursory.

Response: It was not intended in the report to specify a research program in detail, but rather to indicate the type of research activities we see as necessary to ensure a more coordinated scientific basis for the management of the fishery.

During the fourteen months the Presidential Task Force on Northwest Fisheries was in existence, federal, state and tribal fisheries scientists and biologists spent a great deal of time defining the research needs of the salmon fishery in Washington state, much of which was reviewed to form the basis of our recommendation. In addition, because of their concern over the lack of research and information, a consolidated fishery research facility (federal, state and tribal) is being constructed in Washington state at a cost of $15 million. Given that the Washington salmon fishery is less than 1/10 of the size of the Alaskan salmon fishery and given the importance attached by the fisheries scientists to the Washington state research problems, we are persuaded that the State of Alaska could also benefit from an expanded and coordinated research program.

Comment: Coordination between DCED and ADF & G has been significantly improved during the past two years regarding the project and loan approval of aquaculture projects. In addition, DCED has employed a fisheries biologist who participates in the aquaculture loan review. Given these improvements in coordination and technical review, how would shifting the loan authority to ADF & G result in any significant benefit to the state or the regional associations?

Response: Our recommendations are based upon two factors. First, if the loan program is limited to loans for capital facilities and not operating funds, then we believe the project and loan approval should be a single action performed by the department with the greatest overall expertise in fisheries, construction costs and technology.

Secondly, the process of selecting productive sites and appropriate facilities requires substantial local knowledge of stream conditions, harvest management problems, construction costs, egg takes, remote release requirements and similar issues. ADF & G through their regional staffs is in a better position to acquire and apply this knowledge in an approval process.

Comment: If the loan program is continued in its present form (i.e., both capital and operating costs), would you still favor totally removing the loan ceiling?

Response: No. The proposal to remove the loan ceiling again was conditioned upon the recommendation that the loan cover only capital construction costs. If the loan program is continued in its present form an increase in the ceiling should be made to reflect inflationary impacts on construction costs and the longer term required for start-up. In addition, if the ceiling is increased and operating costs are continued within the loan program, our recommendation to shift the loan program from DCED to ADF & G loses much of its support because of the need to annually monitor operating loans over a further extended start-up period.

APPENDIX II

INSTITUTIONAL ANALYSIS

INSTITUTIONAL ANALYSIS

INSTITUTIONAL ANALYSIS

Introduction

The following analysis has been developed after review of the prime contract for this project, the sub-contract to Leonard Lane Associates, our clarifying letter of March 23, and our original proposal to the Aquaculture Policy Study Group. From each of these documents, we determined that the institutional analysis should include the following items:

- A comprehensive list of organizations and institutions involved in the Alaska Salmon Resource Development Program.
- A data-base of various characteristics for the primary organizations and institutions.
- General comments on the institutional framework of these organizations as they pertain to the Alaska Salmon Resource Development Program.
- Various recommendation and action steps for improvement to the institutional framework.
- A search for goals for the Alaska Salmon Resource Development Program as indicated by the various goals of the institutions in the ASRDP.
- Various institutional and operational problems as noted by each institution including our review of these problems.
- A suggestion of alternative goals and/or methods for producing goals improving the ASRDP.
- Alternative institutional frameworks of benefit to the ASRDP.

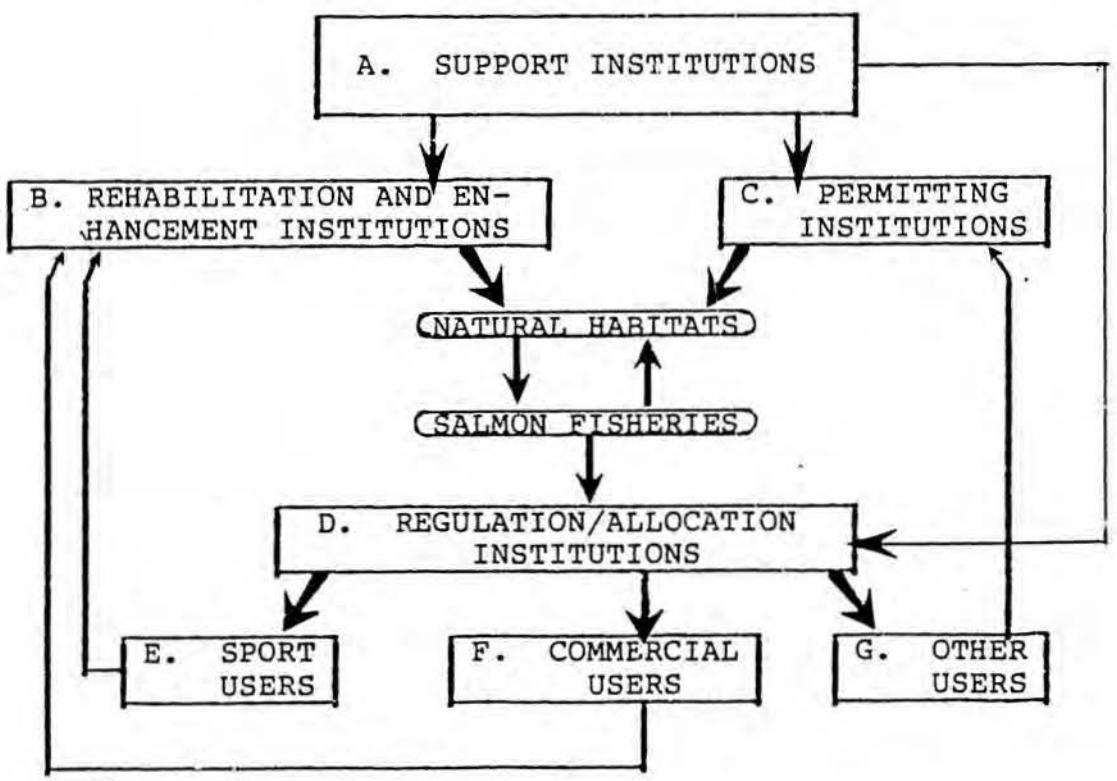
The following analysis and supporting data fulfills and requirements of each of the above items. The discussion commences with an overview of the institutional framework

and proceeds through a detailed discussion of our findings, conclusions, and recommendations in each of the first two tasks noted in our prime contract. The final two sections of this report provide the detailed institutional data from which this analysis was derived.

Institutional Framework

The following discussion describes the institutional framework of those organizations and individuals involved in Alaska's salmon fishery. The organizational concept includes all organizations and individuals who either impact Alaska's salmon fishery or it's habitat, directly or indirectly (primary institutions), and also includes secondary institutions which dramatically impact primary institutions. The organizational concept includes management of the resource, protection and enhancement of the habitat, harvesting, processing, marketing, and the academic, financial, and regulatory institutions effecting the salmon production industry in Alaska.

After having identified and researched all publicly and privately funded organizations in Alaska qualifying as primary institutions, each institution was contacted and a series of its characteristics described in detail. A review of this data indicated seven (7) major categories for the institutions, the following diagram illustrates the institutional framework for these institutions and the arrow indicating the flow of influence between institutions. Institutions are indicated by rectangles whereas the natural eco-system of the salmon is indicated with ovals. A detailed discussion of each institutional category is provided in the following pages.



A. SUPPORT INSTITUTIONS

Support Institutions include those organizations involved in research, financing, policy development, and planning. These institutions predominately support the fisheries rehabilitation and enhancement efforts, the permitting activities of the public sector, and the regulation and allocation activities of the public sector.

B. REHABILITATION AND ENHANCEMENT INSTITUTIONS

These institutions have as their primary goal the expansion of the Alaska Salmon Fishery through capital projects and operations in Aquaculture. Aquaculture projects would include both the artificial propogation of salmon as well as various activities enhancing the salmons natural ability to reproduce.

C. PERMITTING INSTITUTIONS

These institutions serve as a regulator of human activity impacting the habitat utilized by salmon in Alaska. These institutions are responsive to requests by individuals wishing to use the habitat. Permits require these potential users to operate within guidelines consistent with the primary goals of habitat use.

D. REGULATION/ALLOCATION INSTITUTIONS

These institutions represent the police powers of the state in the management and preservation of the salmon resource. These institutions predominately effect the harvester segment of the industry.

E. SPORT USERS

These institutions represent individuals of the state whose primary use of the salmon is for sport as defined by the state in it's Fish and Game Statutes and regulations (Title 16).

F. COMMERCIAL USERS

These institutions represent any individual or corporation which derives economic gain from the harvest, processing or sale of salmon taken in Alaskan waters. Commercial users are also defined in Alaskan Fish and Game Statutes and regulations (Title 16).

G. OTHER USERS

These individuals and institutions represent all non-sport and non-commercial users of salmon. The inclusion of these institutions, individuals and loosely knit segments of Alaska expands the traditional concept of "user" in order to encompass those who, through their actions, impact salmon without in some cases, having consumption of the salmon as their primary concern. These users include subsistence users, wildlife observers, conservationists and preservationists, other fisherman to whom salmon are an incidental catch, users of salmon habitat which may conflict with salmon propogation, supporters of enhancement of salmon predators and competitors, and the Alaska taxpayer in general.

Task 1: Search for Goals

This task required a review of the goals for the various institutions involved in the Alaska Salmon Resource Development Program (ASRDP). The primary thrust of our analysis was to set overall goals for the ASRDP. However since no coordinated and consolidated ASRDP organization exists, the only goals found were those developed individually by each institution. The following findings, conclusions and recommendations have been drawn from our analysis of the goals for all primary institutions.

Findings:

- There is no single Alaska Salmon Resource Development Program which has identifiable goals, and strategies for attainment of goals, organizational structure, or operations.
- No organization had as its goal the development of an Alaska Salmon Resource Development Program involving all institutions as defined by the institutional framework described here.
- The lack of a coordinated and comprehensive planning effort involving all institutions suggests that the cumulative goals of all institutions are neither consistent nor complete with respect to the demands of managing Alaska's salmon resource for all users.
- Only goals for individual institutions which might be part of an ASRDP, if such a program existed, were found.

- Whereas some individual goals might suggest conflict or mutual exclusivity between institutions, these cases were the exception rather than the rule.

- The goals of the Alaska Department of Fish and Game, while addressing Alaska's salmon resource management and production, do not encompass the interests of all institutions noted in the Institutional Analysis.

Conclusions:

- Since the ASRDP lacks clear definition and organization, it therefore does not have mechanisms to develop complete and consistent goals and strategies representative of all institutions.

- Goals setting for individual ASRDP related institutions is fairly well established and could be coordinated into an Alaska Salmon Resource Development Program if proper mechanisms were developed. developed.

- Current legislative funding and planning mandates show promise in developing limited ASRDP goals for various regions and restricted numbers and types of institutions though fall short of meeting the full needs of an ASRDP.

- There is a definite requirement for both initiative and formal mechanisms to develop the concept and organization for the ASRDP capable of taking specific steps to develop goals, strategies, and coordinating agreements with all existing institutions.

- There is a general trend towards regionalization and decentralization in both aquaculture and allocation decision making which has a tendency to complicate a coordination effort though certainly would not preclude such coordination.

Recommendations:

- There is a strong need to concentrate on the development of goals for Alaska's salmon fishery covering the next five to ten salmon life cycles (depending on species) and to develop strategies for both the public and private sector roles in achieving these goals. Attention should be placed

G. OTHER USERS

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upon the development of the assumptions utilized in selecting and implementing these strategies and upon the monitoring of all ASRDP institutions in order to insure the continuing reasonableness of assumptions or to alter strategies as required.

- The Legislature should develop a task force or a commission with powers to spend monies for the planning and coordination of the ASRDP similar in structure to the Governors Commission on the Handicapped and Gifted.

- The task force or commission should have a staff mandated to coordinate with all public and private sector institutions involved in the ASRDP in order to produce concensus ASRDP goals and stratagies similar to the role currently played by Alaska's bottom fish coordinator.

- The task force or commission should annually make recommendations to the BRC and Legislature pertaining to the goals, objectives, and program requests of all state institutions within the ASRDP.

- The existing ADF&G/PNP regional planning efforts should coordinate with, if not become part of the effort to formulate ASRDP goals and strategies under the funding and guidance of the task force and commission.

Task 2: Institutional and Policy Analysis

The following analysis and recommendations derive directly from a review of the institution data presented later in this report. The analysis has been directed mainly at the institutions and their characteristics and does not specifically analyze the effectiveness or quality of the operations of each institution. The thrust of the recommendations has been to recognize the strengths and weaknesses of the current institutional framework and suggest alterations to the framework consistent with a stronger more effective Alaska Salmon Resource Development Program. Much additional work would be required to translate these recommendations into specific changes. These specific changes, not dealt with in this review, would have to meet the test of practicality and cost effectiveness not analyzed here.

General

Findings:

- There are a large number of stable primary institutions in the ASRDP, (described in our institutional data section), and many new and evolving institutions particularly in the rural areas, (described in our final Other Institutions section)

- Recent trends are for a greater regionalization and fragmentation of the institutions into smaller and smaller interest groups, particularly as indicated by the interest shown by village corporations, special interest groups, and local user organizations as noted in our final section.

- Most institutions can be readily identified as either support, rehabilitation, or other institutional categories with very few overlapping (some possible exceptions with state programs.)

- Public sector funding is predominately by the state through numerous budget request units (BRU's) which have no unified review or acknowledgement as an Alaska Salmon Resource Development Program.

- Runs have been increasing significantly in the last ten years, slackening the initiative of certain resource users in the areas of rehabilitation and enhancement.

- Activities of the regulation and allocation institutions have been dramatically and primarily responsible for both increasing runs and providing some stability in the harvesting and processing industries indicating an effective role in ASRDP for these institutions.

- Recent complications posed by the permitting and funding for aquaculture facilities does not appear to have stymied the growth of runs though frustration of aquaculture facility producers has resulted.

- Some segments of the salmon industry are marginally represented as institutions in the

ASRDP, such as processive, sport user, subsistence users, local economic development organization, local governments, village corporations, and other non-state funded operations.

Conclusions:

- Newly evolving user groups and institutions should tend to increase in number and impact in the future with the maturing of native corporations and the public attitudes towards renewable resource investment thus expanding the complexities of coordinating ASRDP programs and institutions.

- Immediately concentrating on the formation of an ASRDP organization may meet the growing complexities early enough to reduce the anticipated complexities of planning and coordination.

- A state effort to coordinate their programs through the budget review process (BRC) would dramatically serve to improve coordination.

Recommendations:

- The ASRDP should be given structure and substance through a stable organization and a clearly defined mission for the organization. The organization will require state funding of staff and the mission should include goal and strategy formulation and program monitoring.

- The state should develop a structured organization with central policy and planning functions, as either an independent task force or commission, capable of developing goals and strategies and representing the concensus of all institutions in the ASRDP.

- The ASRDP should encompass all institutions as noted in this analysis.

- The state should encourage the participation of processing and marketing industry segments, not now adequately represented in the ASRDP.

- The ASRDP organization should implement its goals and strategies through their review of proposed state and federal programs and their comments and recommendations to the state BRC and the federal government through the A-95 process.

Support Institutions

Findings:

- These institutions are predominantly involved in policy development, habitat land use planning, economic development and biological and economic research. (See institutional data section for descriptions)

- These programs lack the consistency required in their planning and goals to support a coordinated ASRDP strategy.

- The support provided by these institutions to the salmon fishery often comes as a secondary consequence of programs focused in other areas, eg. habitate protection during oil line construction considers the preservation of anadromous streams as well as many other environmental concerns.

- Funding levels are generally insufficient to meet most estimates by the institutions of the tasks required to achieve existing goals.

- All support institutions are public sector funded.

Conclusions:

- The yet to be organized ASRDP will have to specifically and immediately investigate the support requirements of the ASRDP institutions in order to insure the proper prioritization of these efforts.

- A definitive strategy for the role of support institutions in the ASRDP is required.

- Dramatic improvements in the data and analytic understanding of the salmon resource would greatly serve to increase credibility of the ASRDP if not also be a prerequisite for its goal and strategy development responsibilities.

Recommendations:

- The recommended ASRDP organization should, at the strategic level, address the role of support institutions as a highest priority.

- The public sector should continue to take a lead and increase efforts in the funding and central coordination of biological and economic research on anadromous specifics.

Rehabilitation and Enhancement Institutions

Findings:

- Both the public and private sectors are involved as evidenced by operating hatcheries funded by both the state and the private non-profit associations.
- Private sector institutions exist. However, long-term viability is currently in question due to constitutional restrictions of financing mechanisms.
- Non-commercial users of the fishery are marginally represented within existing rehabilitation institutions.
- Current financial mechanisms (limited now to direct legislative appropriations and voluntary contributions) greatly limit growth rate of these institutions.
- Current financing for facilities and programs is not tied to production success and only through the state's loan program are the probabilities of success systematically considered for financing.
- There is a distinct lack of financial mechanisms allowing user payment for resource expansion.

Conclusions:

- Both clear state policy and authorized financial mechanisms are a primary requirement for continued private sector growth in salmon aquaculture.
- Future state action is critical to the solution of the regional non-profit problem and will require the authorization of new funding mechanisms.
- There is a rationale and demand for rehabilitation and enhancement facilities serving the needs of non-commercial users.

Recommendations:

- The ASRDP, as recommended, should immediately develop and recommend legislation that creates financing mechanisms which insure stable funding for private sector rehabilitation facilities.

- Maintain strong state support of public sector rehabilitation facilities until private sector financing mechanisms for aquaculture are in place and proven sufficient.

- The ASRDP, as recommended, should consider financing mechanisms for non-commerical user "investments" in aquaculture facilities which might include a dedicated tax on sport fish gear, and so forth.

Permitting Institutions

Findings:

- Permitting Institutions are organized around the demands of those requesting permits. (eg. gasline developers, forestors, coast line developers, etc.)

- Current funding levels for these institutions limit the speed and detail with which permit applications can be processed.

- The Department of Environmental Conservation has been charged with and funded for, the simplification and coordination of permitting, though not specifically for potential ASRDP goals.

- Permitting has been effective though conservative, since habitat degradation has been curtailed sometimes at the expense of proposed hatchery projects.

- Permitting contributes a major cost to the start-up of aquaculture facilities.

Conclusions:

- A credible ASRDP would aid permitting institutions and reduce need for conservative positions similar to the effect Coastal Zone Management Planning has had on coastal development proposals.

- Increased funding for the permitting institutions would reduce long delays experienced in obtaining necessary permits, thus reducing complications to aquaculture facility developers.

- Improved permitting would reduce the start-up costs of aquaculture facilities.

Recommendations:

- Permitting institutions should be involved in the formulating of ASRDP goals and strategies.

- A new mechanism should be developed whereby approval of the ASRDP goals and strategies by permitting institutions will reduce the number and detail of permit requirements on aquaculture facility developers when operating in conformance to the ASRDP.

- Increase funding to, and/or consolidate those permitting institutions primarily effecting aquaculture resource development, only after the financing mechanisms are in place and development proposals expected.

Regulation and Allocation Institutions

Findings:

- Appointed boards focus on allocation decisions and, by design, are responsive to socio-economic arguments of resource users.

- The state is responsible for in-season regulatory decisions, although data for decision making is limited.

- Current regulation and allocation institutions are centralized though constant lobbying has addressed decentralization and regionalization.

- The decisions of these institutions have been highly successful in increasing run-size in the last 10 years.

Conclusions:

- Current institutional arrangement has been effective.

- Decentralization will make the implementation of ASRDP goals and strategies more complicated, costly, and perhaps less effective.

- Clear authorities and centralized decision making have been key to the success of these institutions.

Recommendations:

- Maintain current centralized institutional structure.
- Greatly increase data availability for decision making through increased support of support institution activities.

