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COMMITTEE REPORT
SENATE

5/21/81

FURTHER: Resources and Finance

Date: 4-14-82

Mr. President:

The Committee on HEALTH, EDUCATION & SOCIAL SERVICES has had CSHB 313(Fin)

Alaska Fisheries Center and appropriations to that center

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s) same title
- replace with CS for _____ new title
- and recommends _____
- AND attaches a "Letter of Intent" . New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

MEMBERS HAVING
OTHER RECOMMENDATIONS:

CHAIRMAN

North Pacific Fishery Management Council

Clement V. Tillion, Chairman
Jim H. Branson, Executive Director

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April 27, 1981

Honorable Terry Gardiner
House of Representatives
Pouch V
Juneau, AK 99811

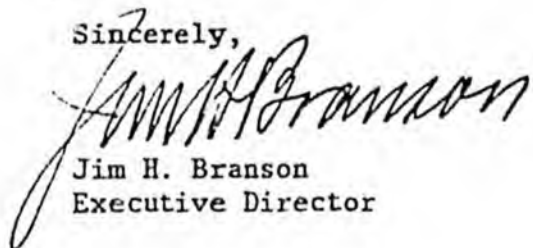
Dear Terry:

Clem has asked me to respond on behalf of the Council on your proposal for a fisheries center in Alaska. The Council discussed your concept at length at its meeting last week and asked me to convey their endorsement and appreciation for your efforts. More and better research into the fishery resources of Alaska is definitely needed, and the idea of a center to coordinate the approach of the State and Federal governments, the North Pacific Council, the University, and the numerous other entities that become involved in research in this area is very desirable.

The Council felt that it would be desirable to avoid creating another organization to do so, however, and suggested that a center could be developed using one or more of the existing State entities as the parent organization. It could be specifically designed to accommodate the research activities of other organizations in one complex with a very heavy emphasis on coordinating existing activities. That approach would not only improve the efficiency of the work for which we already have funding, but would make it much easier to identify work that needs to be done and to distribute that work where appropriate.

Don Rosenberg is chairman of the Council's Scientific and Statistical Committee. He has kept the Council informed on the progress of your proposal. The Council is very much in favor of the concept and will work with you in any way they can to assist.

Sincerely,

A handwritten signature in cursive script that reads "Jim H. Branson".

Jim H. Branson
Executive Director

cc: Don Rosenberg

**THE REPORT OF THE
ALASKA FISHERIES CENTER STUDY GROUP
TO THE
STATE OF ALASKA**

February 1982

ALASKA FISHERIES CENTER STUDY GROUP

MEMBERS

- Chairman** Mr. Donald H. Rosenberg, Director
Office for Fisheries
University of Alaska
- Vice-Chairman** Mr. S. A. ("Stan") Moberly, Special Assistant
Alaska Department of Fish and Game
- Dr. D. L. ("Lee") Alverson
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- Mr. Rodger Painter, Executive Director
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- Mr. John G. Peterson, President
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- Ms. Kathryn ("Kay") Poland, Director
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- Mr. John Sund, Esq., President
The Waterfall Group
- Representative Eric Sutcliffe
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OFFICE OF THE GOVERNOR

- Mr. W. I. ("Bob") Palmer
Special Projects Coordinator

ACKNOWLEDGEMENTS

Special thanks are due to the following who actively assisted the Study Group in its deliberations:

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Mr. Wallace G. Miller
Mr. Stephen T. Grabacki
Mr. Ronald James Costello
Mr. Kenneth Middleton
Ms. Pamela M. Knode

Others who provided much assistance were Steven Pennoyer, Director and John Clark, Chief of Research, Commercial Fisheries Division (ADF&G); Dr. John H. Helle, District Director, American Institute of Fishery Research Biologists; Dr. James B. Reynolds, President, Alaska Chapter, American Fisheries Society; and Dr. Frank O. Perkins, Virginia Institute of Marine Science.

The Study Group's work was facilitated greatly by the staff of the Governor's Special Projects Office, particularly Ms. Suzanne Mullen, and by Ms. Karen Slack, Special Assistant to the Governor.

Alaska's fisheries, both marine and freshwater, constitute the state's most valuable renewable resource. The use of this resource for recreational, subsistence and commercial purposes plays a major role in the lifestyle and economy of the state.

The purpose of this study was to evaluate the need for and feasibility of the State of Alaska developing an expanded program of fisheries research. The Governor appointed a 12-member study group to undertake this evaluation and to report their findings to the state.

Three specific needs relating to Alaska's fisheries resources are identified:

1. An urgent public need for increased economic, social and biological knowledge and understanding concerning Alaska's fisheries.
2. A need to strengthen the capabilities of Alaska's fisheries management program.
3. A critical need for improved communication and coordination among Alaska's fisheries resource users and researchers.

The benefits to the state of establishing a well organized research program as well as the consequences of taking no action are identified.

Various alternatives, ranging from an increase in activities within existing agencies and institutions to the establishment of an independent state research agency, are analyzed. The recommendation represents a consolidation of various components from several of these alternatives.

The Study Group recommends that the State of Alaska establish a fisheries research center with the goal of providing the information and a foundation upon which fishery management programs can be developed and executed. The center's principal activities will be the acquisition and dissemination of information and the development of methodology required for wise management. The center, in addition to its own research staff, must develop cooperative research efforts with existing fisheries groups and agencies.

The center should be established under the University of Alaska with a Board of Trustees providing policy and planning guidance. The Study Group also recommends two advisory committees, one representing users and the other the scientific community.

The staffing of this center will consist of approximately 40 professionals requiring 70,000 square feet of office and laboratory space. The projected facility costs are \$21.7 million and when fully operational, the annual operating costs are estimated at \$14.7 million.

A schedule of implementation is provided. Costs for the first year are \$525,000. During the second year, \$2.0 million are required to establish research activities.

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Alaska's fisheries, both marine and freshwater, constitute the state's most valuable renewable resource. The use of this resource for recreational, subsistence and commercial purposes plays a major role in the lifestyle and economy of the state. The challenge to the state is to provide for the long-term viability of this resource while continuing economically sound use. Currently there is insufficient methodology and data upon which to base decisions to maximize the benefits to Alaska as well as to preserve the long-term viability of the resource.

This document is the report of the Alaska Fisheries Center Study Group to the Governor of Alaska and to the Alaska Legislature. The report presents the findings of an investigation of Alaska fisheries research needs and recommends a program for the state to satisfy those needs. The Study Group, in developing these findings and recommendations, was assisted by a report prepared by Dames and Moore entitled "Fisheries Research Alternatives for the State of Alaska."

The purpose of this study was to evaluate the need for and feasibility of an Alaska Fisheries Center as the principal entity for conducting fisheries research in the state. As a part of that assessment, the Study Group determined the optimal direction and organization of fisheries research in Alaska and the most appropriate level of state involvement.