Commercial Users

Findings:

- Most commercial user institutions represent harvest interests oriented around gear-type and harvest region.
- Native corporations and municipalities have an increasing interest in the salmon resource for economic development.
- Consideration of and involvement by processors, wholesalers, marketers and consumer segments of the industry in the current planning and management of the salmon resource is scarce.
- Commercial users are organized for lobbying, regional planning, and aquaculture development.
- There are no institutions coordinating harvesters with processors with marketers yielding an overall economic development plan for the resource.

Conclusions:

- Users tend to organize themselves around their interest in small segments of the industry.
- Aquaculture development as a means of economic development has not been specifically addressed by all commercial users of the resource.
- Expansion of the resource does not necessarily ensure economic development for all segments of the salmon industry since many of these segments compete with varying degrees of success.
- Harvesters, the prime private sector supporter of aquaculture at this time, often favor near-term investment decisions while aquaculture investments require a long-term venture capital attitude.

Recommendations:

- Strategy development by the ASRDP must include plans for economic development in all commercial industry sectors, not just harvesters.

- Private sector financing mechanisms for aquaculture, when developed, should be equally available to non-harvester users and reflect the different investment requirements of each. (e.g., harvesters want more fish, processors want cheaper fish, etc.)

- Commercial use of the rehabilitated fishery should be tied securely as possible to individual aquaculture development investments in order to clarify financial return evaluations and ensure long-term financial viability of aquaculture investments.

Sport Users

Findings:

- Sport users are not well represented in the regulation/allocation process except in urban areas where sport fishing rights are strongly debated. (Example: Cook Inlet).

- The state acts often as a proxy for sport users. (Example: Sport Fish Division of Alaska Department of Fish and Game).

- The value of the sport fishery has not been tapped as a mechanism for financing aquaculture facilities.

Conclusions:

- As population grows and portions of Alaska urbanize, sport institutions should evolve and provide pressure for representation in aquaculture development.

- Sport users would probably support rehabilitation and enhancement projects when competition for the resource with commercial interests increases.

- The value of the sport fishery to sport users could support aquaculture if adequate mechanisms were developed by the state.

Recommendations:

- The ASRDP should specifically address the design of financing mechanisms sufficient to meet the projected demands of sport fishermen.

- The state should implement financing mechanisms involving sport users for aquaculture projects.

Other Users

Findings:

- Subsistence use is a primary allocation by the state for the salmon resource.

- Conservation and preservation groups may have interests in conflict with rehabilitation. However, it appears these institutions have not organized or coordinated against aquaculture development.

- There are a number of organizations (AFN, ANF, etc.) which support the rights and interests of subsistence users.

- While many of these groups can be identified as impacting or impacted by the salmon resource, to date, these impacts have not been debated issues and therefore have not played a major role in salmon resource management.

Conclusions:

- While allocations will continue to be made to these users, these users are not likely candidates for financial support of aquaculture since their involvement with the resource has few financial transactions thus limiting both the motivation and mechanisms for investment.

- Use of rehabilitated and enhanced runs by these users will continue to generate a cost that must be recognized in aquaculture development, though it probably could not be quantified for any particular facility.

- It may be justifiable for the state to provide financial support for aquaculture facilities and operations in order to offset the costs generated by these users to private aquaculture developers.

Recommendations:

- The state should continue finacial support of rehabilitation facilities justified as compensation to private sector aquaculture developers for losses to these users.

- These users should be considered in the ASRDP goal and strategy formulation.

INSTITUTIONAL DATA

INSTITUTIONAL DATA

Introduction

The following pages detail the research effort documenting all state and local primary institutions in Alaska Salmon Resource Development Program. The institutional descriptions are accurate as of July 1979. Now that the State of Alaska is progressing through its FY81 planning cycle, some of these characteristics may no longer be applicable.

Methodology

The following methodology was employed in the collection and analysis of the institutional data.

1. A comprehensive list of institutions satisfying the criteria of a primary institution was developed by the study team.

2. The study team then developed a taxonomy and definition for characteristics to be noted for each of the institutions.

3. Published material, reports, budgets, and secondary sources were collected, organized and examined for information on institutional characteristics.

4. A representative of each institution was contacted on the phone to verify data and collect the institutions perceptions of problems.

5. The composite of all data were reviewed and discussed by the project team.

6. The data was reviewed in detail and a final report on findings, conclusions and recommendations was developed.

Data Format

The data is presented in sections for each of the institutional categories noted in the institutional analysis section. The level of detail and completeness of descriptions for each characteristic varies considerably from institution to institution depending upon the completeness and accuracy of the resource materials examined.

A. SUPPORT INSTITUTIONS

Support Institutions include those organizations involved in research, financing, policy development, and planning. These institutions predominately support the fisheries rehabilitation and enhancement efforts, the permitting activities of the public sector, and the regulation and allocation activities of the public sector.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT

DATA

- State Department with two Divisions affecting Aquaculture, Economic Enterprises (AS 44.33.020) and Commercial Loans (AS 16.10.300-380)

Type:

- State Department funded by Legislature
- Division of Commerce and Economic Development

Size:

- Economic Enterprises has one employee assigned to anadromous fish projects

Structure:

- Reports to Commissioner, Commerce and Economic Development

Geographic Location:

- Statewide responsibilities
- Headquartered in Juneau

Goals:
Economic Enterprises Development:

- Develop and diversify Alaskan economic base
- Research, plan, promote, implement assistance to improve well being of State
- Provide Alaskans maximum opportunity to participate in State economy

Commercial Loans

- Promote rehabilitation of the State's fisheries primarily resident
- Maintenance of commercial fishing gear and vessels

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Dept. of Commerce & Economic Dev. - Cont.)

Objectives:
Economic Enterprise:

- Increased processing capacity
- New hatcheries
- Expanded seafood market

Commercial Loans:

- Private investment in aquaculture programs through the Regional Aquaculture Associations

Programs:
Commercial Loans:

- Loan up to $150,000 per application to commercial fishermen for repairs, restoration and upgrading of harvest gear and vessels
- Loan up to $3,000,000 per application to Regional Aquaculture Associations, for salmon hatchery construction and operation
- Loans are low-interest and long-term

Economic Enterprise:

- Has the potential to affect salmon aquaculture but is currently funded to concentrate its program in bottom fish

Accomplishments:
Commercial Loan:

- Assisted in development of Regional Aquaculture Association
- LOANED $2.4 mm to Southern Southeast Regional Aquaculture Association
- LOANED $1.9 mm to Prince William Sound Regional Aquaculture
- LOANED $175,000 to a Wrangell based project

Economic Role:

- Medium of State support for private aquaculture projects

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Dept. of Commerce & Economic Dev. - Cont.)

Problems:

- Funding has not been renewed to allow further business loans

Opportunities

- Method of State support of private investment in Aquaculture

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

COMMISSIONER OF FISH AND GAME

DATA

- Principal executive officer of the Department of Fish and Game
- Shall supervise and control the department and employ personnel (AS 16.05.020)
- Shall manage, protect, maintain, improve, and extend the fish, game and aquatic plant resources of the State in the interest of the economy and general well being of the State (AS 16.05.050)
- May assist USF and WS
- May design and construct projects beneficial for the fish and game resources of the State (AS 16.05.050)
- May capture, propagate, transport, buy, sell, or exchange fish or game or eggs for propagating, scientific or stocking purposes (AS 16.05.050)
- May provide public facilities for taking of fish and game
- May exercise administrative budgeting and fiscal powers
- May issue emergency openings and closures (AS 16.05.0601)
- May authorize any person to enforce fish and game laws (AS 16.05.1501)

Goals:

- Organize and develop the department's human, financial, and technical assets to maintain, rehabilitate, and enhance the fish and wildlife resources of the State and to provide their sustained optimum use consistent with the long-term social, economic, cultural, and environmental needs of the public

Objectives:

- Provide management direction consistent with the Governor's policies

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Commissioner of Fish and Game - Cont.)

Program:

- Provide primary management direction for the department
- Represent the department in various annual and special meetings concerning resources
- Represent the department on various boards and councils such as The Alaska Coastal Policy Council, North Pacific Fisheries Management Council, etc.

Type:

- Executive office of the State Department of Fish and Game

Size:

- 50 PFT requested for FY 80 for all three budget components
- 1 Temp requested for FY 80 for all three budget components

Structure:

- Three components
- Office of the Commissioner request $329,000 for FY 80
- Public Communications Section request $220,000 for FY 80
- Administrative Services request $2,309,000 for FY 80

Geographical Location

- State-wide responsibilities
- Staff located in Juneau

Funds:

- $359,000 federal receipts requested for FY 80
- $2,423,000 General Fund requested for FY 80
- $75,000 other funds requested for FY 80

DATA (Commissioner of Fish and Game - Cont.)

Primary Constituents:

- All users of fish and game resources of the State
- General public consuming commercial fish and game products.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

ALASKA RENEWABLE RESOURCES CORPORATION

DATA

- A public corporation for the rehabilitation, enhancement, and development of the State's renewable resources (AS 37.12.010-015)
- Receipts consist of five per cent of total receipts paid the State from mineral lease bonuses and rentals and royalties
- Fifty per cent of receipts deposited into investment fund (AS 37.12.020)
- Fifty per cent of receipts deposited into development fund (AS 37.11.020)
- Unused balances at close of fiscal year transferred to investment fund (AS 37.11.040)
- Investment fund available only for prudent investments by treasury division (AS 37.11.090)
- Income from investments in investment fund to be used for capital and operating expenses for renewable resource programs (AS 37.11.070)
- Development fund provides funding for capital and operating expenditures for the rehabilitation, enhancement, and development of renewable resources (AS 37.11.030)
- Funding from development fund primarily equity and debt financing (House Finance Committee Report on CS HB 682)

Type:

- Legal existence independent of and separate from the State
- Public corporation
- Instrumentality of the State within the Department of Revenue

Size:

- 9 PFT for FY 80 includes Board of Trustees

Structure:

- Governing body is Board of Trustees
- Executive Director is responsible to Board and supervises staff

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Alaska Renewable Resources Corporation - Cont.)

Geographic Location:

- Statewide responsibilities
- Headquartered in Juneau

Funds:

- $860,000 request for FY 80 operating budget from Development Fund
- $11,150,000 capital request for FY 80 for Investment Fund
- $11,150,000 capital request for FY 80 for Development Fund

Primary Constituents:

- Development Fund primarily benefits private entrepreneurs
- Interest from Investment Fund primarily benefits general public and government agencies

Problems:

- New agency still in the process of hiring staff, assessing priorities, and developing criteria to evaluate proposals
- Not a lead agency -- must respond to requests

Goals:

- Rehabilitation, enhancement, and development of the State's renewable resources
- Identify, stimulate research and development of, and assist in the demonstration of feasibility of: new products, markets, and technologies for renewable resource industries in the State

Objectives:

- Maintain the productivity of healthy renewable resources
- Expand productivity of depleted or underutilized resources

DATA (Alaska Renewable Resources Corp. - Cont.)

Objectives: (cont.)

- Provide financial assistance for projects meeting goals above
- Promote in-state utilization of renewable resources
- Develop import substitution and export markets

Programs:

- Provide venture capital to meet goals and objectives
- Make equity (preferable) or debt investments in agriculture, fisheries, timber, and renewable energy up to 49% of stock ($1.5 million maximum)
- Provide grants as appropriate to meet above goals
- Develop long-range plans

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

ALASKA PERMANENT FUND

DATA

- At least 25% of all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue sharing payments and bonuses received by the State, shall be placed in the Permanent Fund (Constitution of Alaska, Article IX, Section 15)
- Principal of the Permanent fund shall be used only for income producing investments specifically designated by law (Constitution, Article IX, Section 15)
- Income from the Permanent Fund shall be deposited in the General Fund unless otherwise provided by law (Constitution, Article IX, Section 15)
- Investments of the Permanent Fund restricted to notes and obligations of the United States, CD's, corporate securities, bankers' acceptance, repo's and deposits in federally insured savings and loans and credit unions (AS 37.10.065)

GOALS

- None specifically stated in the Constitution or Alaska Statutes

OBJECTIVES

- None specified by Constitution or Alaska Statutes

PROGRAMS

- Invest funds per AS 37.10.065

TYPE

- Responsibility for investment rests with the Commissioner of Revenue

SIZE

- No discrete agency or program identified as managing the fund

DATA (Alaska Permanent Fund - Con't.)

STRUCTURE

- No discrete agency or program identified as managining the fund

GEOGRAPHICAL LOCATION

- Commissioner located in Juneau

FUNDS

- No budget identified for management of the fund

PRIMARY CONSTITUENTS

- All citizens of the State, both present and future

PROBLEMS

- Legislature has failed to establish an agency to manage and invest the Permanent Fund
- Current law intended as an interim measure
- Proposed laws regarding the Permanent Fund before the current legislature (1979) not likely to pass this year

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

COMMERCIAL FISHERY TAXES

DATA

- Salmon canneries both shore based and floating pay tax of 3% of value of raw fish (AS 43.75.010)
- Herring processing plants pay annual tax of 1% of value of raw herring (AS 43.75.010)
- Crab canneries both shore based and floating pay annual tax of 2% of value of raw crabs (AS 43.75.010)
- Clam canneries pay tax of 2% of value of raw clams (AS 43.75.010)
- Shore based cold storages and other fish processors except the previously mentioned pay tax of 1% of value of raw fish (AS 43.75.060)
- Freezer ships and other floating cold storages pay annual tax of 4% of value of raw fish (AS 43.75.060)
- Commissioner of Revenue shall pay to each organized borough in each city of the first class, 10% of the amount of tax revenue collected in the borough or city (AS 43.75.130)
- Commissioner of Revenue shall pay an additional 10% to each organized borough of tax revenue collected in the borough, from taxes and 10% to each city of the first class in the unorganized borough from tax revenue collected in the city (AS 43.75.135)

GOALS

- None specified

OBJECTIVES

- None specified

PROGRAMS

- Collect taxes as required by law
- Pay refunds to local governments as required by the law

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Commericial Fishery Taxes - Con't.)

FUNDS

- FY78 collections exceeded $8,326,000
- FY78 refunds to local governments equalled $1,245,000

PRIMARY CONSTITUENTS

- Local governments
- State governments

PROBLEMS

- Proceeds of tax not dedicated to use for fisheries purposes
- HB 83 proposes to increase refunds to local governments from 10-30%
- HB 306 proposes to increase and make uniform fisheries tax to equal 6% of the value of the fishery resource process
- HB 306 proposes to pay local governments one-third of the tax revenue collected and require one-half of the refund to be used for docks or other fish enhancement projects
- HB 306 also proposes to permit the legislature to appropriate one-third of the receipts to the Commercial Fishing and Agricultural Bank

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

FISH AND GAME FUND

DATA

- Shall be used to carry out the purposes and provisions of the Fish and Game Code or other duties delegated to the Department of Fish and Game (AS 16.05.100)
- Fish and Game Funds shall be used to carry out the purposes and objectives of the Fish and Game Code as may be directed by the donor of any such funds (AS 16.05.100)
- Fish and Game Fund composed of money received from sale of sport fishing and hunting licenses, proceeds of fur sales, settlement caused by damage to fish and game resources, money received from donors for fish and game purposes, interest received on money in the Fund, and money appropriated by the legislature to the Fund (AS 16.05.110)

GOALS

- Protection, propagation, investigation, and restoration of sport fish and game resources
- Expenses of administering of the Sport Fish and Game Divisions of the Department of Fish and Game

OBJECTIVES

- None specified

PROGRAMS

- Approximately 50% of funds to Sport Fish Division
- Approximately 50% of funds to Game Division

FUNDS

- $1,905,000 deposited in Sport Fish Account for FY 78
- $2,047,000 deposited with the Game Account for FY 78

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Fish and Game - Con't.)

PRIMARY CONSTITUENTS

- Division of Sport Fish
- Division of Game Fish
- Users of sport fish and game resources of the State

PROGRAMS

- Some (small) funds apparently not going into the Fish and Game Fund (fees from trapping and funds earned as interest from money in the Fish and Game Fund)

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

ALASKA COASTAL MANAGEMENT PROGRAM

DATA

- Staffed by Office of Coastal Managements (AS 44.19.894)
- Managed by Alaska Coastal Policy Council (AS 44.19.891)
- Policy Council shall adopt standards for development of district Coastal Management Programs (AS 46.40.040)
- Policy Council shall develop standards for and adopt the Alaska Coastal Management Program
- Policy Council shall review and approve district Coastal Management Programs
- Coastal Resource Districts shall develop and adopt district coastal management programs (AS 46.40.030)
- Appropriate State agencies shall implement a district coastal management program when a local district does not exercise zoning or other controls (AS 46.40.090)
- In an unorganized area facing major economic development or an area incapable of completing its district plan the Department of Community & Regional Affairs shall prepare the plan (AS 46.40.160-170)
- State agencies shall comply with the Alaska Coastal Management Program (AS 46.40.200)
- U.S. Department of Commerce may make grants to states for development and initial implementation of management programs up to 80% of costs (PL 94-370, Sec. 305)
- U.S. Department of Commerce may make grants to states for administration of management programs up to 80% of costs provided the programs have been approved by the Secretary of Commerce (PL 94-370, Sec 306)
- Federal agencies shall to the maximum extent practicable comply with an approved state management program (PL 94-370, Sec 307)

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Alaska Coastal Management Program - Con't.)

TYPE

- State agency located in Office of the Governor

SIZE

- 16 PFT for FY 80
- 1 Temp for FY 80

STRUCTURE

- Section within the Division of Policy Development & Planning
- Chief executive officer reports to both the Alaska Policy Council and the Director of Policy Development & Planning

GEOGRAPHIC LOCATION

- Entire staff located in Juneau
- Statewide responsibilities

FUNDS

- $250,000 General Fund for FY 80
- 44,500,000 federal receipts for FY 80
- Approximately $4,100,000 is passed through to local or State agencies

PRIMARY CONSTITUENTS

- Other governmental institutions

GOALS

- Use, management, restoration, and enhancement of the overall quality of the coastal environment
- Development of industrial or commercial enterprises which are consistent with social, cultural, historic, economic and environmental interests of the people

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Alaska Coastal Management Program - Con't.)

GOALS (Con't)

- Utilization and protection of resources of the coastal area consistent with sound conservation and sustained yield principals
- Priority to uses that economically or physically require coastal locations (AS 46.40.020)
- Identification of areas of special attention such as habitat areas (AS 46.40.210)
- Identification and designation of areas suitable for location or development of facilities for commercial fishing and processing (6 AAC 80.090)
- Assure unrestricted fish movement in coastal waters where commercial timber harvest activities occur (6 AAC 80.100)
- Habitat areas must be managed wisely (6 AAC 80.130)

OBJECTIVES

- Completion of district coastal programs
- Implementation of district coastal programs by local, State and federal agencies
- Assure coordinated decision making
- Assure consistency with federal regulations
- Maintenance of data base
- Ability to handle special planning element introduced by State or federal agencies, such as fisheries enhancement programs

PROGRAMS

- Provide grants, technical assistance, and data to local districts
- Assure compliance and conformity by State agencies with regulations and district programs
- Coordinate between State and local agencies with regional planning staff

ACCOMPLISHMENTS

- Establishment of habitat standards that require local government consideration in the planning process

DATA (Alaska Coastal Management Program - Con't.)