The Study Group addressed the following questions:

1. What should be the State of Alaska's goals in fisheries research and what benefits will Alaska derive from an expanded fisheries research program?
2. What are the current fisheries research activities in existing agencies and institutions?
3. What additional capability is required and what is the appropriate means of providing additional capability?

During the 1981 Legislative session, a bill (HB 313) was introduced in the Alaska House of Representatives to establish an Alaska Fisheries Center. The center was to be the principal agency in the state for conducting fisheries research, gathering and disseminating information on fisheries resources, and improving coordination and communications among agencies and groups involved in fisheries research. A nine-member board of trustees appointed by the Governor was to manage the center and representatives from specified fishery-related agencies were to serve as advisors. The bill passed the House and is currently under consideration by the Alaska Senate.

The bill was introduced because of concern that insufficient support was being provided for fisheries research in the state, and that the research was dispersed through a variety of agencies, and not always well-coordinated. In addition, much of the research on Alaska's fisheries was conducted by agencies located in other states. While there was general support for the objectives of the proposed legislation, many felt that the concept of a center for fisheries research required further evaluation. As a result, the Legislature requested that the Office of the Governor conduct a study of the need for and feasibility of such a center. The Governor established an Alaska Fisheries Center Study Group and appointed 12 members with a wide variety of fishery-related backgrounds. The Study Group met in September, 1981 to formulate a plan of action and agreed that there was a need for increased fisheries research in the state. The Study Group hired an executive director and retained a team of consultants (Dames and Moore) to assist in the evaluation of methods for providing increased fisheries research.

This report contains the findings and recommendations of the Study Group's investigation.

The importance of Alaska's fisheries resources to the citizens of Alaska is impossible to fully quantify. Alaska's fisheries resources support a very important segment of the state's recreational and tourist industry. Commercial use of these resources maintains

NEED

one of the state's major industries. Moreover, a large portion of the state's population depends upon these resources for its principal source of subsistence.

The State of Alaska, by constitutional mandate, must provide for the utilization, development and conservation of these fisheries resources for the maximum benefit of the citizens of the state. Appropriate management will be required in order to satisfy increasing demands on these resources while allowing for important subsistence needs.

During the next decade these resources will experience increasing demand for their use and major conflicts will develop between user groups. Increases in tourism and recreation will require greater allocation of these resources and expansion of the state's commercial fishing industry is expected.

The Study Group has reviewed the current status of state, federal and other research activities which are providing information to mitigate these demands. Three specific needs have been identified:

1. An urgent public need for increased economic, social and biological knowledge and understanding concerning Alaska's fisheries to provide for appropriate development and conservation.
2. A need to strengthen the capabilities of Alaska's fishery management programs in order to contribute to the wise utilization, conservation and development of Alaska's fisheries resources and to provide the maximum economic and social benefits to the citizens of the state.
3. A critical need for improved communication and coordination among Alaska's fisheries resource users and researchers in order to make optimum use of scientific and financial resources.

The benefits the state will derive from a well organized fisheries research program are:

1. The capability to continue high quality recreational fisheries, a choice not open to many states and foreign countries who have neglected their resources.
2. The assurance of the availability of fisheries resources for subsistence.
3. The continuation of a healthy, competitive commercial fishery that provides the state's major private employment.
4. The capability to develop and manage new fisheries; doubling the current employment and increasing fish production by 500 to 1,000 percent.
5. The opportunity to develop management techniques which encourage efficiency in the industry.

The implication of not addressing these needs could be severe. Some possible consequences of taking no action are:

1. Continuation of loss to the industry and the state from fishery disasters.
2. Continuation of reliance on non-Alaskan fisheries researchers and institutions.
3. Continuation of under-achievement of harvest.
4. Continuation of inefficiencies and duplication in fisheries research.

ALTERNATIVES ANALYZED

Existing Agency Alternative

The Study Group determined that an enhancement of fisheries research capabilities of the state is required. Various alternatives to provide those enhanced capabilities were developed and analyzed. Primary analysis of these alternatives was undertaken by the contractor. A review of the contractor's analyses and the Study Group's findings follow.

The initial assumptions in this alternative were that the basic organizational structure of agencies involved in fisheries research would remain intact and that increased funding for fisheries research would be passed directly to those agencies. In order to

accommodate an enhanced research program, however, changes were recommended in:

1. The internal organization of some agencies.
2. Interagency coordination and cooperative agreements.
3. Procedures for setting goals and objectives.
4. Information dissemination.
5. Standardization of research methods and reporting.

This alternative includes the creation of an Alaska Fisheries Research Steering Committee in the Office of the Governor. The steering committee would not modify the authority or responsibility of any agency, but would provide advice to the legislative and executive branches and would review research programs and proposals on a cooperative basis. Additional changes include:

1. The creation of a Fisheries Research Division in Alaska Department of Fish and Game (ADF&G).
2. A central fisheries research library.
3. The establishment of a fisheries journal.
4. Fisheries conferences and workshops.
5. New research facilities for ADF&G.
6. Expansion of the National Marine Fisheries Service Auke Bay Fisheries Laboratory.
7. Implementation of the University of Alaska's fisheries plan.

This alternative would provide an enhanced research capability with a minimum of disruption to the status quo, but would also offer the highest risk of a fragmented effort. The Study Group believes that increasing fisheries research funding to existing agencies would not be productive without substantial changes in agency structure.

This alternative would provide common support facilities and services to agencies performing fisheries research. Increased funding for fisheries research would be provided directly to the agencies. A board of trustees would manage the research park, establish institutional goals, publish reports and develop criteria for facilities use.

Research Park Alternative

The Study Group feels that this alternative could provide the means for closer contact between agencies but would not be conducive to the long-term stability and coordination of fisheries research in the state.

This alternative would involve the creation of an institute, in addition to existing agencies and facilities to augment the state's fisheries research capability. The institute would be housed in a state agency and would be under the direction of a board of trustees. The institute would maintain a research staff and facilities and would emphasize cooperative interagency research programs. Research goals and priorities would be set by the institute rather than by individual agencies. Research and user committees would advise the institute.

Cooperative Institute Alternative

The Study Group feels that this alternative would provide for long-term fisheries research and required long-term institutional stability.

The center proposed under this alternative would be associated with either the University of Alaska or the Alaska Department of Fish and Game. It would be managed by a director reporting to the president of the University of Alaska or the commissioner of the Department of Fish and Game. The center would have its own

Research Center Alternative

research capabilities while also providing for cooperative research activities. Policy committees would make recommendations to the center's director.

The Study Group feels that the organizational relationship to a parent agency would assure long-term stability but that the close association with the parent agency would impede cooperative programs.

Other Considerations

In addition to the above alternatives, the Study Group considered an independent fisheries research center which would be responsible for all fisheries research functions in the state. The Study Group concluded that such an approach would disrupt fisheries management and academic programs and would be counterproductive.

RECOMMENDATION

The Study Group reviewed the report of the contractor, including the background information concerned with existing fisheries research efforts. It is important to note that the alternatives developed were designed to provide the State with a capability for undertaking the more fundamental research needed to improve the management and conservation of the living marine and freshwater resources in and adjacent to Alaska.