PROBLEMS

- Probable long-term conflict between fishery and timber users---timber regulations presently have strong habitat protection provisions
- Wetlands probably not adequately protected
- Current boundaries provided by statute not suitable---boundaries need to be of a more geographic nature
- Development and implementation of district programs in the unorganized borough will be slow and in some cases non-existent
- Implementation of district programs in the unorganized borough for areas without zoning powers will present problems for the State agencies

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

NATURAL RESOURCES - Management and Administration Program

DATA

- Department of Natural Resources shall administer the State program for the conservation and development of natural resources, including forests, parks, and recreational areas, lands, waters, agriculture, soil conservation and minerals, but excluding commercial fisheries, sport fish, game and fur bearing animals (AS 44.37.020)
- Department shall determine and adjudicate rights of the waters of the State, and in its appropriation and distribution (AS 46.15.010)
- Department of Natural Resources shall establish a division to manage State forests and regulate operations on private forest land (AS 41.17.020 and .030)
- Commissioner of Natural Resources shall prepare and maintain an inventory of all State land and water and their resource and other values (AS 38.04.060)
- The Commissioner of Natural Resources shall develop and maintain land use plans for the use of State owned land (AS 38.04.065)

GOALS

- To develop, manage and conserve the State's natural resources for the benefit of all Alaskans, in accordance with sound resource management practices and consistent with the national interest in Alaska's resources

OBJECTIVES

- Improvement of administrative service and support to the dependent divisions and agencies
- Provide staff to handle land exchange programs to resolve land management and land ownership problems
- Continue to provide research, analysis, and policy direction, as well as recommend land which the State should own

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Natural Resources - Con't.)

OBJECTIVES _ (Con't.)

- Initiate and react to cooperative land and resource use agreements
- Provide state-wide resource inventory for use by the department and other agencies
- Provide analysis of major issues confronting the department

PROGRAMS

- See programs listed under other organizations of the Department of Natural Resources
- Expand State land policy analysis (selection, classification, and disposal)
- Maintenance, refinement, and computerization of the State's natural resource inventory data and other related land use information
- Expand implementation analysis of departmental coastal management responsibilities
- Analysis emphasis on selecting land for agriculture classification, and encourgement of additional agricultural development
- Land use planning for development of the North Slope
- Formulation of a state-wide water use plan to insure proper allocation of this valuable public resource
- Analysis of economic benefits to the public associated with alternative uses of State land
- Various administrative and management activities such as accounting functions, personnel functions, etc.

TYPE

- Sections within the State Department of Natural Resources

SIZE

- 42 PFT requested for FY 80

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Natural Resources - Con't.)

STRUCTURE

- Office organized into three components
- 53% of resources in the Office of the Commissioner
- 42% of resources in Planning and Research Section
- 5% of resources in temporary D-2 Operations Section

GEOGRAPHICAL LOCATION

- State-wide responsibilities
- Staff located in Anchorage and Juneau primarily

FUNDS

- $63,000 federal receipts requested for FY 80
- $1,685,000 General Fund requested for FY 80
- $83,000 other funds requested for FY 80

PRIMARY CONSTITUENTS

- General public
- Land owners

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

ALASKA CONSERVATION ACTION CORP PROGRAM

DATA

- Created in the Division of Parks and Recreation, Department of Natural Resources (As 41.20.390)
- Corp may be assigned to assist in environmental planning, litter clean-up including rivers and creeks, neighborhood improvement programs, fire prevention activities on forest lands, improving wildlife habitats and protection of wildlife refuges and wilderness areas under supervision of the Department of Fish and Game, erosion, erosion control projects (AS 41.20.395)

GOALS

- Develop and maintain a system of parks and recreational facilities
- Conserve and assure a maximum use in the public interest of Alaska's scenic, historic, archeologic, scientific, biological, and recreational resources
- Allow youth from throughout the State to work, earn, and learn together by doing meaningful projects which further the development and conservation of the State's natural resources

OBJECTIVES

- Maintain the number of jobs for youth at 150
- Maintain the number of youth environmental projects to include existing facility maintenance and construction of new facilities
- Maintain the number of students and cooperative environmental projects with school districts at 60
- Provide two months of staff services of interpretive specialists, to assist in development of state-wide visitors services program

PROGRAMS

- See objectives above

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Alaska Conservation Action Corp Program - Con't.)

TYPE

- Section within the State Department of Natural Resources

SIZE

- 3 PFT requested for FY 80
- 1 PPT requested for FY 80
- 187 Temp requested for FY 80

STRUCTURE

- Section within the Division of Parks

GEOGRAPHICAL LOCATION

- State-wide responsibilities
- Summer camp at Wasilla and at Bonanza Creek
- Non-resident (day camp) in Anchorage and Soldotna areas

FUNDS

- $414,000 federal receipts requested for FY 80
- $105,000 General Fund match requested for FY 80
- $5,000 General Fund requested for FY 80

PRIMARY CONSTITUENTS

- Youth who benefit from work and learning experience
- State's natural resources that are cleaned up, developed, or enhanced by this program

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

CADASTRAL ENGINEERING

DATA

- Not specifically established by Alaska Statutes

GOALS

- To wisely select, manage, develop, and conserve resources available on State owned lands and waters, so that the resultant actions optimize current and future public benefits while complying with the constitutional mandate for sustained yield

OBJECTIVES

- Maintain accurate, up-to-date land title records which are kept current daily, illustrating State land action
- Conduct, approve, and write survey criteria for all survey work conducted on Division of Lands administered State Lands
- Draft maps and plats of State surveys, disposal actions, and illustrating legal responsibilities and land activity

PROGRAMS

- Surveying and subdividing lands including the preparation of maps and plats of surveys
- Maintenance of a record system (primarily manual, although a microfilm information retrieval system is being developed) which includes recording of State land activity and surveillance filing of real property ownership statements outside of areas where local records are kept
- Production of status plats and historical indexes for the land records system for land conveyed to the State under the proposed D-2 Legislation
- Further development of the automated lands records system

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Cadastral Engineering - Con't.)

TYPE

- Section within the Department of Natural Resources

SIZE

- 40 PFT requested for FY 80

STRUCTURE

- Section within the Division of Forest, Land and Water Management

GEOGRAPHICAL LOCATION

- State-wide responsibilities
- Staff located primarily in Anchorage

FUNDS

- $3,315,000 General Fund requested for FY 80

PRIMARY CONSTITUENTS

- Land owners
- General public as owners in common of all State land

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

FORESTRY PROTECTION AND MANAGEMENT PROGRAM

DATA

- Department of Natural Resources shall establish a Division of Forest, Land and Water Management to manage the forestry sources of the State (AS 41.17.010)
- Forestry sources of Alaska are among the most valuable natural resources of the State and furnish timber and wood products, fish and wildlife, tourism, outdoor recreation, water, soil, air, minerals, and general health and welfare (AS 41.17.0101)
- The State has a fundamental obligation to insure that management of forest resources, guarantees perpetual supplies of renewable resources (AS 41.17.0101)
- Forest Resources and Practices Act (AS 41.17.) is the basis for forest management standards, policies, and guidelines under the Alaska Coastal Management Act (AS 41.17.0101)

GOALS

- To protect Alaska's forests from unacceptable losses caused by fire, insects, and disease
- Manage and utilize Alaska's forest resources for a maximum public benefit through environmentally sound and sustained yield principles
- Enhance the economic stability in human resource development for rural Alaskans by cooperatively assisting private land owners in forest management

OBJECTIVES

- Review 500 reports submitted by districts and BLM
- Conduct ten fire training sessions for other agency personnel and native village crews
- Review 250 assists given to private woodland owners relative to intensive management of these lands

DATA (Forestry Protection and Management Program - Con't.)

OBJECTIVES (Con't.)

- Review 50 forest practices notifications to insure compliance with forest practices act
- Provide for protection of approximately 23 million acres of State and private land
- Inspection of 150 forest operations and provide assistance regarding good forest practices
- Inspect 15 forest operations for compliance with the Forest Practices Act
- Provide ten GFA training sessions pertaining to management of private woodlands
- Provide 15 forest practice act training sessions to acquaint the public and division personnel with Forest Practices Act
- Produce 120,000 seedlings at the forest nursery in Palmer
- Review 35 timber sales for compliance with existing regulations
- Inspect 20 timber sales for compliance with contract specifications

PROGRAMS

- State Fire Protection Program has responsibility for review of district fire activities, coordination and direction of all project fires, development of a State fire plan, fire training courses, and supervision of fire detection activities (activities include fire pre-suppression, detection, and suppression)
- BLM Fire Protection funds a contractual arrangement between the State and BLM to cover costs incurred by the BLM in fire pre-suppression and suppression activities on State land
- Forest Management Program includes review of timber sale contracts and case files, maintenance of an accounting system for timber receipts and timber harvests, review of forest management and timber sale operations to assure compliance with the Forest Practices Act, development and maintenance of resource inventory of State forests, and recommendations for forest reserves

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Forestry Protection and Management Program - Con't.)

PROGRAMS - (Con't.)

- The Cooperative Forestry Assistance Program provides information and education regarding sound forest management of private forest lands
- State Forest Nursery Program provides free seedlings for reseeding of harvested forests

TYPE

- Section within the Division of Forest, Land, and Water Management

SIZE

- 22 PFT requested for FY 80

STRUCTURE

- Section within the Division of Forest, Land and Water Management within the Department of Natural Resources
- 18% of resources in the State Fire Protection Program
- 31% of resources in Management and Timber Sales Program (forest management)
- 10% of resources in Research and Technical Program
- 20% of resources in Administration

GEOGRAPHICAL LOCATION

- State-wide responsibilities
- Staff located primarily in Anchorage
- Some staff located in field offices

FUNDS

- $220,000 federal receipts requested for FY 80
- $180,000 General Fund match requested for FY 80
- $818,000 General Fund requested for FY 80

DATA (Forestry Protection and Management Program - Con't.)

PRIMARY CONSTITUENTS

- Timber industry
- Owners of private land that is forested
- General public as owners in common of State forest land

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

MANAGEMENT AND CLASSIFICATION - DEPARTMENT OF NATURAL RESOURCES

DATA

- Cites general authority of AS Title 29, AS Title 39, AS Title 34, AS Title 41, AS Title 45, AS Title 46
- In areas of the State outside first, second, or third class boroughs where there is no municipality with a zoning power, the Division of Lands shall exercise the zoning power by adopting zoning regulations (AS 38.05.037)
- The Division of Lands may exercise zoning power within any portion of a third class borough covered by the Alaska Coastal Management Program, if not done by a municipality (AS 38.05.037)
- Division of Lands may lease tide and submerged lands for fisheries development, which includes the utilization of shore gilnets or set nets (AS 38.05.082)
- State policy for retaining land in public ownership is to make the land available on a sustained yield basis for a variety of beneficial uses including subsistence, energy development, aquaculture, sport hunting and fishing, forestry, etc., (AS 38.04.015)
- State policy retaining land in public ownership is to protect critical wildlife habitat and areas of special scenic, recreational, scientific, or other environmental concerns (AS 38.04.015)
- Division of Lands must make available on an annual basis, a minimum of 50,000 acres of which 30,000 acres shall be for disposal under the homesite entry program and the open to entry program for disposal to private ownership (AS 38.04.020)
- No land may be classified for homesite entry which is located where homesites would threaten fish regeneration (AS 38.08.010)
- In determining which land availability program is appropriate for disposal of State lands, sale programs are preferred but lease programs should be used when a unique location with specific public values is involved, as in a deep water port, hydroelectric site, or aquaculture facility (AS 38.04.035)

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Management and Classification - Department of Natural Resources - Cont.)

- Department shall prepare and maintain an inventory of all State land and water resources and note areas of critical environmental concern (AS 38.04.0601)
- The department shall prepare and maintain land use plans for use of State owned land (AS 38.04.065)
- Management categories for classification of State land includes State public reserve lands which includes State forest reserves and State wildlife reserves (AS 38.04.0701)
- Definitions contained in AS 38.04 include "multiple use lands" which recognizes the value of wildlife and fish resources (AS 38.04.910)
- Definitions in AS 38.04 include "sustained yield" which means the achievement and maintenance in perpetuity of high level annual or regular periodic output of the various renewable resources of the State lands consistent with multiple use (AS 38.04.910)

Goals

- Identify resources available on public lands and waters and devise and implement logical management programs for meeting public and private needs for allocation of these resources while optimizing current and future public benefits and complying with sustained yield principles

Objectives:

- General management objectives which will not be enumerated in detail here are to provide personnel, fiscal, word processing and public information support for the sections directly involved in land inventories, land use planning, and land management and disposal
- Assess demand and supply of land and develop disposal plans
- Design appropriate survey and subdivision criteria for land to be disposed of to include easement and right-of-way

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Management and Classification - Department of Natural Resources - Cont.)

Objectives (Cont.)

- Continue implementation of municipal land entitlement
- Continue to coordinate implementation of the Cook Inlet land exchange
- Develop and maintain region or area land use plans for use of State owned lands (complete Kenai and Ketchikan area, continue work on Susitna, begin work on Fairbanks and Juneau)
- Identify State lands of special interest and develop management plans for them (complete Parks Highway, continue Richardson Highway, begin Glenn Highway and Tanana River)
- Assist in implementation and coordination of local and State Coastal Management Programs and ensure resolution of conflicts between State and district plans
- Maintain and update inventory of State land, water and other resource values
- Continue State land classification program
- Continue policy research and planning activities associated with land exchanges and State selections
- Coordinate input into A95 clearing house and to other government agencies
- Continue to provide municipal land selection assistance and joint planning
- Pursue cooperative planning and management efforts with federal and local governments, native organizations and private owners in selected areas of intermingled land ownership
- Accomplish planning, inventory, classification, and management studies necessary to make proper allocation of 66 million acres to be conveyed to State and proposed D-2 legislation

Programs:

- General Management Program
- Land disposal planning
- Regional and area land use planning
- Special project planning and classification
- Cooperative planning

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Management and Classification - Department of Natural Resources - Cont.)

Type:

- Section within the State Department of Natural Resources

Size:

- 52 PFT requested for FY 80

Structure:

- Sections within the Division of Lands

Geographical Location:

- State-wide responsibilities
- Staff located primarily in Anchorage

Funds:

- $2,250,000 General Fund requested for FY 80
- $33,000 other funds requested for FY 80
- $1,280,000 allocated to management for FY 80
- $1,002,000 allocated to classification program for FY 80

Primary Constituents:

- Land owners
- People who desire State owned Land
- General public as owners in common of State land and natural resources
- Municipalities and local governments

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

TERRESTRIAL PROGRAMS

DATA

- Program cites general discretionary authority of the Department of Environmental Conservation to protect the environment of the State (AS 46.03.020)
- Air pollution control statutes contain no specific provisions to protect fish and wildlife or their habitat (AS 46.03.140-230)
- Authority to control use of pesticides similarly contains no specific provisions to protect fish and wildlife or their habitat (AS 46.03.320)
- Federal statutes providing for the protection of air and water quality cited as authority for these programs contain no specific reference to fish or habitat (PL89-272)

Goals:

- The quality of the air, water, and land resources shall be healthful, productive, and enjoyable for people and shall support a diversity of animal and plant life

Objectives:

- Prevent an increase in the estimated 255,000 exposed to ambient air, not meeting health related standards in FY 80
- Prevent increases in adverse affects to plants and animals caused by man made contaminants
- Reduce the incidence of public exposure to air pollutants that are offensive or obnoxious, from 420 to 340
- Increase permit compliance from 48% to 63% on solid waste management and disposal facilities
- Maintain the number of persons injured or sickened by pesticides, to less than two per year
- Maintain the number of incidences where pesticides cause significant damage to non-target plants and animals to less than two per year

DATA (Terrestrial Programs - Cont.)

Programs:

- Develop and implement government wide car pooling and staggered work hours programs
- Public relations effort to inform the public of the extent of problems, means of control, and health hazards
- Continuation of voluntary motor vehicle inspection and maintenance program in Anchorage, and Fairbanks
- Provide technical assistance to local governments and evaluate the progress made towards achieving standards
- Conduct and oversee ambient air monitoring effort for carbon monoxide in both Fairbanks and Anchorage
- Provide inspection, surveillance, and technical assistance to existing sources of contaminants to ensure that their emissions come into and/or remain in compliance with permits and standards
- Provide new contaminant source review to assure that all major new sources are properly designed to meet all air quality standards
- Conduct ambient air monitoring throughout the State
- Develop a State environmental plan and revise solid waste management regulations with a maximum of public participation
- Develop a formal inventory of solid waste facilities
- Process approximately 50 permits, which act as the major tool for controlling the disposal practices
- Conduct training sessions for municipal decision makers concerning different disposal techniques
- Conduct program devoted to reducing litter
- Encourage resource recovery
- Conduct four major training sessions for commercial pesticide applicators and six minor sessions for single category applicators
- Process an estimated 15 permits for application of pesticides
- Conduct surveillance and enforcement of all commercial applicators
- Conduct investigations to determine if special Alaska labels are warranted for pesticide uses not specified on federal labels

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Terrestrial Programs - Cont.)

Type:

- Division within State Department of Environmental Conservation

Size:

- 15 PFT requested for FY 80

Structure:

- Division within Department of Environmental Conservation
- Organized into three components
- 35% of resources in air quality programs
- 51% of resources in land use programs
- 15% of resources in director's office, (or administration)

Geographical Location:

- State-wide responsibilities
- Staff located primarily in Juneau, but other staff located in major urban areas

Funds:

- $312,000 federal receipts requested for FY 80
- $91,000 General Fund match requested for FY 80
- $285,000 General Fund requested for FY 80

Primary Constituents:

- Applicators of pesticides
- Operators of solid waste disposal sites
- Owners of plants emitting particle contaminants into the air
- General public, wildlife, and habitat that may be damaged, due to improper use or disposal of aforementioned products

DATA (Terrestrial Programs - Cont.)

Problems:

- Some seafood processors dispose of solid waste on land and therefore require permits
- Some seafood processors, particularly fish meal plants, have air quality problems that require permits
- Some seafood processors use certain chemicals such as roach killers, disinfectants, and pesticides and therefore need training in the proper application of these chemicals

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

OIL POLLUTION CONTROL PROGRAM

DATA

- Safety standards and maneuverability features for tank vessels mandated by AS 30.20.020
- Department of the Environmental Conservation shall adopt and maintain a comprehensive, uniform system of traffic regulations for the operation of tank vessels (AS 30.20.030)
- Legislative findings establishing the authority to regulate tank vessel traffic stated that the introduction of crude oil refined petroleum products into the marine, estuarian, and adjacent terrestrial environment was potentially destructive to the valuable species of fish and shellfish harvested in Alaska waters (AS 30.20.010)
- In establishing legislation dealing with oil terminal facilities the legislature declared as its purpose, the protection from danger and damage to the marine, estuarian, and adjacent terrestrial environment, the residents of the State and other interests deriving livelihood from fishing and other marine related activities

Goals:

- The quality of the water and land resources of the State shall be healthful, productive, and enjoyable for people and shall support a diversity of animal and plant life

Objectives:

- Reduce the incidence of stream, lake, marine, and other water significantly failing to meet health related standards due to the discharge of oil and hazardous materials
- Minimize personnel losses due to oil spills

DATA (Oil Pollution Control Program - Cont.)

Programs:

- Maintain the level of tank vessel inspection and transfer operations at 50% of port visits in Alaska
- Decrease the number of oil spills from tanker and terminal operations from an average of ten per month to five per month
- Increase aerial surveillance of tanker routes and fishing fleets from an average of six per month to eight per month
- Decrease the time to settle violations of oil pollution laws, from ten months average time to three months
- Increase the number of spill contingency plans for compliance with State requirements from the present level of eight per year to twelve yearly
- Increase the number of oil spill trainee exercises from one to two per year
- Increase the number of State employees with former oil spill cleanup training from ten to fifteen persons
- Increase the number of spill related seminars and workshops held in Alaska from the present three per year to five per year
- Renew the proof of financial responsibilities submitted by thirty-five operators of tank vessels and oil terminal facilities

Type:

- Section within the State Department of Environmental Conservation
- Section Chief reports directly to commissioner

Size:

- 8 PFT requested for FY 80

Structure:

- Section serving as staff function to commissioner
- Regional offices
- Section chief reports to commissioner

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Oil Pollution Control Program - Cont.)