To achieve this goal, the Study Group determined that a new institutional arrangement is required to protect the researcher from the pressures associated with resource management agencies and to provide a research environment attractive to the scientific community. The program of research will require a guidance mechanism to insure that it conforms to the fisheries research needs of the state and does not duplicate programs of existing state and federal research agencies. Finally, the capacity of the center to serve as a focal point for state, national and international seminars and to assist in the coordination of state and federal fisheries research efforts was considered important in influencing all recommendations.

The Study Group feels that these features and needs are partially met in all of the alternatives evaluated. However, no single alternative was considered adequate to meet the required goal. The Study Group's recommendation has, therefore, combined components from several of the proposed alternatives.

Establishment of a Fisheries Research Center

In order to further address the state's responsibility to its citizens to provide for proper and wise utilization, development and conservation of the fisheries resources both within and adjacent to the state, the Study Group recommends the establishment of a Fisheries Research Center.

Goal

The goal of the Fisheries Research Center will be to provide information and a foundation upon which fishery management programs can be developed and executed which will provide for the wise utilization, development and conservation of Alaska's fisheries resources.

Scope of Activities

The principal activities of the center will be the acquisition and dissemination of information and development of methodology required for the wise management of Alaska's fisheries resources. The center should not duplicate the research activities of existing agencies and groups. It should not be involved in the collection and analysis of information required for immediate management nor the collection of fishing statistics.

The center will develop cooperative research efforts with existing groups and agencies. Research will be directed toward development of fundamental approaches to fisheries management, filling basic gaps in our knowledge about the resources in-

cluding biological, social and economic data required for sound management programs. The center's activities should also include research that leads to an understanding of the problem of "multiple use" of the fisheries resources and the effects of various natural and man-made impacts.

The center must provide an environment to encourage excellence in fisheries research. Involvement of renowned visiting fisheries scientists to address specific research problems is essential to that environment. Association of Alaska's scientific and academic community with visiting scientists will encourage excellence in performance and serve as a unique "in-service training" program.

Additionally, the center should provide for improved coordination and communication among members of the scientific and management communities, fishermen, processors and the public by providing a forum (workshops and conferences) for discussion and information dissemination.

The Study Group recommends that the Fisheries Research Center be established under the University of Alaska. Establishment of the center under the University of Alaska would maximize the center's ability to attract top scientific personnel. This arrangement would be most conducive to providing for the long-term stability of the center's research activities and would provide maximum protection of the center's activities from immediate management pressures. Additionally, this arrangement would provide for a direct interaction between the center's research and information activities and the university's academic and public service programs.

The Study Group recognizes that it is exceedingly important that the center's activities support the needs of the primary management agencies. The proposed administrative structure and funding mechanism will reduce any tendency of the center to be solely influenced by the university environment.

Organizational Structure

Administrative Structure

Board of Trustees

The Study Group recommends that the principal policy and planning body for the center be a Board of Trustees. The board would provide policy and program guidance for the center. At a minimum, membership should include:

1. Commissioner or representative, Alaska Department of Fish and Game.
2. President or representative, University of Alaska.
3. Alaska Regional Director or representative, National Marine Fisheries Service.

Other members of the board will be appointed by the President of the university based upon recommendations from the Governor.

Other board members should be selected for their ability to represent the research needs of all fisheries interests. Membership of the board should not exceed seven and the majority of members should be Alaskan residents.

The duties of the board shall include but not be limited to:

1. Establishment of institutional goals and objectives for the center.
2. Review and approval of selection of the center's Executive Director.
3. Review of the programs of the center to insure that they are providing meaningful contributions and are responsive to the institutional goals and objectives.
4. Active encouragement of the development and support of cooperative research programs.

Executive Director

An Executive Director will be the principal scientific and administrative officer for the center. The Executive Director will be responsible for all activities and personnel of the center. The Executive Director will serve as a non-voting member of the Board of Trustees.

Other administration

Further refinement of the administrative structure of the center will depend upon the magnitude of the activities. These could include a research program director, a cooperative program director and an information services program director. Additionally, as the center grows, an administrative manager will be necessary to oversee the day to day administrative functions.

Advisory Committees

The Study Group recommends that the Fisheries Research Center have two advisory committees, a research advisory committee and a user advisory committee.

Research Advisory Committee

The Research Advisory Committee will advise the board of trustees and the executive director on the scientific activities of the center. The committee will play a major role in the scientific evaluation of the center's programs. The committee will prepare for the Board of Trustees periodic reports on the need for research to solve fisheries problems. The committee will make recommendations on and encourage the development of cooperative research programs within the center. Membership on the committee will be by appointment by the Board of Trustees. Principal membership is expected to be from primary state and federal fisheries management agencies (ADF&G, NMFS) and universities but it is noted that membership should also include scientific staff from user groups.

Balance should be maintained between scientific disciplines with the majority of the membership representing fisheries science, marine science and the economic and social sciences as applied to fisheries resources.

User Advisory Committee

The User Advisory Committee will advise the Board of Trustees and the Executive Director on information needs of the various fisheries resource user groups. The committee will play a major role in the development of the center's institutional goals and objectives and in the review of the center's progress toward the attainment of those goals and objectives. The committee will prepare for the Board of Trustees periodic reports on the need for new information on fisheries. The committee would actively encourage cooperative programs within the center between user groups and scientific personnel.

Membership on the committee will be by appointment by the Board of Trustees. Membership will be from the principal fisheries user groups and the public at large. Balance should be maintained between these groups.

Staffing and Facilities

In considering the staffing requirements for the center the Study Group determined the following:

1. It is unlikely that any additional fisheries research effort will be provided by the federal government.

2. It would be physically impossible to fulfill all of the state's fisheries research needs.
3. To be most effective a critical level of staff must be provided.
4. If a single company or individual had exclusive rights to Alaska's fisheries resources, it would likely spend as much as \$100 to \$200 million on research and development.

The Study Group recommends that the center be staffed, when fully developed, with approximately 40 professionals. The Study Group feels that this level of staffing will make major contributions toward providing information upon which effective fisheries management programs can be developed and executed.

The Study Group recommends that facilities be developed to support the center's activities including sufficient space to allow cooperative programs. The facility should contain approximately 70,000 square feet.

Based upon the contractor's analysis, the Study Group estimates the following capital and operating costs for the center:

Cost

Capital Costs

Facilities (70,000 sq. ft.)	\$21,000,000.00
Equipment	
Data Processing	200,000.00
Library Collections	300,000.00
Audio-Visual and Copy	100,000.00
Office	110,000.00
Total Capital Costs	<u>\$21,710,000.00</u>

Annual Operating Costs

Management/Technical Services	2,019,000.00
Professional Staff and Programs	12,700,000.00
Total Operational Costs	<u>\$14,719,000.00</u>

Funding for the center and its activities must be by line item within the University of Alaska's budget. Principal funding for all center activities should be provided by appropriation from the state. Funding of the center should be considered independent of the other program requirements of the university. Existing management and research programs should not be reduced to fund this program.