Geographical Location:

- Statewide responsibilities
- Staff located in Juneau, Soldotna and Valdez

Funds:

- $451,000 General Fund requested for FY 80

Primary Constituents:

- Companies using tank vessels to transport crude oil and petroleum products
- Users of the State's natural resources that might otherwise be contaminated or spoiled by petroleum contamination

Problems:

- Recent court decisions have voided the Alaska Tank Vessel Traffic Regulation Act and prohibited the State from collecting risk charges from virtually all the tankers trading in Alaska
- The State can no longer require or encourage equipment or certain design features on tank vessels
- Court decisions have in essence destroyed the source of funding for oil spill cleanup
- Program not limited to the regulation of oil transfer operations at terminals
- Department's only other effective tool is through requirement for oil spill contingency plans
- Oil pollution program, if it survives through passage of future legislation being developed for terminals and pipelines, etc., will be good

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

DEPARTMENT OF COMMUNITY AND REGIONAL AFFAIRS

DATA

- May advise and assist local governments (AS 44.47.050)
- May carry out administrative functions in unorganized boroughs prescribed by the legislature (AS 44.47.0501)
- May assist in procurring federal and State financial aid for local govenments (AS 44.47.0501)
- Administer revenue sharing, grants, and other forms of financial assistance to local governments (AS 44.47.0501)

Programs:

- Community planning assistance for items such as platting, comprehensive land use, planning and zoning, etc., (AS 44.47.080-100)
- Conduct programs to promote the development of rural areas of the State, primarily for rural development assistance grants (AS 44.47.130) Section 14(c) (III) of the Alaska Native Claims Settlement Act (AS 44.47.150)
- Provide assistance to local governments in the form of training, technical assistance, organizational planning, etc.,.

Type:

- Department within executive branch of State Government

Size:

- 141 positions requested for FY 80

Structure:

- Department organized into five divisions
- Division of Community Planning
- Division of Local Government Assistance
- Division of Manpower
- Division of Community and Rural Development
- Division of Administrative Services

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Department of Community and Regional Affairs - Cont.)

Geographical Location:

- State-wide responsibilities
- Staff located in Juneau, Anchorage, Fairbanks, Nome and Bethel

Funds:

- $27,868,000 General Fund requested for FY 80
- $21,760,000 federal funds requested for FY 80
- $3,819,000 funds requested for FY 80
- Majority of funds above are passed through

Primary Constituents:

- Local governments

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

MUNICIPALITIES OF THE STATE

DATA

- Alaska Statutes and Constitution authorize home rule, first class, second class, and third class boroughs as well as home rule, first class, and second class cities
- Municipalities may exercise powers necessary to provide specific public facilities and services including waste treatment facilities, harbors, wharfs, marine facilities, water course and flood control facilities, and water facilities, among others (AS 29.48.030)
- A municipality may regulate certain specified activities including water pollution control and waste collection and disposal (AS 29.48.035)
- A municipality may adopt ordinances to protect its water supply and watershed and may enforce them outside its boundaries (AS 29.48.037)
- Liberal construction shall be given to all powers and functions of boroughs and cities conferred in Title 29 (AS 29.48.310)
- Specific examples within an innumerated power or function conferred upon boroughs or cities are illustrative of the object and not a limitation on or exclusion from the exercise of a power or function (AS 29.48.330)

Goals:

- Provide citizens with those services that they desire

Objectives:

- Operate facilities and programs to provide the services expected by the citizens

Programs;

- Depends on the municipality and the powers assumed by the municipality

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Municipalities of the State - Cont.)

Type:

- Separate political subdivision of the State

Primary Constituents:

- Citizens residing within the boundaries of the local government

Problems:

- Majority of the land area within the State is unorganized in borough or city form
- Few local governments have taken advantage of the rather liberal powers and functions given them by statute to conduct programs that may affect the development of the salmon fishery
- Coastal Management Program may provide municipalities forming local coastal districts an opportunity to plan and zone habitat areas critical to salmon fisheries and to protect and enhance those resources, but it is a little early to tell what they will do with this possibility
- Types of activities most related to salmon fishery development include development of industrial parks eventually leased to fish processors, building of cold storage plants, leasing of city owned land to fish processors, and use of EDA Grant Funds to construct fish hatcheries.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

OFFICE OF SPECIAL PROJECTS

DATA

- Not specifically established by statute
- Coordinates various activities related to development and implementation of special projects

Goals:

- Provide gubernatorial oversight to State and private development projects and activities

Objectives:

- Coordinate activities of the Alaska Fisheries Council
- Coordinate activities of the Alaska Agricultural Action Group
- Act as gubernatorial representative in several national associations

Programs:

- Coordinate the Alaska Fisheries Council in development of a state-wide enhancement plan for the salmon fisheries (Alaska Salmon Plan)
- Coordinate the Alaska Agricultural Action Group and development of such projects as the Delta Junction Barley Project
- Coordinate the Bottomfish exposition to be held in Anchorage in FY 80
- Provide comment to the various department plans for development activities fees of the gubernatorial policy

Type:

- Section within the Office of the Governor

Size:

- 2 PFT requested for FY 80

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Office of Special Projects - Cont.)

Structure:

- Section within the Office of the Governor

Geographical Location:

- Located in Juneau
- State-wide responsibilities

Funds:

- $171,000 General Fund requested for FY 80

Primary Constituents:

- Commercial fishermen and seafood processors
- Sport and subsistence fishermen
- Farmers
- Consumers of farm and commercial fisheries products

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

OFFICE OF INTERNATIONAL FISHERIES & EXTERNAL AFFAIRS

DATA

- Not specifically established by Alaska statutes
- No specific duties or responsibilities innumerated by statute
- Involved in Pacific Marine Fisheries compact (AS 16 45.010-040)
- Involved in Law of the Sea (AS 44.19.789-799, Treaty - 55/1600 UN January 1, 1942)

Goals:

- Ensure that gubernatorial positions regarding national, State and international marine resources policies are developed and considered in the formulation of national laws and international agreements

Objectives:

- Provide travel, communications, and support to Alaska's members of various fisheries commissions
- Participate in monthly North Pacific and Pacific fishery management council meetings and assist in preparation of council fishery management plans and testify at formal international forms
- Prepare testimony and testify at formal international forms affecting Alaska fisheries and marine mammals
- Chair Alaska's Law of the Sea Commission meetings
- Prepare an Alaska position on the Law of the Sea to present in Washington D.C. and Geneva, Switzerland
- Present Alaska's position on salmon preservation at the International North Pacific Fisheries Commission meeting in Tokyo
- Obtain additional Bowhead Whales for Alaskan subsistence hunters
- Maintain biologically sound fur seal harvest and increase the subsistence take
- Represent Alaska on the U.S. State Department's Ocean Affairs Advisory Commission
- Provide coordination and direction for the Alaska State Asian Office in Tokyo

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Office of Special Projects - Cont.)

Structure:

- Section within the Office of the Governor

Geographical Location:

- Located in Juneau
- State-wide responsibilities

Funds:

- $171,000 General Fund requested for FY 80

Primary Constituents:

- Commercial fishermen and seafood processors
- Sport and subsistence fishermen
- Farmers
- Consumers of farm and commercial fisheries products

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Office of International Fisheries and External Affairs - Cont.)

Programs:

- Refer to preceding "Objectives"

Type:

- Section within the Office of the Governor

Size:

- 2 PFT requested for FY 80
- 3 Temp requested for FY 80

Structure:

- 4 components within this section
- International North Pacific Fisheries Commission component
- International Fisheries component
- Pacific Marine Fisheries component
- Law of the Sea component

Geographical Location:

- State-wide responsibilities
- Staff located in Juneau

Funds:

- $25,000 federal receipts requested for FY 80
- $205,000 General Fund requested for FY 80

Primary Constituents:

- Commercial fishermen and seafood processors
- Subsistence and sports users of sea resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

UNIVERSITY OF ALASKA - SEA GRANT

DATA

Powers and Duties

- Sea Grant is a national program under the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA)
- Sea Grant operates as grantor for aquaculture projects through the University of Alaska Statewide system
- UA Sea Grant Program began seven years ago

Goals

- Provide the people of the State and the nation with knowledge and means of developing, utilizing, and conserving the marine resources of the State and the nation (this knowledge and means shall be developed through a program of teaching, research and advisory services)
- To build at the centers for higher education within Alaska, education and training programs to provide qualified professionals and technicians to meet the requirements for development and management of the marine and coastal resources of the State of Alaska and the nation
- To assist in the development and utilization of Alaska's marine resources and to aid in the understanding, appreciation, and enjoyment of Alaska's coastal and marine environment through the transfer of scientific, technological and other knowledge to industry, government, and the general public
- To provide new information which will assist in the development of new industries, new management techniques, or new harvesting methods which will utilize and conserve the renewable marine resources of Alaska waters

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (University of Alaska - Sea Grant - Cont.)

Accomplishments:

- Aided Regional Aquaculture Association in establishing programs
- Disseminated information regarding development and constraints on development of the commercial fishing industry
- Disseminated information about the marine environment through conferences, universities and public programs
- Aided projects whose purpose is to develop salmon ranching shellfish development, and seafood processing and marketing

Organization:

- Five functional areas: Education and Training; Information and Advisory; Renewable Marine Resource Research; Mineral Resource Research
- Administratively assigned to College of Environmental Sciences, UA Fairbanks
- Policy guidance provided by the Office of the President
- Projects carried out jointly between the program and the various college campuses and research institutes
- Institutes with which Sea Grant operates include: Division of Fisheries, (UA Juneau); Cooperative Extension Service (Division of Community Colleges); Extension and Rural Education (UA Fairbanks); Sheldon Jackson College

Size:

- Thirty plus, professional staff of biologists and educators

Funds:

- The proposed appropriation for 1979 is $299,500 plus increments for salary raises
- Total Program Budget for FY 78-79 is $1,879,300

DATA (University of Alaska - Sea Grant - Cont.)

Issues

- Sea Grant activities are constrained by the length of the budgeting process
- Sea Grant budget has not increased comensorate with increases in the costs of doing business

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

MARINE ADVISORY SERVICE

DATA

Powers and Duties:

- Functionary of UA state-wide system
- Part of UA extension service
- Established 1963
- Head office, Anchorage
- Concerned with: Marine Industry Management, Aquaculture, Commercial Fisheries Assistance and Development, Marine Safety, Seafood Processing Technology, Western Alaska Fisheries Advisory Services, Ocean Engineering Assistance

Organization:

- Advisory Extension Service
- Thirteen professional staff state-wide
- Principal offices in Anchorage and Fairbanks
- Field offices are in Bethel, Cordova, Juneau, Kodiak, Petersburg
- Funding from UA $164,000; Sea Grant $237,000
- Serves public and private interests as an appropriate need arises
- Tends to act as ombudsman solving disputes between State agencies and private sector
- Will respond to private individuals as time permits
- Will study private or public marine problems as staff time and expertise permit

Programs:
Goals:

- Disseminate educational and cultural information
- Provide communication channels through which the University system may best serve as an intellectual, scientific and cultural resource to the people of the entire State

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Marine Advisory Service - Cont.)

Objectives:

- Provide technical information to harvesters, developers and users of marine resources
- Aid in the development of leadership maritime areas and affairs
- Communicate the basic principles of conservation and the philosophy of sustained yield management to the public
- Provide information to and assist coastal communities on problems of coastal stabilization, coastal zone management and development of port facilities
- Provide information and assistance to the various users of marine resources and to help them solve multiple use conflicts
- Provide continuing education on marine safety to the maritime public
- Provide technical assistance and training to the emerging aquaculture industry
- Provide a communication link between the scientific, education and maritime communities so as to refer the needs of the maritime public to the researcher and academician

Accomplishments:

- Contribution to technical aquaculture and other marine literature for Alaska
- Workshops and conferences serving to develop marine resources
- Provided meeting ground for settlement of disputes between user groups and with State or federal agencies
- Providing Advisory Service to private sector where it is not otherwise economically available

Issues:

- MAS must strive to maintain credibility as a neutral source of information
- MAS travel budget cuts have drastically constrained activity
- Overall University Budget cuts have effected MAS ability to serve - future cuts will result in staff level cuts

B. REHABILITATION AND ENHANCEMENT INSTITUTIONS

These institutions have as their primary goal the expansion of the Alaska Salmon Fishery through capital projects and operations in Aquaculture. Aquaculture projects would include both the artificial propogation of salmon as well as various activities enhancing the salmons natural ability to reproduce.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

FISHERIES REHABILITATION AND ENHANCEMENT DIVISION (F.R.E.D.)

DATA

- The 1971 Legislature created F.R.E.D. as a Division of A.D.F.& G. (AS 16.05.090)
- Prior to this time salmon research and management program of A.D.F.& G. were directed toward research in the technology of salmon aquaculture
- Shall develop and continually maintain a comprehensive, coordinated State plan for the orderly present and long-range rehabilitation, enhancement and development of all aspects of the State's fisheries (AS 16.05.092)
- Shall encourage the investment by private enterprise in the technological development and economic utilization of the fisheries resources (AS 16.05.092)
- Shall through rehabilitation, enhancement and development programs do all things necessary to ensure perpetual and increasing production and use of the food resources of Alaska waters and continental shelf areas (AS 16.05.092)
- Shall make a comprehensive annual report to the legislature containing detailed information regarding its accomplishments and proposals of plans and activities for the next fiscal year (AS 16.05.092)

Goals:

- Protection, maintenance, rehabilitation, enhancement and development of the salmon, trout, shellfish and grayling resources of Alaska

Objectives:

- FY 80 egg take of 222 million
- Increase production facilities from 35 to 41
- Maintain habitat improvement program
- Maintain disease research prevention and control program
- Maintain genetic research and control to establish and maintain viability of brood stocks

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Fisheries Rehabilitation and Enhancement Division (F.R.E.D.) - Cont.)

Objectives (Cont.)

- Develop comprehensive regional salmon plans to include all public and private institutions
- Establish cooperative agreements with other agencies to prevent duplication of basic research, applied research, and capital investment
- Conduct culture training for all personnel (both public and private)
- Conduct fish disease recognition, prevention, and control for all public and private facilities

Programs:

- Securing a staff of highly trained personnel in the fields of biology, salmon husbandry, fish pathology, engineering (plus the use of consultants for design)
- Monitoring the development of salmon technology in other areas of the world for possible application in Alaska
- Testing and refining technology to fit Alaska environmental parameters and potentials
- Construction of fish pass facilities throughout the State
- Establishing inventory and assessment teams for site investigation and evaluation of possible enhancement and rehabilitation opportunities (this includes industrial spin-off opportunities such as power developments)
- Laying the groundwork for the development of a long-range coordinated rehabilitation and enhancement plan based upon cost effective technology
- Programs include development and operation of 21 plus hatcheries throughout the State (½ mm adult return in 1978)
- Habitat improvement projects include fish passes and obstacle removal
- Operations projected to result in 47 mm returning hatchery adults in 1993
- F.R.E.D. spends some effort working with other aquaculture organizations, especially with the Regional Aquaculture Association coordinating effort of these various organizations

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Fisheries Rehabilitation and Enhancement Division (F.R.E.D.) - Cont.)

Type:

- Division of A.D.F.& G.

Size:

- 159 PFT requested for FY 80
- 7 PFT requested for FY 80
- 51 Temp requested for FY 80

Geographical Location:

- Organization headquarters in Juneau
- State-wide effort regionalized into Southeastern, Central, Northern and Western Regions

Funds:

- $9,642,000 General Fund requested for FY 80

Issues:

- Genetic and pathological mishaps have clouded some of F.R.E.D.'s successes
- Harvest management policies of the Board of Fisheries have effected F.R.E.D.'s ability to obtain adequate brood stock to a lesser degree than the private aquaculture associations
- F.R.E.D. activities have gained substantial support from the public as measured by $56 million bond authorizations in 1976 and 1978

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

PRINCE WILLIAM SOUND REGIONAL AQUACULTURE CORPORATION (P.W.S.A.C.)

DATA

Powers and Duties:

- Alaska Corporation
- Private non-profit status (IRS 501 (c)(3))
- Recognized by Alaska Department of Fish and Game Commissioner as Regional Association under AS 16.10.380
- Governed by Salmon Hatcheries Act of 1974 and other laws applying to Alaska Corporations
- Operations controlled by permitting authority vests in Commissioner of Fish and Game (A.D.F.& G)

Organization:

- Regional Aquaculture Association, organized similar to a cooperative
- Staff of employees plus active involvement by Board of Directors
- Interacts with various permitting agencies including A.D.F.& G., U.S. Forest Service and local borough authorities
- Region covers all Prince William Sound, and the Copper and Bearing Rivers
- Hatchery location at Port San Juan and Prince William Sound
- Funding provided through voluntary assessment of $.02 per fish, (this is matched by the processor)
- Additional funding sources include Planning Grant from A.D.F.& G. and aid from Coastal Management Impact Fund and Sea Grant Program
- Additional funding sources include Planning Grant from A.D.F.& G. and aid from Coastal Management Impact Fund
- Additional program support has come from Sea Grant programs to study various features of salmon aquaculture in Prince William Sound, including economics, accounting systems, legal implications, and some biological questions

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Prince William Sound Regional Aquaculture Corporation (PWSAC) - Cont.)

Goals and Objectives:

- These have not been verbalized into a concise statement, they include
- Expand hatchery capacity
- Provide net benefit to user groups
- Increase ability to control aquaculture development
- Develop abilities of the Regional Planning Team

Programs:

- Hatchery at Port San Juan currently rearing ½ million eggs taken from 1978 brood stock
- P.W.S.A.C. works closely with A.D.F.& G., F.R.E.D. Division, who operated two other facilities in the region at Main Bay and Cannery Creek
- P.W.S.A.C. is proposing expansion of the Port San Juan Hatchery to 60,000,000 pink and chum egg capacity
- P.W.S.A.C. is also considering additional hatchery sites
- P.W.S.A.C. has not accomplished an impact on the salmon harvest of Prince William Sound at this time (first run of hatchery chum should begin to return this year)
- P.W.S.A.C., like other regional associations plays the economic role of representing the user groups in the development of aquaculture

Issues:

- P.W.S.A.C. shares the brood stock constraints faced by other regional aquaculture associates
- A.D.F.& G. and Board of Fisheries Regulations regarding harvest management escapement have posed a serious threat to P.W.S.A.C.s' continued existence
- P.W.S.A.C. also faces A.D.F.& G. Regulations which may restrict its effort to transplant hatchery salmon (this is seen as an issue of constraint within the region)

DATA (Prince William Sound Regional Aquaculture Corporation (PWSAC) - Cont.)

Issues (cont.)

- P.W.S.A.C. is not affected by the law suit against the assessments in the southeastern regions because its assessment is voluntary $.02 per fish voluntary assessment is matched by the processor
- P.W.S.A.C. is constrained by limits of the Commerce and Economic Development Loan Program
- P.W.S.A.C. would like to expand its loan capacity to a more economic point but would be unable to obtain more than $3,000,000 financing
- P.W.S.A.C. operations are more difficult because of lack of a valid planning structure for salmon aquaculture development at the State level

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

NORTHERN SOUTHEASTERN REGIONAL AQUACULTURE ASSOC.

DATA

Powers and Duties:

- Alaska Corporation
- Private non-profit status (IRS #501 (c) (3)
- Recognized by Alaska Department of Fish and Game Commissioner as Regional Association under (AS 16.10.380)
- Governed by Salmon Hatcheries Act of 1974 and other laws applying to Alaska Corporations
- Operations controlled by permitting authority vested in Commissioner of Fish and Game (ADF&G)

Organization:

- Regional Aquaculture Association, organized similar to a cooperative
- Staff of employees plus active involvement by Board of Directors
- Represents fishermen in ADF&G Fishing Districts 9 through 16
- Funding provided by Commerce and Economic Development Loan, and a voluntary assessment on all salmon harvested sold in the region (assessment was self imposed by vote of the commercial fishermen)
- Interacts with various permitting agencies including ADF&G, U.S. Forest Service and local borough authorities

Goals:

- Assist in the development of a balanced regional salmon program designed with adequate emphasis on management technology, habitat improvement and cost-effective artificial propagation
- Encourage and support the development of improved management technology and data base
- Assist in the development of the maximum production capabilities of current unused or underutilized salmon habitats

DATA (Northern Southeastern Regional Aquaculture Association - Cont.)