The Study Group recommends that the following criteria be considered by the University of Alaska in recommending the location for the Fisheries Research Center. The criteria are ranked in order of importance.

Location

1. Accessibility, proximity, and relationship to the major state, federal, and educational agencies and institutions with resource management and research responsibilities.
2. Proximity to existing research and support facilities.
3. Communication and transportation linkages, both domestic and international.
4. The attributes of the location that would aid in attracting highly qualified professionals.
5. The capability to host statewide, national, and international meetings.

LEGISLATIVE CHANGES

After evaluating House Bill 313, the Study Group has included a modified version in the appendix of this report. This modified version would implement the recommendations in this report.

IMPLEMENTATION

The Study Group recommends that the Fisheries Research Center be immediately established. Acquisition of staff and facilities should be undertaken in a phased manner to be completed within eight years.

The university should undertake the following activities during the center's first year:

1. Appointment of Board of Trustees
2. Appointment of advisory committees
3. Appointment of Executive Director and initial support staff
4. Phase planning for facilities acquisition
5. Planning for research programs and staff acquisitions
6. Development of cooperative arrangements
7. Initiation of conferences and workshops and information services

It is estimated that the first year of activities will cost \$525,000.

During the second year the center should establish research activities using existing state, federal and university facilities. The state must plan on funding these research activities at a level of approximately \$2 million. The state should plan on increasing program funding by \$2 million annually until full funding is reached.



Alaska State Legislature

House of Representatives

Committee on Resources

Terry Gardiner, Co-Chairman
Fred F. Zharoff, Co-Chairman
465-3715

Pouch V
State Capitol
Juneau, Alaska 99811

MEMORANDUM

TO: The Honorable Senator Parr
Chairman, HESS Committee

FROM: Representative Gardiner *T.G.*

DATE: 27/May/1981

RE: CS HB 313 - technical amendments

CS HB 313 has been referred to your committee. On review of the bill after it had passed from the House Finance Committee and across the floor, there was an inadvertent drafting error made in some of the transitional language. I would appreciate it if your committee would consider the following amendment.

The intent of the bill was to provide for a Board of Trustees which would consist of nine (9) members. See page 2, line 29. The Board is to be divided in three (3), groups of three (3) - each to serve three (3) year terms on a staggered basis. The language which provided for the staggering of the terms was provided in the bill in *Sec. 6, page 8 under transitional duties. An amendment to Section 6 to provide that the first Board of Trustees would only sit for one (1) year while putting together the plan for presentation to the legislature during the 1982 session deleted the language which provided staggered terms for the permanent Board. The following language would take care of that problem.

Page 8, line 16. Add new Section 6.

"Sec. 6. APPOINTMENT OF THE BOARD OF TRUSTEES OF ALASKA'S FISHERIES CENTER. The governor shall designate the terms of the members of the Board of Trustees of the Alaska Fisheries Center appointed under AS 16.12.030, and shall appoint the first members of the Board within thirty (30) days of the effective date of this Act. Of the nine (9) members first appointed

- (1) three (3) shall serve a term of one (1) year;
- (2) three (3) shall serve a term of two (2) years;
- (3) three (3) shall serve a term of three (3) years."

Page 8, line 16. Delete the word "FIRST", replace with the word "Transitional".



Alaska State Legislature
House of Representatives

POUCH V
JUNEAU, ALASKA 99811
OFFICIAL BUSINESS

December 16, 1980

MEMORANDUM

TO: INTERESTED PARTIES

FROM: HONORABLE TERRY GARDINER
SPEAKER OF HOUSE OF REPRESENTATIVES

RE: SEAFOODS: ALASKAS LIVING RESOURCE

I have been increasingly concerned regarding the future of the fishery resources. We as a state have an obligation to the future generations to use the common property resources in a wise manner and not destroy or irrevocably damage them.

The pressure to harvest increasing amounts of our common property resources will continue to increase. During the next 45 years world population is expected to increase and for much of the world, fishery products are the only or major source of animal protein. In addition, real income of the world, and particularly the U.S., Europe, Japan and the communist block countries, can be expected to grow. Therefore, the demand for fishery products will continue to increase. Studies by FAO, 1979, predict that MSY's of world fishery production will be reached in the early 1980's. When this happens, aggregate supply essentially becomes fixed. The major impact of a fixed supply is accelerating price increases on the world market as demand increases. Rising demand will lead to continuing pressure to exploit the common property resource and may well threaten its very existence.

Intelligent decisions will be required. Decisions based on hard factual knowledge of the resource and the entire industry. The decisions will primarily be made in an atmosphere of demands for short term benefits, both in terms of increase production of food and crises economics for the industry. The long term survival of the species will be left up to the biologist to defend with inadequate or inconclusive information. If history is a teacher then the lesson is that the short term demands usually win. Most of the viable marine resources in the world have been decimated. Knowledge of the resources takes time to gather, organize and distribute. Although we are doing a little now it is vital that we increase our efforts immediately.

The attached proposal outlines one way a approaching the challenge that lays ahead of us. Please give it your serious consideration. Send your comments to my office in , Juneau.

ALASKA FISHERIES CENTER

The objective of this document is to describe in summary form, some of the primary considerations which have led to the conclusion that an Alaska Fisheries Center is critically needed in Alaska. Other factors also briefly addressed in this document include descriptions of some of the characteristics of the proposed Center.

The Need/Opportunity For an Alaska Fisheries Center

The Alaska Constitution, Article VII, Section 2, states, "The legislature shall provide for the utilization, development and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of its people." The question is, what actions should the legislature take to assure this constitutional mandate is being carried out for its fisheries?

We believe the establishment of an Alaska Fisheries Center would be a major step toward meeting this constitutional obligation. In addition, we believe the establishment of such a Center would provide an effective means for carrying out Article VII, Section 5, which states, "The legislature may provide for facilities, improvements and services to...assure fuller utilization of the fisheries, wildlife and waters.

In addition to the constitutional requirements placed upon the legislature, it is also important to recognize the tremendous size and value of the Alaskan fisheries resource. In terms of value in 1979 the 900 million pounds of Alaskan commercial landings had a value of almost 600 million dollars. The value of this catch was 26.7 percent of the total U.S. harvest. By way of comparison the states with the next highest harvest values were: California \$227.5 million; Louisiana \$198.5 million; Massachusetts \$175.5 million; and Texas \$160.2 million.

If both the domestic and foreign harvest in Alaskan waters were added together, the 1.6 billion metric tons harvested in 1978 would rank Alaska 15th among the nations of the world in commercial landings.

The U.S. fishing industry employs over a quarter of a million people and provided in 1979 a \$7 billion contribution to the U.S. Gross National Product. Alaska's fishery provides a substantial contribution to this important sector of the U.S. economy.

Other countries such as Japan and the Soviet Union invest heavily in fisheries research and provide a wide variety of financial incentives to support their fisheries. In the United States a limited amount of research is provided and financial incentives are generally limited to boat and gear loans. A recent study indicates that \$24.6 million was spent in 1979 on Alaska fisheries research. Of that amount \$8.5 million was spent on research by organizations not located in Alaska.

Partly, because the fishery is a common property resource, and partly because the structure of the U.S. fishing industry does not lend itself to long-term investments in fisheries research, more knowledge and better management tools are needed, if Alaska is to provide for the effective utilization, development and conservation of its fisheries resource for the maximum benefit of its people.

The best weapon Alaska has in reducing intervention by outsiders is to know more about its resources and how they should be managed than anyone else.

Goals for the Alaska Fisheries Center

1. Gather, organize and disseminate information about Alaska fisheries which will encourage the wise utilization, development and conservation of these resources for subsistence, commercial and recreational purposes.
2. Provide for improving coordination and communication among members of the fisheries scientific and management communities, fishermen, seafood processors and the public.
3. Improve the long-term economic viability of the Alaska and U.S. seafood industry.
4. Encourage the development of Alaska's fisheries resources to help meet the world's need for protein.
5. Conduct and coordinate the research activities necessary to accomplish the above purposes.

Scope of Alaska Fisheries Center

1. The Center shall encompass the renewable marine and freshwater fishery resources including groundfish, aquatic plants, shellfish and salmon.
2. Two general types of functions would be carried out at the Center. These are:

A. Prime Functions

- Basic Research (research directed at a specific research goal)
- Applied Research (research directed at a specific resource goal)

- Stock enumerations and habitat surveys
- Management research
- Industry technology
- Fishery food sciences
- Market and economic research
- Aid to fisheries education

B. Support Functions

- Data processing center
- Library (including A/V and communications)
- Support facilities (including Center, research vessels, etc.)

Location of the Alaska Fisheries Center

The primary criteria for selecting the Center location should include the following:

1. The location must provide a pleasing professional environment which will aid in attracting highly qualified professionals.
2. It should have excellent communications and transportation facilities for domestic and international linkages and travel.
3. It should be centrally located and reasonably accessible from the various fishing areas.
4. The location should have the capacity to host state-wide, national and international fisheries meetings.

Management of the Alaska Fisheries Center

One of the following alternative forms of management could be employed in managing the Center.

1. Governance by a Board of Directors who may be composed of a majority of Alaskans with others appointed based upon their recognized expertise in the national and international fisheries scientific community. A Technical Advisory Board composed of representatives from research and management organizations (see attached list of potential sources of Advisory Board members) would be established to serve in an advisory capacity to the Board of Directors. An Executive Director would be appointed by the Board of Directors to carry out the executive duties and responsibilities of the Center.

2. Governance could be provided by a User Group committee comprised of representatives from Alaska fishery research and management organizations identified in the attached list.

3. The Center could also be operated along the lines of a research park in which many different organizations would use the facilities. Coordination could be formally achieved through the appointment of interagency committees and informally through such shared facilities as the cafeteria, library and data center.

STATEMENT FROM REP. TERRY GARDINER
FISH CENTER HB 313

House Bill 313 establishes a fishery center. We have spent many years searching for goals and objectives to guide us in the renewable resource area, but I think it would be more productive to instead focus attention on the means for achieving those goals.

One of the key elements which has been missing is a coordinated technical development and research effort. Perhaps the most important means for ensuring greater coordination, would be the establishment of a comprehensive joint fisheries facility, encompassing technical development and research.

Alaska produces as much as 80% of the nation's groundfish resources, it the largest producer of salmon and is a major source of shellfish, Alaska should have a major center for fisheries activities.

THE NEED

The need for a consolidated Alaskan Fisheries Research Facility is based upon four major factors.

1. There is a need to have a scientific and research basis to provide the technical support to state and federal agencies which have the responsibility to manage the Alaska fishery.
2. The State of Alaska and the federal government both have a legitimate interest in protecting and developing the Alaskan fisheries resource. Knowledge gained through research can provide the state and the federal government with the capability to develop improved regulatory practices aimed

at more effectively achieving the desired balance between allowable harvest levels and stock protection.

3. By any standard Alaska's fishery resource is enormous.

Consider these statistics:

- * Alaska's 1978 harvest of 80 million salmon amounted to 85 - 90% of the entire U.S. harvest and about 40 - 50% of the world harvest of salmon.¹
- * The 1978 harvest of Alaskan shellfish (shrimp and crab) of 300 million pounds amounted to approximately 40% of the entire U.S. harvest of these species.¹
- * The annual harvest level of 3 to 4 billion pounds of bottomfish within the North Pacific Fisheries Conservation and management zone places Alaska in the top 12 among countries in world production of fisheries resources.¹
- * Currently the combined annual wholesale value of all Alaskan fisheries resources exceeds 2 Billion dollars. By way of comparison this level of sales would rank the Alaskan fishery among the top 150 of the fortune 500 corporations.

¹ Contractor estimates developed with assistance of NMFS personnel and fisheries information.

4. A substantial amount of Alaskan fisheries research is currently being largely independently conducted by a number of different organizations including:

The Alaska Department of Fish and Game
The National Marine Fisheries Service
The University of Washington
The University of Alaska
The U.S. Fish and Wildlife Service
Alaska Fisheries Development Corporation
The U.S. Forest Service
The North Pacific Management Council
Alaska Sea Grant Program
Alaska Office of the Governor (Fisheries Council)
Alaska Seafood Foundation
Alaska State Legislature
Private Non-Profit Aquaculture

Notwithstanding the significant involvement of Alaska organizations in conducting research on Alaskan fisheries, a significant portion of the research staffing and expenditures are not being made in Alaska. The economic benefits from this employment and expenditures accrues to other states and it is expected that less than full benefit is received by Alaskan's from this off-site research activity.

There is a need. But for whom should research be done and what directions will the technical and research work take? These are the difficult questions.

An analysis of the make up of the industry may shed

some light on the subject. There are approximately ten major elements to the fishing industry, some larger and more complex than others. But lets examine the progression of a fish through the industry.

First the resource, under the scope and purview of nature generally, and ADF&G is assigned to monitor natures progress and report back. In some cases ADF&G cautiously intrudes into the natural cycle with a fish hatchery, enhancement program, or fertilization. But for the most part reacts to natures whims. We spend almost 90% of ADF&G's budget on this monitoring effort.

The second element is marine survival. This is an area we know little to nothing about. Since it seems to be the area where the greatest loss of the resource occurs, even a small improvement would have a tremendous impact on the harvest.

The third element is the allocation of the resource. There are two areas: one, the resource itself, to ensure sufficient brood stock survival, secondly allocation amongst user groups. It seems that most of the problems are in this area. We are all aware of most of these issues so I won't dwell on them. Except to point out that the greater the pressure on user group allocations, the more the need for accurate, reliable information is realized.

The fourth state is the actual harvest. Both the methods of harvest and the time and place is set by the government. But again, the policy decisions are based on the technical data regarding the resource.