Goals: (cont.)

- Develop in conjunction with State, federal and private organizations, a cooperative propagation program which adequately addresses user group input, sound biology and cost-effective strategies

Objectives:

- Over the long-term, the Association should have a primary purpose of developing self-perpetuating rather than artificially-sustained salmon stocks
- Projects should be cost-effective, pay their own way
- Major debts should be avoided as much as possible
- Participation of public agencies, municipalities and private fisheries interests should be encouraged in order to minimize direct cost to the Association and maximize interagency cooperation
- Association investments should focus on projects which can be stopped without incurring major financial losses if projects fail
- Any cost recovery projects must be defined carefully prior to implementation and the recovery process publicized as well ahead of expected harvest time to avoid public misunderstandings
- In brood stock development (1) native stocks should receive first priority; (2) stocks transplanted to an incubation or a rearing station should be released back to the original streams; (3) release of stocks in non-natal streams will be generally discouraged

Programs

- Chilkat River habitat improvement (probable project)
- Sitka Sound Coho Lake Stocking Program (probable project)
- Salmon Creek, Gastineau Channel summer chum and coho project (probable project)

DATA (Northern Southeastern Regional Aquaculture Association - Cont.)

Programs (Cont.)

- Pilot commercial harvest of dolly varden at selected nonurban areas (probable project)
- Sitka Sound coho, pink and chum central incubation facility (feasibility study)
- Cooperative projects: coho program at Angoon; coho, pink and chum program at Kake; pink and chum program at Hoonah (feasibility study)
- Cooperative sockeye program (feasibility study)
- Cooperative chinook program (feasibility study)
- Taiya Inlet, Lynn Canal pink and chum project (feasibility study)
- Cooperative habitat alteration and improvement field survey (feasibility study)
- NSRAA play an economic role of representing the user groups in development of salmon aquaculture
- NSRAA play an economic role of representing the user groups in development of salmon aquaculture
- NSRAA has not had significant impact on salmon runs because of its short history (future operations will increase the salmon runs to the region)

Issues:
Funding Shortage:

- Because of a class action lawsuit filed March 1978 by twelve fishermen challenging the constitutionality of the mandatory assessment legislation processors have withheld the major portion of assessment monies collected in 1978 for fear of liability
- Without the use of this money, NSRAA will probably not be able to implement any projects
- The legal problems are being addressed, and this plan is proposed with the anticipation that funding will be available for project initiation in 1979
- Brood stock availability is one of the crucial issues NSRAA faces along with all other hatchery programs in the State
- Alaska Board of Fisheries and ADF&G harvest management and escapement policies affect the ability to obtain brood adults for egg-take

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

SOUTHERN SOUTHEAST REGIONAL AQUACULTURE ASSOC.

DATA

Powers and Duties:

- Alaska Corporation
- Private non-profit status IRS #501 (c) (3)
- Recognized by Alaska Department of Fish and Game Commissioner as Regional Association under AS 16.10.380
- Governed by Salmon Hatcheries Act of 1974 and other laws applying to Alaska Corporations
- Operations controlled by permitting authority vested in Commissioner of Fish and Game (ADF&G)

Organization:

- Regional Aquaculture Association, organized similar to a cooperative
- Staff of ten employees plus active involvement by Board of Directors
- Represents fishermen in Alaska Department of Fish and Game fishing districts one through eight
- Funding provided by Commerce and Economic Development Loan, and a 3% assessment on all salmon harvested and sold in the region
- Interacts with various permitting agencies including ADF&G, U.S. Forest Service and local borough authorities

Goals:

- To enhance salmon production through the use of natural and artificial means, utilizing the most appropriate technology available for the region
- To optimize the social and economic benefits to the user groups through enhanced salmon runs
- To maintain a representative and flexible organizational structure that facilitates the enhancement of salmon production, emphasizes informed participation by all parties, stresses management practices which create a high performance climate and utilizes effective planning and control systems

DATA (Southern Southeastern Regional Aquaculture Association - Cont.)

Goals: (cont.)

- To develop consistent sources of revenue enabling the organization to maintain financial stability
- To manage the association's total activities in order to minimize costs and maximize benefits to user groups
- To propose, through appropriate channels and within legal limitations policy, regulations and plans that are required to effect the enhancement of salmon production

Objectives:

- Put Whitman Lake Hatchery into operation within budget by July 15, 1979
- Have Whitman Lake Hatchery at optimum productive capacity with 1979 brood
- Operate Whitman Lake Hatchery in the most technologically effective manner to achieve the highest total survival rates
- Develop and maintain an effective cost containment program which will hold cost to available financial resources
- Develop and implement an organizational plan and administrative capability for overall day-to-day management of the Association
- Develop and maintain systems and procedures for use by the Board and Management to evaluate performance of the organization
- Provide an economic benefit to peripheral segments of fisheries industry
- Develop strategies and undertake activities that will increase active participation of the user groups and maintain a constant source of revenue through user group investment
- Examine opportunities for additional hatchery facilities, rehabilitation projects and other enhancement projects
- Develop and propose required policy changes that will increase the ability of S.S.R.A.A. to effectively enhance salmon
- Develop sources of adequate financing for regional planning activities and management operation of regional projects

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Southern Southeastern Regional Aquaculture Association - Cont.)

Programs:

- Currently completing construction of $2.5 million permanent hatchery facility at Whitman Lake, six miles south of Ketchikan (hatchery designed to rear over 20 million smolts)
- Have not produced a run of salmon (first eggs taken from 1978 brood stock and will not return for several years)
- S.S.R.A.A. plays the economic role of representing the user groups in the development of salmon hatcheries

Issues:

- Suit was filed in Alaska District Court against Northern Southeastern Regional Aquaculture Association then expanded to include S.S.R.A.A. Suit claims that the assessment is unconstitutional because it allegedly transfers taxing authority to a private enterprize. Because the suit involves a constitutional question, it could be tied up in appeals for many years
- Brood stock availability is one of the crucial issues S.S.R.A.A. faces along with other hatchery programs
- Board of Fisheries and ADF&G policy regarding harvest management and escapement affect the ability to obtain brood adults for egg-take
- Construction completion of the Whitman Lake hatchery has encountered some difficulties
- S.S.R.A.A. must expedite construction to meet deadline of July 15, 1979. If this deadline is not met, complications will arise with summer chum egg-take

Constraints:

- The constraints on S.S.R.A.A.'s activities tend to fall into three categories; authority, data, attitude and role of State and federal agencies
- No current long-range plan to provide a specific role for S.S.R.A.A. activities

DATA (Southern Southeastern Regional Aquaculture Association - Cont.)

Constraints: (cont.)

- Lack of a well documented index of knowledge on available aquaculture technology
- Cooperation of fishermen limited in time and energy spent in the association
- Alaska Department of Fish and Game, recommends that the State should be primarily responsible for salmon enhancement and rehabilitation development
- Other fisheries Divisions (Commercial Fish and Sport Fish) have not formulated positions on the private non-profits in salmon enhancement
- The influence of D-2 on federal control of fisheries, other industries (timber and mining) lobbying efforts, and the drying up of State financial support of salmon aquaculture projects create additional potential threats

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

COOK INLET REGIONAL AQUACULTURE ASSOCIATION

DATA

Powers and Duties:

- Established under AS 16.10 Article 8, Salmon Hatcheries, 1974
- Recognized by Commissioner, ADF&G
- Private corporation under laws of Alaska
- Nonprofit corporation under 501(c)3 of IRS Code

Organization Type:

- Alaska Corporation
- Resembling cooperative
- To be representative of all commercial and private fishing interests in region

Size:

- Three full time employees (General Manager, Secretary, Biologist)
- Board of Directors

Geographic Location:

- Corporate office in Soldotna
- Coverage includes all waters draining into Cook Inlet, including those on the Kenai Peninsula and the Susitna

Funds:

- Provided by 2% royalty assessment on salmon harvested commercially
- FY 78 approximately $500,000
- Processors very cooperative in paying assessment based on high level of trust of the region
- Many commercial sales in region are not assessed because of the many small buyers who cannot be controlled

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Cook Inlet Regional Aquaculture Association-Cont.)

Primary Constituents:

- Commercial and private fishermen in region
- Cooperative relationships with ADF&G and USFS

Goals:

- To benefit all user groups in all geographic areas uniformly at the same time, through increased salmon runs resulting from aquaculture projects

Programs:

- Paint River habitat rehabilitation cooperative with ADF&G
- 6 Mile Creek habitat rehabilitation cooperative with USFS
- Discuss hatchery possibilities with interested private enterprises
- Study use at beaver dam passages in the region, to allow adult salmon to navigate waters blocked by beaver dams

Accomplishments:

- Placed 11 beaver dam passages in 1978 for study in 1979
- Developed cooperative relations with ADF&G and USFS to accomplish stream rehabilitation projects
- Made substantial headway on a regional plan for aquaculture development

Issues:

- Sport fishermen are a more significant factor in the region. This changes the nature of regional activity compared to other regional aquaculture associations
- Need good working user group relations not present now
- Need source of realistic defendable data for economic analysis
- Lack of business experience and understanding among board members

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Cook Inlet Regional Aquaculture Association-Cont.)

Opportunities:

- Strong cooperative relationship with processors, ADF&G and USFS
- Good fishing resource from which to start

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

IMAKPIK REGIONAL AQUACULTURE CORPORATION

DATA

Powers and Duties:

- Established under AS 16.10 Article 8, Salmon Hatcheries, 1974
- Recognized by Commission, ADF&G
- Private corporation under laws of Alaska
- Nonprofit corporation under 501(c)3 of IRS Code

Type:

- Resembles cooperative, representing all user groups in region

Size:

- Two staff employees

Structure:

- Funded in part through Bristol Bay Native Association's functionary Bristol Bay Regional Advisory Council

Geographical Location:

- Headquartered in Dillingham
- Represents user groups in Bristol Bay management district (ADF&G); from Cape Newingham to Cape Mistikov
- Represents 23 of 29 Bristol Bay villages

Funds:

- State $100,000 Regional Planning Grant for FY 79-80
- Assistance from Bristol Bay Regional Advisory Council

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Imakpik Regional Aquaculture Corporation - Cont.)

Primary Constituents:

- Represent all user groups in region
- Cooperative relationship with ADF&G

Programs:

- Imakpik is just getting started as a regional aquaculture corporation
- Only accomplishment to date has been preparation of an information leaflet which has not yet been published
- Studying involvement in lake fertilization, predator control, habitat alteration, and increasing management and prediction data base and reliability

Problems:

- Unlikely that Imakpik will be able to use the assessment method of starting operations because of existing taxes on Bristol Bay catch
  - 3% raw fish tax by Bristol Bay Borough
  - Permit buy backs will be charged to remaining fishermen at 0-7% of gross earnings
  - Too many taxes already
  - About 60% of permit holders are nonresidents - they don't appreciate the importance of aquaculture as do the residents
  - Poor communication in the Bristol Bay area hampers regional activity

C. PERMITTING INSTITUTIONS

These institutions serve as a regulator of human activity impacting the habitat utilized by salmon in Alaska. These institutions are responsive to requests by individuals wishing to use the habitat. Permits require these potential users to operate within guidelines consistent with the primary goals of habitat use.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

HABITAT HAUL ROAD MONITORING PROGRAM

DATA

- Not specifically established by statute
- Program cites general responsibility to maintain and protect fish and game resources of Alaska (AS 16.05.020)
- Program cites authority to USF and WS (AS 16.05.050)
- Program cites authority to require construction of fish ways around stream obstructions (AS 16.05.840)
- Cites responsibility for protection of an anadromous fish streams (AS 16.05.870 & AS 16,10,010)
- Cites responsibility for protection of endangered species habitat (AS 16.20.105)

Goals:

- Eliminate or minimize adverse impacts of construction and maintenance of Yukon River to Prudhoe Bay Haul road upon fish and wildlife resources and their habitat
- Assure adequate recompensation and mitigation for fish and wildlife resources and habitat which are adversely affected by construction and operation of Yukon River to Prudhoe Bay haul road

Objectives:

- To issue AS 16.05.870 permits required for Haul road maintenance within seven working days of receipt of request
- To field review and verify 95% of all AS 16.05.870 permits to assure reasonableness of permit conditions and compliance by permitee
- To review 95% of plans for maintenance of the haul road to optimize protection of fish and game habitat

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Habitat Haul Road Monitoring Program - Cont.)

Programs:

- Assist the Department of Transportation and Public Facilities in remedying fish passage problems caused by inadequately sized drainage structures on the Haul road
- Coordinate, review and function as Department of Fish and Game representative and planning and negotiations concerning the Haul road
- Review, issue permits, and monitor Haul road maintenance activities to ensure compliance with permits and environmental stipulations
- Coordinate and cooperate with other state and federal offices on an interdisciplinary approach for overseeing all aspects of pipeline and Haul road construction and maintenance
- Function as Department of Fish and Game representative advising the State Pipeline Coordinator and Department of Transportation and Public Facilities on Haul road impacts to fish and wildlife resources

Type:

- Sub unit of Habitat Section within the State Department of Fish and Game

Size:

- 1 PFT requested for FY 80

Structure:

- Sub unit of Habitat Section
- Sub unit of reports to Chief of Habitat Section

Geographical Location:

- Staff located in Anchorage and Fairbanks
- Haul road north of Yukon River

Funds:

- $55,000 General Funds requested for FY 80

DATA (Habitat Haul Road Monitoring Program - Cont.)

Primary Constituents:

- Organization responsible for maintenance of Haul road (State Department of Transportation and Public Facilities or its subcontractors)
- Alyeska Pipeline Service Company

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

HABITAT PIPELINE SURVEILLANCE PROGRAM

DATA

- Not specifically established by statute
- Program cites general responsibility to maintain and protect fish and game resources of Alaska (AS 16.05.020)
- Program cites authority to assist USF and WS (AS 16.05.050)
- Program cites authority to require construction of fish ways around stream obstructions (AS 16.05.840)
- Cites responsibility for protection of an anadromous fish stream (AS 16.05.870 and AS 16.10.010)
- Cites responsibility for protection of endangered species habitat (AS 16.20.105)
- Prevent damage to the environment including damage to fish and wildlife, habitat and aquatic life along the route of the Trans-Alaska Pipeline (PL 930-153)

Goals:

- Monitor the development, design, preconstruction planning, and initial construction for the Alaska Natural Gas Trasportation System to ensure minimum environmental degradation
- Monitor operations of the Trans-Alaska Oil Pipeline to ensure that environmental, technical, and habitat resource problems arising as a result of construction and operation of the line are minimized and resolved in the State's interest
- Provide technical expertise to the Commissioner of the Department of Fish and Game on other resource development projects

Objectives:

- Review and monitor 100% of preconstruction and initial construction activity related to the state's technical and environmental interests for the Alaska Natural Gas Transportation System

DATA (Habitat Pipeline Surveillance Program - Cont.)

Objectives (cont.)

- Monitor the adequacy of the rehabilitation work and maintenance performed within the pipeline corridor
- Review and monitor any proposed development within the pipeline corridor

Programs:

- Issue AS 16.05.870 permits required for gas line construction
- To field review and verify 100% of all AS 16.05.870 permits to show reasonableness of permit conditions and compliance permitee
- Reveiw 100% of plans for design, preconstruction and maintenance of gas pipeline to optimize protection of fish and game habitat
- Establish joint surveillance and monitoring agreement (required under section 7 (a) 5 (A) of Alaska Natural Gas Transportation Act of 1976)
- Identify, plan, and commence limited scope investigations to provide baseline information to pipeline designers to avoid impact on fish and wildlife habitat
- Review 90% of plans for any development within the corridor to optimize protection of fish and wildlife habitat

Type:

- Sub unit within Habitat Section of State Department of Fish and Game

Size:

- 13 PFT requested for FY 80
- 8 PPT requested for FY 80

Structure:

- Sub unit of Habitat Section
- Sub unit reports to Chief of Habitat Section

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Habitat Pipeline Surveillance Program - Cont.)

Geographical Location:

- Staff located in Anchorage and Fairbanks
- Responsibilities north of the Yukon River

Funds:

- $1,691,000 program receipts requested for FY 80

Primary Constituents:

- Owner of gas pipeline company
- General public who use the State's fish and wildlife resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

HABITAT PROTECTION PROGRAM:

DATA

- Not specifically authorized by statutory reference
- General authority of Title 16 of Alaska Statutes cited as providing a Habitat Protection Section with the powers and duties to protect fish and wildlife habitat in Alaska

Goals:

- Conserve, maintain and/or improve integrity of all freshwater, marine, and terrestrial fish and wildlife habitats in Alaska in order to optimize fish and wildlife populations and to maintain species diversity
- When more than one division within the Department of Fish and Game is affected, or when more than one department of State government is affected, to develop and present in a timely manner, a comprehensive departmental response to actions affecting fish, wildlife, and/or their habitat and to foster a broad appreciation of habitat values, issues, and concerns
- Conduct a regulatory program which provides for maximum use and enjoyment of land and water resources consistent with continued maintenance and protection of fish, wildlife, and their habitat
- Conduct a program of resource analysis and planning toward the end of describing and protecting fish, wildlife, and habitat resources

Objectives:

- Identify and recommend for special management attention, areas of particular fish, wildlife, and/or habitat values
- Protect the biological integrity of all anadromous streams and freshwater rearing areas in Alaska
- Through maximum governmental and interagency involvement recommend best management practices for application to management of habitat resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Habitat Protection Program - Cont.)

Objectives: (cont.)

- Maintain viable estuarian and offshore rearing habitat
- Promote and protect access to public fish and wildlife resources
- Respond to certain federal and state regulatory or review actions (such as solid waste disposal, water appropriation, dam construction, tidelands use)
- Review and comment on oil and gas leasing activities
- Participate in interagency and/or intergovernmental land and water use planning and management
- Develop in-house habitat evaluation and classification capability
- Develop in-house resource information management program
- Participate and evaluate and cleanup of contaminant spills into the waters or onto the land of the State
- Review and comment on State and federal easement and right-of-way actions
- Fish habitat protection includes identification and protection of freshwater spawning and rearing areas, estuarian rearing areas, and offshore rearing areas
- Wildlife habitat protection includes recommendation for best management practices, promotion and protection of access to public resources, and identification and recommendation of critical habitat areas, game sanctuary areas, and game refuge areas

Programs:

- Participates in the Alaska Coastal Management Program
- Participates in the State's Coastal Energy Impact Program
- Process applications for Title 16 permits to approve, deny, or condition any activity which would affect anadromous water bodies, activities obstructing fish passage, or activities proposed for legislatively designated critical habitats (includes pre-permit issuance, site inspection, project evaluation and permit processing, and post-permit issuance surveillance)

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Habitat Protection Program - Cont.)

Type:

- Section within the State Department of Fish and Game

Size:

- 39 PFT requested for FY 80

Structure:

- Section organized into four components
- 21% of resources in wildlife habitat protection
- 14% of resources in administration and support
- 36% of resources in fish habitat protection
- 31% of resources in special federal projects

Geographical Location:

- State-wide responsibilities
- Staff located state-wide

Funds:

- $49,000 federal receipts requested for FY 80
- $830,000 General Fund requested for FY 80
- $612,000 Fish and Game Fund requested for FY 80

Primary Constituents:

- Entire public in general
- Commercial, sports, and subsistence users of fish and game resources

Problems:

- Not enough funds for adequate research and protection of habitat areas

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

GAS PIPELINE SURVEILLANCE PROGRAM

DATA

- AS 46.03.020 (10)(B) gives the Department of Environmental Conservation discretionary ability to adopt regulations necessary to safeguard standard petroleum and natural gas pipeline construction, operation, modification, or alteration
- AS 16.10.010 (3) makes it unlawful to render waters inexcessable or uninhabitable for salmon without obtaining a permit from the Department of Environmental Conservation
- Federal Statutes relating to the protection of air and water quality, while not specifically referring to fish or habitat, are also cited as statutory basis for the gas pipeline surveillance program (PL 89-272)

Goals:

- To protect, maintain and improve the environment and to encourage the wise use of the State's natural resources by monitoring the criteria development, design, and preconstruction planning for the Alaska Natural Gas Transportation System, to ensure a minimum of degradation

Objectives:

- Review and monitor 100% of the preconstruction and initial construction activity related to the State's technical environment interests
- Perform design reviews of 1) final route selection; 2) selections of all new facilities such as access roads, material sites, disposal sites, etc; 3) design review of all camps and associated facilities relative to permits from the department; 4) coordination of permit conditions and design and review comments with other agencies; 5) review of other preliminary activities

DATA (Gas Pipeline Surveillance Program - Cont.)

Programs:

- Ensure that the gas pipeline is designed, planned, and constructed within the limits set by the gas pipeline stipulations and State environmental standards
- Ensure that Alcan's 300 plus or minus disposal sites do not violate Alaska's water quality or solid waste regulations
- Ensure that Alcan's fifteen compressor stations do not violate Alaska's air quality regulations
- Ensure that Alcan's fourteen plus or minus construction camps do not violate Alaska's water quality, waste water, solid waste, water supply, air quality, or oil pollution regulations
- Ensure that construction of Alcan's 731 miles of final pipeline alignment and work pad, 125 access roads and 165 stream crossings do not cause any degradation to the environment
- Ensure that Alcan's 200 plus or minus material sites do not violate Alaska's water quality or solid waste regulations
- Identify, plan, and commence limited scope investigations to provide baseline information necessary for pipeline designers to avoid or minimize gas pipeline impacts to the environment

Type:

- Section within the Department of Environmental Conservation

Size:

- 15 PFT requested for FY 80
- Section chief reports to the Commissioner
- Section coordinates with the Office of the Governor and the Department of Natural Resources
- Section cooperates closely with the Pipeline Coordinator's Office

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Gas Pipeline Surveillance Program - Cont.)

Geographical Location:

- Responsibilities primarily north and east of Fairbanks
- Staff located in Anchorage and Fairbanks

Funds:

- $611,000 program receipts requested for FY 80

Primary Constituents:

- Northwest Alaska Pipeline Company
- General public who use the State's natural resources either for hunting, fishing, or aesthetic purposes

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

GENERAL PIPELINE SURVEILLANCE PROGRAM

DATA

- Established by administrative order of the Governor

Goals:

- Monitor the development, design, preconstruction planning, and initial construction planning for the Alaska Natural Gas Transportation System to ensure a minimum of environmental degradation
- Monitor the operations phase of the Alaska Oil Line to ensure environmental and technical resource problems arising as a result of initial construction and operation are minimized and resolved in the State's interest
- Provide technical expertise to the Commissioner of Natural Resources and other resource development projects

Objectives:

- Review and monitor 100% of preconstruction and initial construction activity related to the State's technical and environmental interests
- Monitor the adequacy of the rehabilitation work performed within the Alyeska Pipeline Corridor and mitigate pepeline integrity and public safety problems resulting from the operations phase of the pipeline
- Increase the effectiveness in developing other resource projects in the State by having technical and environmental expertise available to the Commissioner of Natural Resources

Programs:

- Act as coordinator and central point of contact between pipeline owner companies and all other State agencies involved in pipeline monitoring and permit activities

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (General Pipeline Surveillance Program - Cont.)

Programs: (cont.)

- Secure approval of the joint federal and State technical, environmental and socio-economic stipulations and the right-of-way lease for the Trans-Alaska Natural Gas Pipeline System
- Develop technical, environmental and socio-economic criterial for use by Northwest Alaska Pipeline Company in preparing specific plans, designs and construction procedures meeting requirements of the lease stipulations
- Continue permitting action for field exploration to gather baseline data consistent with environmental and technical requirements
- Complete the approved restoration program for the oil pipeline and related facilties
- Provide technical expertise to enable early development of corrective technical and environmental measures necessary to avoid potentially damaging environmental changes and pipeline integrity problems
- Provide one window permitting adopted by the State and various federal agencies

Type:

- Section within the Office of the Governor

Size:

- 21 PFT requested for FY 80
- 3 PFT requested for FY 80

Structure:

- Section organized into three components
- Gas pipeline review component
- Oil pipeline surveillance component
- Pipeline surveillance special projects component

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (General Pipeline Surveillance Program - Cont.)

Geographical Location:

- Responsibilities primarily north of the Yukon with responsibility east of Fairbanks to the Alaska border
- Office to be transferred from Anchorage to Fairbanks beginning in FY 80

Funds:

- $50,000 General Fund requested for FY 80
- $1,658,000 program receipts requested for FY 80

Primary Constituents:

- Northwest Alaska Pipeline Company
- Alyeska Pipeline Company
- General public who value the State's natural resources for their fish, wildlife and aesthetic value

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

BUREAU OF LAND MANAGEMENT AND WILDLIFE PROGRAM

DATA

Powers and Duties:

- Enacting Legislation and Federal Land Management Policy Act PL 94-579 10/21/76
- Division of BLM under Department of Interior
- Coordinate Aquaculture Programs on BLM lands statewide

Size:

- 8 fisheries biologists

Structure:

- Department of Interior, Bureau of Land Management, Division of Resources, Wildlife Program
- Regionally administered from Fairbanks and Anchorage

Funds:

- Approximately $200,000 annually
- Special extension for FY 78 may be extended through FY 79 to $70,000
- All from BLM budget
- Shared with ADF&G and other agencies as appropriate

Primary Constituents:

- Work in conjunction with ADF&G
- Some interaction with USFS

Goals:

- Establish guidelines for public land use planning which will limit use to "sustainable yield"
- Manage public lands in a manner which will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water and archeological resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Bureau of Land Management and Wildlife Program - Cont.)

Programs:

- Observation of stream blockage preventing salmon spawning in 40 mile country
- Observation of effects of Bear Creek fire on spawning grounds
- Will recommend appropriate corrective activity in conjunction with ADF&G

Economic Role.

- Final authority and often original impetus for any corrective rehabilitation activity with respect to salmon aquaculture on BLM administrated lands

Problems:

- Budget has not increased with price level - effect decline

Opportunities:

- Interaction and fund sharing with ADF&G (all divisions) provide greatest utilization of budget and resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

ALASKA COMMERCIAL FISHERIES ENTRY COMMISSION

DATA

- Established by AS 16.43.010 to regulate and control entry into the commercial fisheries of Alaska
- Commission is a regulatory and quasijudicial agency of the State (AS 16.43.020)
- Commission consists of three members appointed by the Governor and confirmed by the legislature (AS 16.43.020)
- Commission shall regulate entry into the commercial fisheries and establish priorities and qualifications for issuance of entry permit (AS 16.43.100)
- Commission shall issue entry permits and interim use permits (AS 16.43.100)
- Commission shall establish the optimum number of entry permits (AS 16.43.100)
- Commission shall administer the buy back program to reduce the number of oustanding permits to the optimum number of permits (AS 16.43.100)
- Commercial taking of fisheries resources is illegal without a valid entry permit or a valid interim use permit (AS 16.43.140)
- Commission shall establish optimum number of entry permits for each fishery based upon economy and the number of fish available for commercial use (AS 16.43.290)
- The Commission may revise the optimum number of permits for a fishery (AS 16.43.300)
- The Commission shall establish and administer a buy back program to purchase entry permits, vessels, and gear at fair market value when the number of entry permits exceeds the optimum number of entry permits (AS 16.43.310-3201)

Goals:

- Promote the conservation and sustained yield management of Alaska's fisheries resources
- Promote the economic health and stability of commercial fishing in Alaska

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Alaska Commercial Fisheries Entry Commission - Cont.)

Objectives:

- Issue both original and renewal permits
- Issue commercial fishing vessel licenses
- Complete processing of applications and conduct hearings and adjudications
- Establish an optimum level of effort which must consider both management and economic factors (the assessment of management needs is provided by the Alaska Department of Fish and Game; the Commission together with the affected fishermen determines the economic optimum level of effort.)
- Change data processing system from a batch mode to an on-line system
- Establish administrative structure and rationale for buy back and distressed fisheries
- Continue monitoring all unlimited fisheries for resource depletion and economic hardship
- Provide support such as social or economic research, data analysis or drafting of portions of management plans with the North Pacific Fisheries Management Council
- Begin buy back in distressed fisheries
- Microfiche conversion of all permanent record files
- Provide application assistance for new fisheries that are brought under entry limitation

Programs:

- Administer entry limitation on 24 salmon net fisheries, salmon power trawl fishery, three herring per seine fisheries, and the Southeastern herring gill net fishery
- Prioritize applicants for entry permits based upon the degree of economic dependence upon the fishery and extent of past participation in the fishery
- Monitor open access fisheries by using Alaska Department of Fish and Game estimates of management optimum numbers and Commercial Fisheries Entry Commission's estimated economic optimum number to determine when entry limitation will be necessary

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Alaska Commercial Fisheries Entry Commission - Cont.)

Type:

- Section within the Office of the Governor

Size:

- 27 PFT requested for FY 80
- 3 Temp requested for FY 80

Structure:

- Commission consisting of three members
- Staff are hired and responsible to commission
- Statewide responsibilities
- Staff located primarily in Juneau

Funds:

- $1,337,000 General Fund requested for FY 80

Primary Constituents:

- Commercial fishermen
- Other users of fisheries resources that are widely managed so as to not decimate the resource
- Consumers of commercial salmon products

Problems :

- No fixed optimum numbers because resource, market, management techniques, and socioeconomic conditions are constantly changing
- This requires continuing monitoring process of each fishery on a periodic basis to reevaluate the estimated optimum number of entry permits for that fishery
- Litigation pending before Supreme Court challenging constitutionality of criteria used to award limited entry permits (Commercial Fisheries Entry Commission or John E. Apokedak)
- Funds not provided for proposed buy back program in the Prince William Sound drift gill net fishery

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

ENVIRONMENTAL PLANNING AND PROGRAM COORDINATION

DATA -

- Shall formulate and annually review and revise a statewide environmental plan for the management and protection of the quality of the environment and the natural resources of the state
- AS 46.35.020 proposes to establish a simplified procedure for obtaining federal, state, and local permits and to provide a better opportunity for public input on proposed uses of natural resources and related environmental concerns prior to agency decision on applications for permits
- The department shall establish a master form in which a person proposing a project may request the issuance of all permits necessary for the project (AS 46.35.030)
- Upon receipt of the completed master application, the department shall forward a copy to all agencies of the State and local municipalities, who shall respond back to the department within a period not exceeding fifteen days from receipt (AS 46.35.030)
- Permit includes waste water disposal permit, solid waste disposal permit, open burning permit, anadromous fish protection permit, critical habitat area permit, State game refuge land permit encroachment permit, State park incompatible use permit access roads permit, water well permit, brine and other salt water waste disposal permit, etc., (see AS 46.35.200 (4) for complete list of permit covered)
- Program also cites general powers of the department (AS 46.03.020)

Goals:

- The quality of air, water, and land resources shall be healthful, productive, and enjoyable for people and shall support a diversity of plant and animal life

DATA (Environmental Planning and Program Coordination - Cont.)

Objectives:

- Increase the number of persons informed about environmental problems in Alaska and the response of State government to these problems
- Increase the number of sets of review criteria for major types of development
- Maintain at 0 the number of permit approvals and plan reviews issued by the department which are not consistent with department statutes and regulations
- Maintain at 0 the number of recommendations for approval, denial or special conditions on permits issued by other State and federal agencies required to consult with DEC which are not consistent with adopted environmental standards, plans, or policies
- Increase the number of recommendations for approval of State and federally funded projects consistent with adopted environmental standards, plans and criteria
- Increase the incidence of administrative follow-up to determine the extent to which departmental recommendations have been carried out in project, design, construction, and operation
- Increase the incidence of assistance to applicants seeking approval of environmental permits

Programs:

- Coordinate State environmental management efforts for which DEC is responsible with those of other State and federal agencies and local governments
- Perform permit and project reviews and conduct enforcement action services for the department
- Document public concerns and the response of government towards environmental problems
- Coordinate DEC review of large projects affecting air, land, and water quality with review by other regulatory agencies
- Provide assistance to new industries, to determine the permits needed and time lines required
- Serve as a clearing house on environmental impact statements

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA

Type:

- State agency within the Department of Environmental Conservation

Size:

- 11 PFT requested for FY 80

Structure:

- Division within the Department of Environmental Conservation

Geographical Location:

- Statewide responsibilities
- Staff located primarily in Juneau

Funds:

- $106,000 federal receipts requested for FY 80
- $267,000 General Fund requested for FY 80
- $121,000 other funds requested for FY 80

Primary Constituents:

- Anyone with a project requiring a review or permit
- General public whose interests in the State's natural resources are protected by this program

Problems:

- Funding for the permit coordination has been small to date (fiscal note not processed)
- 1979 legislature likely to defund this program
- One step permit process could be a hindrance for a small project needing only one or two permits due to the time delay involved (application for individual permits may be faster than the one step process)
- Not much use for the one step permit process to date, except for a few very large projects

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

WATER PROGRAMS:

DATA

- Provide technical, management, and grant assistance to village safe water facilities (AS 46.07)
- Certify operators for sewer systems (AS 46.30)
- Review and issue permits for interference with salmon spawning streams and waters (AS 46.07)
- Comply with permit coordination responsibilities of (AS 46.35)
- Comply with the environmental conservation statutory responsibilities enunciated in (AS 46.03)

Goals:

- The air, water, and land resources shall be healthful, productive, and enjoyable and shall support a diversity of plant and animal life
- Protection of health has been selected as top priority
- Protection of plant and animal life and protection of environment from pollutants is secondary priority
- Problems classified as a public nuisance situation constitute a third priority

Objectives:

- Reduce the number of people who have become ill or die from consuming water in Alaska
- Reduce the number of people who are inconvenienced by the presence in public water supplies of non-health related contaminants that are a nuisance to consumers
- Maintain at 2,500 the number of village residents whose health and general well being are protected through access to adequate sanitation services
- Reduce from 40 to 30, the number of areas where the streams, lakes, marine and other waters are polluted significantly and fail to meet standards for protection of health or plant and animal life

DATA (Water Programs - Cont.)

Objectives: (Cont.)

- Reduce from 8,000,000 to 7,500,000 persons who die from exposure to offensive and obnoxious conditions and water exceeding nuisance related standards

Programs:

- Obtain $500,000 in federal grant funds to support the department's public water program (PL93-523)
- Administer State grants for construction of adequate water supply systems
- Administer $537,500 in operation, maintenance, and management grants to ten villages, with village safe water facilities
- Provide technical and management assistance to ten villages with village safe water facilities such that the facilities suffer only reasonable, or incidental failure
- Prepare a continuing plan for the prevention and abatement of non point source water pollution (DEC has established water quality standards containing criteria that are evaluated and adjusted according to Alaska's natural water characteristics, public need, and the needs of fish and other aquatic life. Site evalution ensures that discharges will cause the least possible alteration to local water characteristics. Monitoring and inspection checks to see if discharges meet State criteria and that public uses of State waters, including fishery resources and other aquatic life, are protected.)
- Provide technical assistance to regional offices, on water polution problems
- Administer State and federal grants for construction of adequate sewage systems
- Obtain $750,000 in federal 208 grant funds to support development of water quality management plans and for control and prevention of non-point sources of pollution
- Develop a comprehensive water quality data management system to help measure progress toward meeting objectives and reporting on the status of water quality in Alaska

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Water Programs - Cont.)

Programs: (cont.)

- Prepare 30 DEC waste water disposal permits
- Prepare 401 certifications for 154 new draft federal permits and modifications
- Prepare the 1981 water quality management plan
- Conduct a certification and training program for water and waste water works operators

Accomplishments:

- Previously, all fresh water was required to meet the same water quality standards to protect fish and wildlife, but new water quality standards recognize two types of stream; fish and non-fish
- No significant streams and lakes now with pollution problems
- Emphasis on preventing degradation and pollution has to date generally succeeded

Type:

- State agency

Size:

- 33 PFT requested for FY 80
- 1 PFT requested for FY 80

Structure:

- Division within the Department of Environmental Conservation

Geographical Location:

- Statewide responsibilities
- Staff located statewide

Funds:

- $935,000 federal receipts requested for FY 80
- $235,000 General Fund match requested for FY 80
- $1,091,000 General Fund requested for FY 80

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Water Programs - Cont.)

Primary Constituents:

- Humans consuming water in Alaska
- Fish, wildlife and aquatic life using Alaska's water resources

Problems:

- Coordination between Department of Natural Resources, Department of Fish and Game, Department of Environmental Conservation on water permits and discharge permits has been less than desirable (agencies currently drafting a memo of understanding to help solve this problem)
- Should protect minimum stream flows (bill introduced into legislature for the past two years to accomplish this has not passed)

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

LAND AND WATER MANAGEMENT PROGRAM

DATA

- Cites general authority of AS Title 29 (municipal land selection)
- Cites general authority of AS Title 34 (property)
- Cites general authority of AS Title 38 (public lands)
- Cites general authority of AS Title 40 (public roads)
- Cites general authority of AS Title 45 (trade and commerce)
- Cites general authority of AS Title 46 (water, air and environmental conservation)

Goals:

- Identify and manage State public lands and water related resources
- Devise and implement resource acquisition, conveyance and management programs and procedures for meeting present and future public and private needs through selection, retention, and disposal of interest by lease, sale or exchange, permit or other available means
- Assure that present and future public benefits from land and water management programs are optimal and in the best interests of the State

Objectives:

- Review 100% of land case files forwarded to central office within two weeks from receipt
- Review 100% of water files forwarded to water management within two weeks from receipt
- Prepare a complete procedures manual for adjudication actions
- Select 20 million acres of State land from the public domain
- Complete five land exchanges
- Complete four major studies of specific water bodies for navigability purposes
- Develop a flood plain program in concert with disposal programs

DATA (Land and Water Management Program - Cont.)

Primary Constituents:

- Owners of land
- Owners of water rights
- People who desire State lands
- General public as owners in common of State land and resources managed by these programs

Problems:

- Tremendous backlog for all permits despite $1.2 million appropriation to reduce backlog
- About 25% of above appropriation went to reduced backlog of water rights permits
- Some water rights issued to nonexistent users or for water not fully utilized
- Water rights permits issued upstream may interfere with water rights usage downstream (Ship Creek Hatchery in Anchorage may have to shut down as an example)
- Future State land sales of 50,000 acres per year of upland areas will require water rights adjudication
- No good comprehensive program for collection of hydrologic data (agency looking at a cooperative venture with other governmental agencies, private sector, and USGS)
- Makes use of Department of Fish and Game and Department of Environmental Conservation to assist in field work necessary for land classification
- Preference given to public water supply over other uses (AS 46.15.150)
- Should consider specifying priority use of water in certain geographic regions either by passage of new statutes or adoption of administrative regulations
- Need authority to set conditions on water permits so that stream flow doesn't drop below a minimal level at certain times (see HB118, current legislature)
- Possess only limited resources to comply with Forest Practices Act requirement that fish habitat not be degraded (some work must be done by the Department of Fish and Game that doesn't always have hydrology expertise)

DATA (Land and Water Management Program - Cont.)