The fifth element is the onboard handling of the resource. Only lately has much attention been paid to this area. This is the first time in the process that the resource comes under 100% control of people. Although we expose quality control and preservation of quality we have done very little. The assumption is that from the minute the fish is removed from the water it starts to deteriorate. That process of deterioration must be slowed down as much as possible until the product is consumed in order to maximize its value.

Again, one of the goals is to develop and improve the economy of the industry and one good way is to increase the value of the product.

There are very few places where ice is available to fishermen outside of Southeast Alaska. Boat design for efficient handling of fish on board can be improved.

This is an area which can use a lot of help.

The sixth element is transporting the fish from the harvesting site to the processing facility. Again the goal is to increase the value of the product and decrease the cost of delivery. To deliver a higher quality product at a lower cost. This is particularly true in the fresh fish market. A timely efficient delivery is essential.

Basically, the elements are handling, storage and delivery time. The rising costs of energy is a major factor in the transportation portion.

The seventh element is processing the product for consumption. Generally, this is the highest capital investment in the industry. Innovations in the area are urgently needed.

In the groundfishery, there is a need for machinery to handle the smaller size pollock. New techniques for preserving the fresh fish quality for a longer period. New product forms for different markets need to be developed. And many more challenges exist.

The eighth element is storage of the processed product, either fresh, frozen or canned, controlled atmosphere.

The ninth, tenth, and eleventh are transportation to market, marketing, and actual consumption. The average American ate 13.3 pounds of edible meat in 1979, down from 13.6 pounds in 1978.

I only want to go through this process to emphasize the diversity of the fishing industry. It seems only too often, we only look at the resource and allocation issues and not at the economic values.

The problem we are challenged with is to help develop a coordinated effort to effectively interact with the industry.

WHERE DOES A FISHERIES CENTER FIT IN

If the State were to proceed with a plan to establish a fisheries facility, a logical concern is, who would manage the facility?

There are several alternative management plans which could be implemented.

The center could be an independent entity, or operated by a State agency (ADF&G), a federal agency (NMFS), or the University of Alaska. Each agency (federal & state) who assigns research personnel to the research center, would be

responsible for paying and providing benefits to their own employees. Space assignments, priority use of laboratory equipment could be resolved by a operations officer or committee composed or representatives from the various agencies performing research at the center. Research policies and programs under this concept would be subjected to the review and approval of a Research Policy Committee.

These issue and others need to be discussed and thoroughly evaluated. To be successful the center must have a close coordinated role with the Department of Fish & Game, the University of Alaska, the industry, and the federal government.

It is my intention to hold hearings on this bill and use it as a vehicle to discuss the issue of research and development in the fisheries area.

MEMORANDUM

February 4, 1980

TO: Dereck Poon
Floyd Heinbuch
Robert Burkett
Curt Kearns

FROM: Wallace G. Miller *WGM*

SUBJECT: Subcommittee Report on Fisheries Research Facility

In our report to the Aquaculture Policy Study Group, Mr. Wilkerson and I recognized the need to have an improved and expanded research program for an Alaskan Fisheries Resource Development Program as one means for ensuring that the legitimate state interests in protecting and developing its fisheries resources are met.

In addition to an improved and expanded fisheries research program, we further recognized the need to improve the coordination among federal, state and others involved in fisheries research in Alaska, not only to avoid duplication of effort but also to establish coordinated fisheries research priorities and programs.

In recognition of these needs the report suggests that, "Perhaps the most important means for ensuring greater coordination of research would be the establishment of a comprehensive joint fisheries research facility in Alaska." While the report discusses several additional means for securing a coordinated fisheries research program, the report recognized the importance that federal, state and tribal fisheries scientists and biologists in Washington attached to an expanded and more coordinated fisheries research program in that state.

In Washington State a \$16.0 million fisheries research facility to house federal, state and tribal fisheries researchers is currently being designed with construction scheduled to begin later this year.

The report makes the argument that in as much as Alaska, produces as much as 80% of the nation's bottomfish resources, is the largest producer of salmon and is a major source of shellfish, Alaska should have a major center for fisheries research activities.

During the past several months I have reviewed the new Washington State Manchester Laboratory plan and have provided some general design and program information to you. In addition, I have attempted to compile staffing and budget information on organizations involved with fisheries research with a particular emphasis on identifying those organizations who perform the work at a location outside of Alaska.

Attached is a preliminary "prospectus" which discusses various aspects of an Alaskan Fisheries Research Center. In accordance with our earlier discussions about maintaining a minimum level of contact on this plan until additional review can be performed, I have limited my discussions to include only individuals who have information regarding the Manchester Lab and fisheries research expenditures and staffing.

I hope you can review the attached prospectus which I have purposely kept brief pending your further recommendations regarding this matter.

A PROSPECTUS FOR A CONSOLIDATED ALASKA FISHERIES RESEARCH FACILITY

The Need

The need for a Consolidated Alaskan Fisheries Research Facility is based upon four major factors.

These are:

1. There is a need to have a scientific and research basis to provide the technical support to state and federal agencies which have the responsibility to manage the Alaskan fishery.
2. The State of Alaska and the federal government both have a legitimate interest in protecting and developing the Alaskan fisheries resource. Knowledge gained through research can provide the state and the federal government with the capability to develop improved regulatory practices aimed at more effectively achieving the desired balance between allowable harvest levels and stock protection. Through research the state can continue to develop such artificial propagation techniques as lake fertilization for salmon as well as other new propagation techniques for other species. Research in such areas as stock enumeration, reproduction, growth rates, genetics, disease, nutrition, and habitat are but a few of the areas in which increased knowledge would provide the information necessary to ensure that the state's and federal government's interests in protecting and developing the Alaskan fisheries resources are realized.
3. By any standard Alaska's fishery resource is enormous. Consider these statistics:
 - * Alaska's 1978 harvest of 80 million salmon amounted to 85 - 90% of the entire U.S. harvest and about 40 - 50% of the world harvest of salmon.¹
 - * The 1978 harvest of Alaskan shellfish (shrimp and crab) of 300 million pounds amounted to approximately 40% of the entire U.S. harvest of these species.¹
 - * The annual harvest level of 3 to 4 billion pounds of bottomfish within the North Pacific Fisheries Conservation and Management Zone places Alaska in the top 12 among the countries in world production of fisheries resources.¹

¹Contractor estimates developed with assistance of NMFS personnel and fisheries information.

*Currently the combined annual wholesale value of all Alaskan fisheries resources exceeds 2 billion dollars. By way of comparison this level of sales would rank the Alaskan fishery among the top 150 of the Fortune 500 corporations.

4. A substantial amount of Alaskan fisheries research is currently being largely independently conducted by a number of different organizations including:

- The Alaska Department of Fish and Game
- The National Marine Fisheries Service
- The University of Washington
- The University of Alaska
- U.S. Fish and Wildlife Service
- Alaska Fisheries Development Corporation
- The U.S. Forest Service
- The North Pacific Management Council
- Alaska Sea Grant Program
- Alaska Office of the Governor (Fisheries Council)

Notwithstanding the significant involvement of Alaskan organizations in conducting research on Alaskan Fisheries, a significant portion of the research staffing and expenditures are not being made in Alaska. The economic benefits from this employment and expenditures accrues to other states and it is expected that less than full benefit is received by Alaskan's from this off-site research activity.

Alaskan Fisheries Research

Listed below in Table I is an approximation of the expenditures for Alaskan fisheries research for selected organizations. The Table does not include research expenditures made by regional aquaculture associations or for various studies (i.e., A.D. Little, Earl Coombs, etc.) performed by private contractors and others.

Table I
Alaskan Fisheries Research Expenditures

<u>Organization</u>	<u>Research</u>		<u>Total</u>
	<u>In Alaska</u>	<u>Outside Alaska</u>	
Alaska Dept. Fish & Game	\$3.5	-	\$3.5 (1)
Nat'l Marine Fisheries Service	3.2	\$7.4	10.6 (2)
University of Wash.	-	1.0	1.0 (3)
University of Alaska	7.3	-	7.3 (4)
U.S. Fish & Wildlife Service	.2	.1	.3 (5)
Alaska Fish. Develop. Corp.	1.3	-	1.3 (6)
The U.S. Forest Service	.1	-	.1 (7)
The North Pacific Mgmt. Council	.5	-	.5 (8)
TOTAL	\$16.1	\$8.5	\$24.6

- (1) Alaska Dept. of Fish and Game estimate; approximately 50 employees.
- (2) 1979 NMFS Budget. Research in Alaska includes \$3.1 million for Auke Bay and other southeast facilities and \$.1 million for a project at Kodiak. The \$7.4 million in Seattle is for an estimated equivalent of 100 employees performing research on Alaskan fisheries.
- (3) Recently announced \$1.0 million federal grant to conduct an 18 month study of Washington salmon harvested in Alaskan waters. Information regarding other Alaskan related research projects not available.

(4) University of Alaska Fisheries Research Budget includes:

<u>(U of A 1980 Budget)</u>		
Institute of Marine Science	111*	5.1
Sea Grant Program	27	1.6
Juneau Fisheries Program	6	.3
Other	2	.1
Subtotal	<u>146</u>	<u>7.1</u>
Cooperative Fisheries Res. Unit**	4	.2
TOTAL	<u>150</u>	<u>7.3</u>

* Includes only full-time positions.

** Fresh water fisheries research program for arctic and interior areas.

- (5) Includes approximately 5 employees in Alaska and 4 in Washington.
- (6) Recently announced grant to conduct bottomfish research and test program.
- (7) U.S. Forest Service (Forest Service Laboratory-anadromous fish habitat study; 2 employees).
- (8) North Pacific Mgmt. Council estimate; primarily contract funds and one (1) full-time staff.

As the preliminary expenditure data indicates, the aggregate, current expenditures for Alaskan fisheries research is approximately \$25.0 million, with over 1/3 of the research expenditures and staffing not located in Alaska.

If all Alaskan related fisheries research were performed in Alaska the total number of people employed would be over 300.

In addition to the research activity, the National Marine Fisheries Service operates two research vessels, the Miller Freeman and the Oregon whose primary function is research and related activities in Alaskan waters. The Miller Freeman has a shipboard crew of 24 and a \$990,000 annual operating budget. The Oregon has a shipboard crew of 5 and an annual operating budget of \$467,000.

Table 2
Types of Alaskan Fisheries Research Conducted Outside of
Alaska

Resource Surveys
Data Analysis
Fishery Oceanography
Survey Technology Development
Fisheries Habitat Investigations
Marine Mammals Conservation
Economics and Commercial
Fisheries Statistics

Availability of Research Funding

Research funding for fisheries research activities in Alaska is for the most part provided by the federal and state government. Because research programs are considered discretionary, as opposed to mandatory, research budgets tend to be reduced in tight budget periods. Fisheries research budgets could, however be substantially increased in the United States given the increased emphasis on fishing resulting from the enactment of the 200 mile territorial limit on fisheries. Another potential source for increased fisheries research funding is from the dedicated import tax receipts imposed by the Saltonstall Kennedy Act. Estimates indicate receipts to this dedicated fund could annually exceed \$100 million during the decade. Notwithstanding the predicted increase in fund receipts, congressional action may be necessary to remove expenditure ceilings imposed on the fund by the Office of Management and Budget.

A Consolidated Fishery Research Facility²

The National Marine Fisheries Service in cooperation with the University of Washington and other federal and state agencies are in the process of designing a \$16.0 million fisheries laboratory at Manchester, Washington. It is intended that this new facility be used for both interdisciplinary cooperative research programs and individual research projects in fisheries and marine science relating to the protection and management of the marine resource.

²A program concept for the Manchester Fisheries Laboratory, April 1979, Kramer, Chin & Mayo, Inc.

The new laboratory is intended to house 30 resident research scientists, technical assistants, visiting scientists and 10 resident postgraduate researchers. The primary research themes will be aquatic animal and plant husbandry, nutrition, physiology and reproduction, breeding and health.

The new facility will provide a 35,890 gross square feet building and 24,340 square feet of outside experimental areas.

The anticipated annual operating and maintenance cost excluding scientific and other technical laboratory personnel is estimated to be \$704,800.

Fishery Research Facility Management Options

If the State of Alaska, were to proceed with a plan to establish a multi-jurisdictional fisheries research facility, a logical concern is, who would manage the facility?

There are several alternative management plans which could be implemented.

A state agency (ADF & G) or a federal agency (NMFS) could be assigned the responsibility for the general maintenance and operation of the research center. Each agency (federal and state), who assigns research personnel to the research center, would be responsible for paying and providing benefits to their own employees. Space assignments, priority use of laboratory equipment could be resolved by an operations officer or committee composed of representatives from the various agencies performing research at the center. Research policies and programs under this concept would be subjected to the review and approval of a research policy committee.

Another less bureaucratic approach to the management of a multi-jurisdictional fisheries research facility could be based upon a "research park" approach which is similar in concept to that of an industrial park in which businesses with different ownerships, organizations and products independently pursue their own businesses while sharing some common buildings, other space and services.

A fisheries research park developed and operated by independent research organizations would individually pay for their capital equipment, maintenance and operations. Under this concept research policies and programs would be "coordinated" and not subjected to committee review and approval.

Fishery Research Facility Location

No attempt has been made to identify specific sites where fisheries research facilities might be located. It may be desirable to have several research facilities, at different locations, each of which specializes in some aspect of the fishery. (For example, a shellfish/bottomfish research center might be located at Kodiak, while the salmon research center might be located elsewhere).

Fishery Research Facility Cost & Source of Funds

In order to provide the State of Alaska with the fisheries research capability proposed for the new \$16.0 million Manchester Laboratory, an expenditure of \$20-25 million would be required given the higher construction costs in Alaska. Additional costs could result from specialized facilities for shellfish and bottomfish not included in the Manchester facility.