Objectives: (cont.)

- Enforce 100% of actions to protect the rights of prior appropriators and the public interest
- Maintain 15,000 files
- Manage 45 million acres of State land
- Perform 50% of the water resource assessment and manning studies in critical use areas of the Kenai borough, Mat-su borough, North Slope, Tanana River Basin and Kotzebue
- Establish annual disposal schedule to dispose of 50,000 acres of State land
- Dispose of 50,000 acres of State land
- Prepare land fact brochures for public distribution
- Initiate 100 ANSCA appeals and provide data to support challenge of 80 native allotment cases
- Review 100% of municipal selection cases completed by district offices

Programs:

- Central office is responsible for the management protection of all State land including contract administration (handling leases, land sale contracts, assignments, patents, various permits) title administration (State land selections, defending State titles against competing claims, and navigability and enforcement activities), and project coordination (coordination of all statewide land activities, synthesis of regulations, development of management criteria, coordination with other governmental agencies, and review of all proposed disposal actions)
- Water management has responsibility for review and administration of all programs and proposals relating to water resource management, planning and appropriation and includes inventory responsibilities (collection of surface, ground water, precipitation, and run off data from governmental and private monitoring programs), permitting and adjudication (process and adjudicate application to appropriate water, recording and maintenance of water rights files, and enforcement of water laws and regulations), and water resource planning (development of water planning

DATA (Land and Water Management Program - Cont.)

Programs: (cont.)

guides for different regions of the State (forecasting of water needs and development of alternatives to meet those needs, identifying potential conflicts between competing uses, preparation of management programs, and coordination with other governmental planning programs and State Water Resources Board)

- Land and Water Director responsible for management of surface resources including land, water, forests, tidelands, submerged lands in shorelands, and for selection, inventory, and disposal of State land and related surface resources

Type:

- Sections within the State Department of Natural Resources

Size:

- 47 PFT requested for FY 80

Structure:

- Sections within the Division of Forest, Land, and Water Management

Geographical Location:

- Statewide responsibilities
- Staff located primarily in Anchorage

Funds:

- $90,000 federal receipts requested for FY 80
- $14,000 General Fund match requested for FY 80
- $1,836,000 General Fund requested for FY 80
- $1,366,000 allocated to central office for FY 80
- $404,000 allocated to water management for FY 80
- $170,000 allocated to land and water, directive for FY 80

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

DISTRICT OPERATIONS - DIVISION OF LANDS

DATA

- Cites authority of Title 38 of the Alaska Statutes as general authority to operate program
- Division shall manage State forests and regulate operations on private forest land (AS 41.04.020)
- Division shall make available on an annual basis, 50,000 acres of State land for private use (AS 38.04.020)
- Department shall determine and appropriate water rights in the State (AS 46.15.0101)
- (AS 41.14.010 through 030) designates the State of Alaska as being responsible for controlling or managing fires on State lands and aiding rural land owners in controlling wild land fires

Goals:

- Identify resources available on public lands and waters and devise and implement logical management programs for meeting public and private needs for allocation of these resources, while optimizing current and future public benefits and complying with constitutional mandate for sustained yield management

Objectives:

- Improve response time to land use applications filed and reduce the number of unprocessed cases becoming backlogged
- Improved response time for water related applications filed and reduce the number of unprocessed cases
- Proved sufficient timber within sustained yield limitations to meet increased industrial needs by increasing the number of commercial sales
- Provide timber to the extent available under sustained yield management to supply increased demand for individual use of firewood, house logs etc., by increasing the number of personal use permits for timber

DATA (District Operations - Division of Lands - Cont.)

Objectives: (cont.)

- Improve overall management programs to enhance the opportunities and meet the needs for individual, industrial, municipal, and other State agency use of State lands and resources
- Maintain number of contacts for fire prevention at current level through schools, individuals, and mass media
- Continue fire permit program as a means of controlling man caused fires and promoting fire prevention
- Increase number of fires kept to less than one quarter acre
- Increase number of fires kept to less than ten acres
- Increase public information assistance offered by office visits, written and telephone requests

Programs:

- Management responsibility includes administering programs for grazing leases, land leases, land sales, municipal selection, right of way, timber sales, etc.
- Water Diversions Program includes permitting large scale water diversions, structures and periodically inspecting structures for continued safe operation
- Forest Practices Act includes managing State forests and private forest land and developing regulations in compliance with recently passed statutes
- Land disposal programs include auction, homesites, open to entry, lottery and agricultural programs
- Land use planning includes long-range planning for classifying and using land at its highest and best use
- Public information programs
- Issue water right permits for ground or surface water
- Conduct fire pre-suppression and suppression programs in cooperation with the BLM throughout the State of Alaska

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (District Operations - Division of Lands - Cont.)

Type:

- Section within the Department of Natural Resources

Size:

- 117 PFT requested for FY 80
- 83 PPT requested for FY 80

Structure:

- Regional operations organized into three districts
- District offices are sections within the Division of Forest, Land, and Water Management
- Three districts (southeast, south central, north central)

Geographical Location:

- Statewide responsibilities
- District offices located in Juneau, Anchorage and Fairbanks

Funds:

- $400,000 federal receipts requested for FY 80
- $400,000 General Fund match requested for FY 80
- $4,818,000 General Fund requested for FY 80

Primary Constituents:

- General public as owners in common of State land
- General public who desire private ownership of State land
- Industry desiring timber sales

D. REGULATION/ALLOCATION INSTITUTIONS

These institutions represent the police powers of the state in the management and preservation of the salmon resource. These institutions predominately effect the harvester segment of the industry.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

FISH AND WILDLIFE PROTECTION-DIRECTOR'S OFFICE

DATA

- Not specifically established by Alaska Statutes
- Authorized by the Commissioner of the Department of Fish and Game to enforce fish and game regulations (AS 16.05.150-160)
- Protection functions formally located within the Department of Fish and Game transferred by Administrative Order Number 16, to the Department of Public Safety in 1972

Goals:

- Supervise and administer the fish and wildlife resource enforcement efforts statewide

Objectives:

- Maintain level of protection in enforcement adequate to ensure optimum opportunity for fishery management success. Assure maintenance of continued surveillance of the commercial fisheries with the divisions, vessels, and charter vessels
- Increase public awareness of regulations, management concepts, and how to participate in apprehension of illegal acts

Programs:

- Program planning
- Provide general supervision for regional offices

Type:

- Section within the Division of fish and Wildlife Protection of the State Department of Public Safety

Size:

- 12 PFT requested for FY 80

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Fish and Wildlife Protection - Director's Office - Cont.)

Structure:

- Division organized into four components.
- Director's office uses 8% of division's total resources
- Other components are Enforcement Section, Aircraft Section, and Marine Enforcement Section

Geographical Location:

- Statewide responsibilities
- Headquartered in Anchorage

Objectives:

- Maintain level of protection in enforcement adequate to ensure optimum opportunity for fishery management success
- Assure maintenance of continued surveillance of the commercial fisheries with the division's vessels and charter vessels
- Increase public awareness of regulations, management concepts, and how to participate in apprehension of illegal acts

Funds:

- $607,000 General Fund requested for FY 80

Primary Constituents:

- Hunters, fishermen, and guides

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

MARINE ENFORCEMENT SECTION

DATA

- Not specifically authorized in Alaska Statutes
- Cites enforcement authority authorized by the Commissioner of Fish and Game per AS16.05.150-160
- Protection functions previously residing with the Department of Fish and Game transferred by Administrative Order Number 16, to the Department of Public Safety 1972

Goals:

- Enforce the laws and regulations promulgated as necessary to achieve management objectives for the State's commercial fisheries resources

Objectives:

- Maintain level of protection and enforcement adequate to ensure optimum opportunity for fishery management success
- Maintain surveillance effort with the three larger vessels at 700 operational days for FY 80

Programs:

- Operate the 100 ft. vessel for 250 days and the two 65 ft. vessels for 225 days each (these three vessels intended primarily for year round off-shore patrol)
- Operate one 42 ft. and three 38 ft. vessels on limited year in-shore patrol
- Operate one 30 ft. and three 25 ft. vessels on summer patrol of in-shore salmon fishery
- Vessels provide prevention and apprehension of violators in all major commercial fisheries

Type:

- Section within the Division of Fish and Wildlife Protection in the Department of Public Safety

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Marine Enforcement Section - Cont.)

Size:

- 17 PFT requested for FY 80
- 3 Temp requested for FY 80

Structure:

- Section within the Division of Fish and Wildlife Protection

Geographical Location:

- Statewide responsibilities
- Stafr located statewide

Funds:

- $173,000 federal receipts requested for FY 80
- $1,275,000 General Fund requested for FY 80

Primary Constituents:

- Commercial fishermen
- Other users of the fishery resource that is adequately protected and maintained

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

AIRCRAFT SECTION

DATA

- Not specifically established by Alaska Statutes
- Cites enforcement authority authorized by the Commissioner of Fish and Game per AS 16.05.150-160

Goals:

- To provide aircraft services where and when required by the varied patrol or emergency responsibilities of the Department of Public Safety

Objectives:

- Provide the Division of Fish and Wildlife Protection with 6,500 hours of flying time (will meet approximately 82% of Fish and Wildlife Protection needs)
- Provide Alaska State Troopers with 2,500 hours of flying time (will meet approximately 71% of trooper needs)

Programs:

- Provide 9,000 hours of departmental aircraft flying hours
- Coordinate rental and charter of aircraft flying hours
- Screens and trains all Department of Public Safety pilots
- Provides specialized aircraft such as PA 18, Cessna 180, and Beaver for use in remot outposts and where required to land on rivers, lakes, gravel bars, and mountain tops

Type:

- Section within the Division of Fish and Wildlife Protection within the State Department of Public Safety

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Aircraft Section - Cont.)

Size:

- 11 PFT requested for FY 80
- 1 Temp requested for FY 80

Structure:

- Section within the Division of Fish and Wildlife Protection

Geographical Location:

- Statewide responsibilities
- Staff located primarily in Anchorage

Funds:

- $821,000 General Fund requested for FY 80

Primary Constituents:

- Division of Fish and Wildlife Protection Enforcement Section
- Alaska State Troopers

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

FISH AND WILDLIFE PROTECTION DETACHMENTS

DATA

- Not specifically authorized in Alaska Statutes
- Cite general enforcement authority by Commissioner of Fish and Game per AS 16.05.150-160
- Protection functions transferred from the Department of Fish and Game to the Department of Public Safety per Administrative Order Number 16

Goals:

- Protect renewable resources of the State and provide an adequate level of enforcement to ensure optimum opportunity for management of fish and wildlife resources on a sustained yield basis
- Provide surveillance of activities of the resource using public to ensure compliance with the statutes and regulations of groups using commercial fishing, sport fishing, guiding, hunting, and trapping resources

Objectives:

- Maintain the level of protection and enforcement adequate to ensure optimum opportunity for fishery management success
- Permanently assigned two additional offices to the Haul road area and increase patrol frequency
- Continue present level of enforcement of sport fishing activities
- Maintain present level of surveillance of hunting activities
- Maintain present level of attention and surveillance to guiding activity
- Increase public awareness of regulations, management concepts, and methods of apprehension of persons committing illegal acts

Programs

- Provide commissioned personnel to operate 30 vessels for fishery patrols
- Provide temporary and seasonal employees for stream guards statewide

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Fish and Wildlife Protection Detachments - Cont.)

Programs: (cont.)

- Provide commissioned personnel to fly and charter aircraft for fishery patrols
- Provide other commissioned personnel, vehicles, aircraft, boats and vessels, as well as operating costs for efficient program operation

Type:

- Section within the Division of Fish and Wildlife Protection

Size:

- 128 PFT requested for FY 80
- 41 Temp requested for FY 80

Structure:

- Section with the Division of Fish and Wildlife Protection
- Sub-units located in 33 locations throughout the State

Geographical Location:

- Statewide responsibilities
- 33 regional offices located statewide

Funds:

- $173,000 federal receipts requested for FY 80
- $827,000 General Fund requested for FY 80

Primary Constituents:

- Fish and wildlife resources of the State
- Commercial, sports, and subsistence users of fish and wildlife resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

BOARD OF FISHERIES

DATA

- Established by AS 16.05.221 to conserve and develop the fishery resources of the State
- Composed of seven citizens appointed by the governor and confirmed by the legislature without regard to political affiliation or geographical location of residence
- Has regulation making powers, but not administrative, budgeting, or fiscal powers (AS 16.05.241)
- Regulations must be in accordance with the Administrative Procedure Act for the purposes cited in AS 16.05.251
- Board shall adopt regulations for subsistence fishery and must give subsistence priority over other uses (AS 16.05.260)
- Commissioner of Fish and Game shall delegate authority to advisory committees for emergency closures during established seasons (AS 16.05.260)
- Commissioner of Fish and Game is empowered to set aside only opening of seasons set by advisory committees (AS 16.05.260)
- Board of Fisheries may delegate authority to Commissioner of Fish and Game (AS 16.05.270)
- Conflicts between Board and Commissioner are decided by the Governor (AS 16.05.270)

Type:

- Board of seven appointed by the Governor
- Independent of any other State agency
- 57 Fish and Game Advisory Committees have been established by the Board and make recommendations to the Board

Size:

- 5 PFT requested for FY 80 for Board of Fisheries, Board of Game, and Fish and Game Advisory Committees

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Board of Fisheries - Cont.)

Structure:

- Committee of seven with one member being chairperson
- Commissioner of Fish and Game serves as ex-officio secretary

Geographical Location:

- Statewide responsibilities
- Meetings and hearing held in numerous locations (AS 16.05.300)

Funds:

- $400,000 General Fund request for FY 80 for Board of Fisheries, Board of Game, and Fish and Game Advisory Committees

Primary Constituents:

- Commercial fishermen and seafood processors
- Subsistence fishermen
- Sports fishermen
- General public as consumers of commercial salmon products

Goals:

- Regulate fish resources while responding to public needs and adhering to principles of scientific management and optimum sustainable yield

Objectives:

- Maintain regulations to accomplish above goals
- Maintain regulations to govern the formation and activities of the advisory committees

Programs:

- Contiruously review, revise, and modify fishing regulations
- Hold public hearings annually for comment from Department of Fish and Game staff and general public on fishing regulations

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Board of Fisheries - Cont.)

Programs: (cont.)

- Receive and review recommendations from 57 advisory committees
- Establish a pilot program to evaluate the effectiveness of a Regional Fish and Game Council

E. SPORT USERS

These institutions represent individuals of the state whose primary use of the salmon is for sport as defined by the state in it's Fish and Game Statutes and regulations (Title 16).

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

SPORT FISH PROGRAM

DATA

- Established by AS 16.05.090 but powers and duties not statutorily specified

Type:

- Division within the State Department of Fish and Game

Size:

- 61 PFT requested for FY 80
- 2 PFT requested for FY 80
- 30 Temp requested for FY 80

Structure:

- Division organized into four components
- 71% of resources in investigations and research component
- 21% of resources in management component
- 2% of resources in restoration component
- 6% of resources in administration component

Geographical Location:

- Staff located statewide
- Statewide responsibilities

Funds:

- $1,673,000 federal receipts requested for FY 80
- $312,000 General Fund requested for FY 80
- $1,864,000 Fish and Game Fund requested for FY 80

Primary Contituents

- Public in general and sports fishermen in particular

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Sport Fish Program - Cont.)

Goals:

- Maintain present level of natural sport fishery resources
- Enhance sport fishing opportunities to satisfy present and future angler demands
- Promote and maintain an economically viable sport fishery industry

Objectives:

- Fishery habitat is maintained and well managed
- Maintain present level of naturally produced recreational fish stocks
- Identify, acquire and develop access to desirable and important recreational fisheries

Programs:

- Protection of aquatic habitat by completing various studies (such as review of logging and road construction plans; logging debris studies; impact studies of: Devils Canyon hydro dam, Chena River flood control facility, U.S. Borax proposed molybdenum mine; numerous road construction, sewer construction, and industrial development projects; fish inventory surveys in Pet 4)
- Harvest study of recreationally caught fish
- Management report and harvest regulations recommendations to Board of Fisheries (includes assessment of needs & pressures)
- Population and biological studies (such as life history studies of cutthroat and steelhead, tagging of Chinook smolts and fingerlings to determine rearing areas, monitor sockeye escapement to Russian Lake)
- Develop three regional comprehensive sport fisheries plans
- Inform the public of recreational fishing opportunities
- Promote sport fishing industry with displays, trophy programs, publications, and travel shows in cooperation with other State agencies
- Perform stocking research and stock 120 lakes with 4.5 million fish

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Sport Fish Program - Cont.)

Goals:

- Maintain present level of natural sport fishery resources
- Enhance sport fishing opportunities to satisfy present and future angler demands
- Promote and maintain an economically viable sport fishery industry

Objectives:

- Fishery habitat is maintained and well managed
- Maintain present level of naturally produced recreational fish stocks
- Identify, acquire and develop access to desirable and important recreational fisheries

Programs:

- Protection of aquatic habitat by completing various studies (such as review of logging and road construction plans; logging debris studies; impact studies of: Devils Canyon hydro dam, Chena River flood control facility, U.S. Borax proposed molybdenum mine; numerous road construction, sewer construction, and industrial development projects; fish inventory surveys in Pet 4)
- Harvest study of recreationally caught fish
- Management report and harvest regulations recommendations to Board of Fisheries (includes assessment of needs & pressures)
- Population and biological studies (such as life history studies of cutthroat and steelhead, tagging of Chinook smolts and fingerlings to determine rearing areas, monitor sockeye escapement to Russian Lake)
- Develop three regional comprehensive sport fisheries plans
- Inform the public of recreational fishing opportunities
- Promote sport fishing industry with displays, trophy programs, publications, and travel shows in cooperation with other State agencies
- Perform stocking research and stock 120 lakes with 4.5 million fish

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Sport Fish Program - Cont.)

Programs: (cont.)

- Assist in artificial propagation of 5 million natural spawn eggs

Problems:

- Not enough funds for adequate research on life cycle of species and habitat
- Not a lead agency -- reactive to access and biological problems

F. COMMERCIAL USERS

These institutions represent any individual or corporation which derives economic gain from the harvest, processing or sale of salmon taken in Alaskan waters. Commercial users are also defined in Alaskan Fish and Game Statutes and regulations (Title 16).

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

COMMERCIAL FISHERIES PROGRAM

DATA

- Established by AS 16.05.090 but powers and duties not statutorily specified

Type:

- Division within the State Department of Fish and Game

Size:

- 160 PFT requested for FY 80
- 3 PPT requested for FY 80
- 140 Temp requested for FY 80

Structure:

- Division organized into five components
- 25% of resources in research component
- 45% of resources in management component
- 10% of resources in administration component
- 14% of resources in federal aid programs component
- 7% of resources in special projects (primarily federal aid)

Geographical Location:

- $1,374,000 federal receipts requested for FY 80
- $443,000 General Fund requested for FY 80 (exclusively matching funds)
- $9,137,000 General Fund requested for FY 80
- $25,000 program receipts requested for FY 80

Primary Constituents:

- Commercial fishermen and seafood processors
- General public as consumers of commercial salmon products
- General public as sport users of adequately protected and maintained natural resources
- Subsistence fishermen as users of adequately protected and maintained natural resources

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Commercial Fisheries Program - Cont.)

Goals:

- Protection of fisheries resources through prevention of loss due to inappropriate harvest methods and regulation of other fisheries to prevent unacceptable incidental harvests
- Maintenance of fisheries resources through maintenance of brood stock levels of resources currently capable of producing optimum yield
- Rehabilitation of fisheries resources by selectively protecting depressed stocks from harvest to increase the level of brood stock available to levels capable of producing optimum yield
- Development of new fisheries through research and regulation efforts

Objectives:

- Maintain statewide commercial natural stock salmon harvests at an average annual level equal to or above 49 million
- Rehabilitate depressed stocks to increase average annual commercial harvest to 69 million of natural stock by 1990
- Maintain statewide subsistence harvest of 600,000 to 1,000,000 salmon annually
- Maintain Cook Inlet commercial harvest of salmon at 4 million annually and rehabilitate fishery gradually to 4.7 million annual natural stock harvest
- Maintain Arctic-Yukon-Kuskokwim harvest of salmon at 2 million annually and rehabilitate fishery gradually to 4 million annual harvest
- Maintain Bristol Bay harvest of salmon at 9.8 million annually and rehabilitate fishery gradually to 14 million

Programs:

- Primary strategy, in concert with the Board of Fisheries, is stock regulation by allocation of resources to users (total allocation is surplus beyond brood stock needed to maintain optimum resource yield)
- Stock regulation accomplished through regulation of season openings and closures, harvest methods, and rehabilitate fishery gradually to 14 million

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Commercial Fisheries Program - Cont.)

Programs: (cont.)

- Research and federal aid programs generate new knowledge on various aspects of fish species life history and provide the necessary knowledge and methodology for scientific management of fish resources
- Assess total population abundance, distribution, migration routes, and timing of major salmon stocks
- Apply biometrics and computer technology to data analysis to improve effectiveness of management and research programs

Problems:

- Not enough funds for adequate research of life cycle of species and habitat
- Not a lead agency -- reactive once problems develop

G. OTHER USERS

These individuals and institutions represent all non-sport and non-commercial users of salmon. The inclusion of these institutions, individuals and loosely knit segments of Alaska expands the traditional concept of "user" in order to encompass those who, through their actions, impact salmon without in some cases, having consumption of the salmon as their primary concern. These users include subsistence users, wildlife observers, conservationists and preservationists, other fisherman to whom salmon are an incidental catch, users of salmon habitat which may conflict with salmon propogation, supporters of enhancement of salmon predators and competitors, and the Alaska taxpayer in general.

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

INSTITUTION

SUBSISTENCE PROGRAM

DATA

- AS 16.05.090 established a section of subsistence hunting and fishing in the Department of Fish and Game
- Subsistence Section shall compile data and conduct studies on subsistence hunting and fishing (AS 16.05.094)
- Subsistence Section shall quantify the amount, nutritional value, and extent of dependence on food acquired through subsistence hunting and fishing (AS 16.05.094)
- Subsistence Section shall assist in defining the term subsistence uses, users and methods (AS 16.05.094)
- Subsistence Section shall make recommendations regarding regulations affecting subsistence hunting and fishing (AS 16.05.094)
- Subsistence Section shall quantify the amount, nutritional value, and extent of dependence on food acquired through subsistence hunting and fishing (AS 16.05.094)
- Subsistence Section shall assist in defining the term subsistence uses, users and methods (AS 16.05.094)
- Subsistence Section shall make recommendations regarding regulations affecting subsistence hunting and fishing (AS 16.05.094)
- Subsistence Section shall participate with other divisions in the preparation of statewide and regional management plans to incorporate needs of subsistence users (AS 16.05.094)

Goals:

- Develop a statewide policy on the utilization, development, and conservation of fish and game resources recognizing the needs, customs, and traditions of Alaska residents
- Make recommendations on regulations affecting the resources with as much input as possible from users

INSTITUTIONS INVOLVED IN THE SALMON FISHERY

DATA (Subsistence Program - Cont.)

Objectives:

- o Not yet developed

Programs:

- o Not yet developed

Type:

- o Section within the Commissioner's Office in the State Department of Fish and Game

Size:

- o 15 PFT requested for FY 80
- o 2 Temp requested for FY 80

Structure:

- o Section located within administrative control of the Commissioner's Office
- o Headquarters unit and seven regional offices

Geographical Location:

- o Statewide responsibilities
- o Headquarters located in Juneau
- o Regional offices in Juneau, Bethel, Dillingham, Barrow, Nome, Kotzebue and Gallena

Funds:

- o $846,000 General Fund requested for FY 80

Primary Constituents:

- o Subsistence users of fish and game resources

Problems:

- o New program, just beginning to hire staff -- administrative structure and program plans will be completed when staffing is completed

OTHER INSTITUTIONS

Introduction

The following list of institutions and noted characteristics was derived from a mail survey to all institutions not covered in our primary research. The purpose of this mail survey was to test and quantify the level of interest on the part of many groups in salmon resource development.

Methodology

A detailed mailing list was developed including all native and village corporations, all user groups, all groups involved in habitat interests, and other public and private sector organizations which we felt had a potential interest in the salmon fishery. To each of these groups a postcard with the following format was mailed. Those responding positively were recorded in the following list.

SECONDARY INSTITUTIONS

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Alaska Aquaculture Foundation, Inc. P.O. Box 1288 Wrangell, Alaska 99929 Tod Jones 907/874-2013	X	X		X
Alaska Chapter Sierra Club P.O. Box 2025 Anchorage, Alaska 99510 Jim Barnett 907/265-0432 or 907/349-1720			X	
Alaska Conservation Society P.O. Box 80192 College Branch Fairbanks, Alaska 99708 Mr. Ed Murphy, President 907/452-2240				X
Alaska Federation of Natives 1675 C. Street Anchorage, Alaska 99501 Byron Mallott 907/586-1512			X	X
Alaska Independent Fishermen's Marketing Association 6333 Sugar Maple Street Olympia, Washington 98503				X

SECONDARY INSTITUTIONS

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Alaska Trollers Association P.O. Box 825 Ketchikan, Alaska 99901 Sharon Newsome			X	
Alaska Wildlife Federation and Sportsmen's Council 1700 Glacier Avenue Juneau, Alaska 99801	X	X	X	X
Aleutian/Pribilof Island Association 1689 C. Street Anchorage, Alaska 99501 James D. Milne, Phd., Director Fisheries Program 907/276-2700			X	X
Association of Village Council Presidents P.O. Box 219 Bethel, Alaska 99559 Carl Jack, John Malone, Harold Sparcks	X	X		
Bristol Bay Native Association P.O. Box 237 Dillingham, Alaska 99756 Ted Angasan, Executive Director 907/842-5258	X			

SECONDARY INSTITUTIONS

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Bristol Bay Native Association P.O. Box 179 Dillingham, Alaska 99576 Andrew Golia 907/842-5257/5258	X	X	X	X
Burro Creek Farms P.O. Box 8324 Ketchikan, Alaska 99901 Eugene Richards Home 907/225-2405 Bus. 225-9696	X			
Central Council of Tlingit and Haida Indains of Alaska Division of Fisheries and Natural Resources One Sealaska Plaza, Suite 200 Juneau, Alaska 99803 Dr. Nayudu 907/586-1432		X		
Cook Inlet Aquaculture Association P.O. Box 850 Soldotna, Alaska 99669 Floyd Heimbuch 907/262-4441 Ex 257	X	X		X
Cook Inlet Native Association 1057 West Fireweed Lane Anchorage, Alaska 99503 Jake Lestenkof, Executive Director			X	

SECONDARY INSTITUTIONS

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Copper River Native Association Drawer H. Copper Center, Alaska 99573 Tom Craig, Executive Director 907/822-3949			X	
Cordova District Fisheries Union P.O. Box 939 Cordova, Alaska 99574 Bob Blake 907/424-3447 or 7473	X	X	X	X
Douglas Island Pink & Chum, Inc. RR 4, Box 4754 Juneau, Alaska 99803 Ladd Macaulay 907/789-9443	X			
Fairbanks Environmental Center 431 Steese Highway Fairbanks, Alaska 99701 John Adams, Executive Director 907/452-5021			X	X
Fish Fry, Inc. Southeast Gillnet Federation 583 Basin Road Juneau, Alaska 99801 Jev Shelton 907/586-2242	X	X		

SECONDARY INSTITUTIONS

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Haida Corporation Box 91 Hydaburg, Alaska 99929				X
Halibut Producers Cooperative P.O. Box 1235 Bellingham, Washington 98225 206/733-0120				X
Huna Totem Corporation Box 290 Hoonah, Alaska 99829 John Hinchman, Jr., President 907/945-3330		X		X
Hungwitchim Corporation Eagle, Alaska 99738			X	X
Ingalik, Inc. Anvik, Alaska 99558 907/462-8001				X

SECONDARY INSTITUTIONS

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Izaak Walton League 336 East 23rd Avenue Anchorage, Alaska 99503 907/279-1923			X	X
Juneau Audubon Society P.C. Box 1725 Juneau, Alaska 99801	X	X	X	X
Juneau Group of the Sierra Club Route 6, P.O. Box 3552 Juneau, Alaska 99803 Dr. Clifford Lobaugh, Chairman				X
Kake City Schools Kake, Alaska 99830 Chuck Larson 907/785-3741				X
Kake Nonprofit Fishery Development Corporation P.O. Box 263 Kake, Alaska 99803 Clarence Jackson 907/785-3221	X			

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Kenai Peninsula Fishermen's Cooperative Association Rt. 2, P.O. Box 752 Soldotna, Alaska 99669	X	X		X
Klawock Heenya Corporation P.O. Box 25 Klawock, Alaska 99925			X	
Kodiak Area Native Association P.O. Box 172 Kodiak, Alaska 99615 Bill Osborne			X	X
Kuitsarak, Inc. Goodnews Bay, Alaska 99620				X
Mauneluk Association P.O. Box 256 Kotzebue, Alaska 99752 Bob Knoll, EDA Planner 907/442-3311			X	X

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Meyers Chuck Aquaculture Association P.O. Box 15 Meyers Chuck, Alaska 99903 Robert Meyer	X			
National Park Service 540 West 5th Avenue Anchorage, Alaska 99501 Ross C. Kavanagh 907/271-4215				X
Nerka, Inc. P.O. Box 80165 College, Alaska 99708 Dr. Jack Van Hyning 907/479-2476		X		X
Nondalton Native Corporation Nondalton, Alaska 99640		X		
Northern Southeast Regional Aquaculture Association P.O. Box 786 Sitka, Alaska 99835 Dr. Derek Poon 907/747-6850	X	X	X	X

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Nunam Kitlutsisti P.O. Box 267 Bethel, Alaska 99559 907/543-2956			X	
Petersburg Gillnet Association P.O. Box 535 Petersburg, Alaska 99833 Alan Stein 907/772-3151			X	X
Pacific Seafood Processors Association 120 West First Street Juneau, Alaska 99801 Richard B. Lauber, Alaska Manager 907/586-6366	X	X	X	
Prince William Sound Aquaculture Association P.O. Box 1110 Cordova, Alaska 99574 907/424-7511	X	X	X	X

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Ruralcap P.O. Box 3-3908 Anchorage, Alaska 99501 Norman Cohen 907/279-2511			X	
Sand Point Aquaculture Association P.O. Box 132 Sand Point, Alaska 99661 Robert W. Barclay 907/383-3545			X	
Sealaska Corporation One Sealaska Plaza Juneau, Alaska 99801 907/586-1512			X	
Shee Atika, Inc. P.O. Box 578 Mt. Edgecumbe, Alaska 99835 907/747-3534	X	X	X	X
Sheldon Jackson College Aquaculture Program P.O. Box 479 Sitka, Alaska 99835 Mel Seifert	X	X		

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Sierra Club Legal Defense Fund 419 Sixth Street, Suite 321 Juneau, Alaska 99801 Stephan C. Volker, Esq. 907/586-2751			X	X
Southeast Alaska Conservation Council, Inc. P.O. Box 1692 Juneau, Alaska 99802 Leonard Steinberg			X	X
Southeast Alaska Seine Boat Owners & Operators 728 Water Street Ketchikan, Alaska 99901 Michelle Zerbetz 907/225-6618			X	X
Southern Southeast Regional Aquaculture Association 307 Mill Street, #5 Ketchikan, Alaska 99901 Ron Wendte	X	X		X
Stikine Gillnet Association P.O. Box 131 Wrangell, Alaska 99929 Bill Byford	X			

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
Tanana Valley Sportsmen Club SR, Box 30202 Fairbanks, Alaska 99701 Joe Nava			X	
Tenana Chiefs Conference, Inc. First & Hall Fairbanks, Alaska 99701 Eddie Mayo or Henry Mitchell 907/452-8251 ext. 65	X	X	X	
Tongess Conservation Society P.O. Box 7282 Ketchikan, Alaska 99901 Peter Mjos 907/225-2275			X	X
Twin Creek Salmon Ranch, Inc. P.O. Box 90 Petersburg, Alaska 99833 Darline M. Clausen 907/772-3282		X		
United Fishermen of Alaska 197 South Franklin Juneau, Alaska 99801 907/586-2820			X	X

Institution	Active In The Following			
	(1) Rehabilitation of existing salmon runs	(2) Enhancement of salmon runs	(3) Advocacy activities	(4) Other related activities
United Fishermen of Alaska 197 South Franklin Juneau, Alaska 99801 907/586-2820			X	X
United Southeastern Alaska Gillnetters Association 328 West 10th Juneau, Alaska 99801 Geron Bruce 907/586-3864	X	X	X	
Yugtuk Corporation P.O. Box 666 Bethel, Alaska 99550 Thad Tikiuw 907/543-2647				X

APPENDIX III

FEDERAL INSTITUTIONS

M E M O R A N D U M

TO: WALLY MILLER

FROM: WILLIAM R. WILKERSON

DATE: May 2, 1979

RE: OUTLINE OF PRESENTATION ON FEDERAL INSTITUTIONS

I. INTRODUCTORY REMARKS

A. Summary of findings.

B. Summary of conclusions.

II. DIRECT FISHERIES PROGRAMS

A. General authority.

1. U.S. Department of Commerce Organic Act.

2. Fish and Wildlife Act of 1956 (reorganization plan No. 4, 84 Stat. 2090, October 3, 1970).

3. Agricultural Marketing Act of 1946.

4. Saltonstall-Kennedy Act of 1954.

B. Fisheries management and enforcement.

1. Fish and Wildlife Act of 1956.

2. General authority of National Oceanographic and Atmospheric Administration (NOAA).

3. Fishery Conservation and Management Act of 1976 (FCMA).

4. Black Bass Act.

C. Fish production.

1. Fishery research and experimentation program.
2. Food and Agriculture Act of 1977.
3. Loans for production of fish (Consolidated Farm and Rural Development Act).

D. Research and cooperation in resource development.

1. Cooperative agreements with nonprofit organizations, etc. (15 U.S.C. §1525).
2. Harvest Development Research (16 U.S.C. §§744 & 745).
3. Sea Grant Programs (33 U.S.C. §§1121 et seq.).
4. Commercial Fisheries Research and Development Act of 1964 (16 U.S.C §779).
5. The Food and Agriculture Act of 1977 (7 U.S.C. §3171).
6. The Defense Production Act of 1950.
7. The Anadromous Fish Conservation Act (16 U.S.C. §757).

E. Financial and technical assistance.

1. Section 607 of the Merchant Marine Act of 1936, as amended (46 U.S.C. §1177).
2. Title XI of the Merchant Marine Act of 1936, as amended (46 U.S.C. §§1271-80).
3. Fish and Wildlife Act of 1956 (16 U.S.C. §742c).

4. Fishing Vessel Construction Differential subsidy (U.S. Fishing Fleet Improvement Act-46 U.S.C. §§1401-13).
5. The Fishermen's Protective Act of 1967 (22 U.S.C. §§1971-79).
6. The Public Works and Economic Development Act of 1965 (42 U.S.C. §§3121, et seq.).
7. Small Business Administration Act (15 U.S.C §§631 et seq.).
8. The Small Business Investment Act (15 U.S.C §§1661 et seq.).
9. The Farm Credit Act of 1971 (12 U.S.C. §§2071 et seq.).
10. National Consumer Cooperative Bank Act (92 Stat. 499, August 20, 1978).
11. Fishery Cooperative Associations (15 U.S.C §§521-22).

*See also Saltonstall-Kennedy Act above.

F. OTHER

A number of programs relating to export and import of fisheries products, federal purchase and distribution of fishery products, provision of product safety, quality and marketing of consumer products, and foreign investment in U.S. fisheries regulations, have been identified. These programs are not discussed herein because of their relative indirect impact on fisheries resource development.

Additionally, a number of federal programs have less obvious impact on fisheries resource development.

Included are programs within the Bureau of Indian Affairs relating to fisheries development through the Alaska Native Claims Act, research programs involving the relationship of forest product and fisheries industry interests conducted by the U.S. Forest Service, consumer protection programs conducted by the Federal Trade Commission, and programs described below involving regulation of fisheries resource development programs.

III. NON-FISHERIES REGULATORY PROGRAMS

A. Environmental.

1. Corps of Engineers permits under §10 of the River and Harbor Act.
2. Corps of Engineers permit under §404 of the Federal Water Pollution Control Act Amendments of 1972.
3. Environmental Protection Agency certification under §401 of the Federal Water Pollution Control Act Amendments of 1972.
4. Preparation of Environmental Impact Statement pursuant to the National Environmental Policy Act.
5. Certification of federal consistanc" under the Coastal Zone Management Act.
6. Various approvals by other federal agencies-see SSRAA permit list.
7. Waste effluent treatment requirements pursuant to Federal Water Pollution Control Act, as amended.

B. Resource management.

1. Fishery Conservation and Management Act (see above).
   a. Relation to coastal zone management.
   b. Relation to National Environmental Policy Act.
   c. Relation to Federal Administrative Procedures Act.
   d. Relation to activities of Forest Service.
2. U.S. Fish and Wildlife Service (see above).
3. National Marine Fisheries Service (to include the Anadromous Fish Conservation Act, the Fish and Wildlife Act of 1956, and the Federal Aid and Fish Restoration Act).

C. OTHER

A number of other federal regulatory programs affecting vessel and gear operation and harvesting techniques, regulation of fishermen and crews, regulation of vessel operation, regulation of seafood processing, product quality and marketing, and regulation of fisheries importing and exporting activities have been identified. Because of their comparatively indirect impact on fisheries resource development programs and activities, these programs will not be discussed in detail.

III. RELATIONSHIP BETWEEN FEDERAL FISHERIES PROGRAMS AND STATE OF ALASKA - POINTS FOR DISCUSSION

A. Bulk of Alaska land and waters under federal control and jurisdiction.

B. Fisheries related employment in Alaska, nineteen

percent (19%) of total employment; twenty-three percent (23%) including indirect effects.

C. Fisheries revenues account for seven percent (7%) of Gross State Product; indirect twelve percent (12%) of GSP.

D. Little federal contribution to salmon development projects in Alaska.

E. Two Hundred Mile Limit Alaskan fisheries account for eighty percent (80%) of nation's potential harvestable resource.

F. Alaska salmon resource development program -- two-pronged approach (ADF&G, PNP).

G. Alaska Coastal Zone Management (CZM) Plan in earliest stage of development.

H. Federal CZM program requires coordination among federal and state agencies on fisheries matters, environmental issues.

I. Alaska has no port authorities, only boroughs, unorganized boroughs and municipalities.

J. Local government authority relatively flexible in terms of ability to conduct development activities.

K. Major problem of local communities in Alaska is raising sufficient capital for public works and infrastructure.

L. Fishing community relationship with fisheries management agencies largely adversary.

M. Relationship between ADF&G and Regional Aquaculture Association largely adversary.

N. State legislature hesitant to fund new fisheries programs at this time (possible exception is bottomfish).

O. PNP assessment program tied up in litigation.

P. Management problems derived from hatchery versus natural stocks, problem of mixed stocks not

adequately addressed - raises political problems.

Q. Impact of D_2 Legislation on aquaculture not yet clear - fishermen and regional association concern over Borax.

R. Role of sports and subsistence fisheries in resource development program and planning not clear.

S. Regional management issues raised by federal and state legislation.