The State of Alaska and the federal government singularly or under a joint agreement could finance the capital construction costs.

Alternatively the State of Alaska could finance the capital construction of the laboratory and ask the federal government to provide research funds to the new center equivalent to those being expended outside of the State of Alaska. The state could continue to provide for state funded fisheries research through ADF & G.



Alaska State Legislature

House of Representatives

Committee on Resources

Terry Gardiner, Co-Chairman
Fred F. Zharoff, Co-Chairman
465-3715

Pouch V
State Capitol
Juneau, Alaska 99811

Memorandum

TO: The Honorable Senator Parr

FROM; Representative Gardiner *T.G.*

DATE: 29/ May 1981

RE: CS HB 313 - Testimony

The following people are prepared to testify on CS HB 313 at such time as you hold a hearing on the bill.

Representative Gardiner, sponsor of the legislation

Don Rosenberg, University of Alaska

Stan Moberly, Alaska Department of Fish and Game

Roger Painter, United Fishermen of Alaska

There is also a letter of support for the legislation from the North Pacific Management Council.



Alaska State Legislature

House of Representatives

Committee on Resources

Terry Gardiner, Co-Chairman
Fred F. Zharoff, Co-Chairman
465-3715

Pouch V
State Capitol
Juneau, Alaska 99811

MEMORANDUM

TO: The Honorable Senator Parr
Chairman, HESS Committee

FROM: Representative Gardiner *T.G.*

DATE: 27/May/1981

RE: CS HB 313 - technical amendments

CS HB 313 has been referred to your committee. On review of the bill after it had passed from the House Finance Committee and across the floor, there was an inadvertent drafting error made in some of the transitional language. I would appreciate it if your committee would consider the following amendment.

The intent of the bill was to provide for a Board of Trustees which would consist of nine (9) members. See page 2, line 29. The Board is to be divided in three (3), groups of three (3) - each to serve three (3) year terms on a staggered basis. The language which provided for the staggering of the terms was provided in the bill in *Sec. 6, page 8 under transitional duties. An amendment to Section 6 to provide that the first Board of Trustees would only sit for one (1) year while putting together the plan for presentation to the legislature during the 1982 session deleted the language which provided staggered terms for the permanent Board. The following language would take care of that problem.

Page 8, line 16. Add new Section 6.

"Sec. 6. APPOINTMENT OF THE BOARD OF TRUSTEES OF ALASKA'S FISHERIES CENTER. The governor shall designate the terms of the members of the Board of Trustees of the Alaska Fisheries Center appointed under AS 16.12.030, and shall appoint the first members of the Board within thirty (30) days of the effective date of this Act. Of the nine (9) members first appointed

- (1) three (3) shall serve a term of one (1) year;
- (2) three (3) shall serve a term of two (2) years;
- (3) three (3) shall serve a term of three (3) years."

Page 8, line 16. Delete the word "FIRST", replace with the word "Transitional".

Testimony Concerning HB 313

Senate Health, Education and Social Services Committee

March 10, 1982

Persons Testifying:

Donald H. Rosenberg
Office for Fisheries, University of Alaska

Dr. Keith Jefferts
President, Northwest Marine Technology

Dr. Ronald O. Skoog
Commissioner, Alaska Department of Fish and Game

Bob McVey
Director of the Alaska region for the National Marine Fisheries
Service and representing the Northwest and Alaska Fisheries
Center in Seattle

Jack Helle
District Director for Alaska of the American Institute of
Fishery Research Biologists

Don Bevan
Director of School of Fisheries, University of Washington

Representative Terry Gardiner
Alaska State Legislature

George West
Vice-President for Academic Affairs, University of Alaska

Testimony Concerning HB 313
Senate Health, Education and Social Services Committee
March 10, 1982

Testimony of Donald H. Rosenberg, Director, Office for Fisheries
University of Alaska

Don Rosenberg - My name is Don Rosenberg. I am with the University of Alaska, Director of the Sea Grant Program. I'm here today as chairman of the Alaska Fisheries Center Study Group. The Study Group was assembled at the request of the Legislature through the Office of the Governor for the purpose of examining the fisheries center proposed in HB 313, for feasibility and to propose a structure of such a fisheries center. In the audience, there are some of the Study Group members; not all of them could be present. Stan Moberly, representing the Department of Fish and Game is here; Mr. James Brooks, of the National Marine Fisheries Service [is present]; Mr. Keith Jefferts, a private businessman, is here; and Mr. Tom Lane, our Executive Director, is present. What I will do today is just briefly summarize the findings and recommendations of the Study Group. Our findings and recommendations are presented in a report, which I believe you have, and supported by a rather extensive study that we had done by the consulting firm of Dames and Moore. I believe that it is very clear to those of us who are involved in the Alaska fisheries that the fisheries resources of this state, both those within our state waters and within our land mass and those that lay adjacent to our state, are very important to this state and its economy. We attempted to quantify the importance of that and found that that is really an impossible task. These fisheries resources really play an important role in not only the economy of the state but also in the livelihood of many of our citizens. They support a large recreational industry, tourist industry, and a very large commercial industry and they also represent a source of food for a good portion of our population. Most Alaskans, we find, expect to be able to experience the opportunity to go fishing with their children as a recreation. The very large commercial industry expects the resource to be available each year for harvest and a good portion of rural population expects to go out and harvest this food and put it directly on their table. Truly, the Study Group found that the state does have a responsibility to insure that these fisheries resources are present and utilized wisely and provided in a conservative manner which insures their continuing existence for generations to come. The demands we find on these resources are becoming greater and greater. There is an increased tourist industry being encouraged. We are encouraging an expanding commercial fishery and as the local resources come back more and more of our citizens are looking to the resources for subsistence. We find major conflicts beginning to develop between these various users and the resource's ability to support those various users as they develop. The Study Group reviewed all

of the state and federal programs and university programs which are providing information and techniques which the state and the federal government are using to mitigate these increasing demands and conflicts. We have identified three specific needs: First, we find that there is an urgent public need for increased economic, social and biological knowledge and understanding about these fisheries resources so that both the public and governmental sectors can develop appropriate development and conservation programs. Second, there is a need to increase the knowledge and understanding of, and to strengthen our state's ability to manage these resources properly. And third, there is a need that exists to expand the communication and coordination between all the users of these fisheries resources. To address these identified needs, the Study Group analyzed various alternatives, all of which were designed, to some degree, to address and solve these identified needs. These alternatives ranged all the way from expanding and reorganizing existing research capabilities in the state to the establishment of a fully independent fisheries research center. I want to make it clear that this analysis of these alternatives was done in light of the existence of an inventory of research groups; that we did not look to destroy what already exists in the state. From this analysis the Study Group selected for its recommendations combinations of pieces of alternatives which we felt would best serve the state and which most effectively and economically addressed those identified needs. Our recommendation is that the state establish a fisheries research center with a goal to provide the information and to build a foundation upon which fishery management programs can be developed and executed. You will note that the Study Group's recommendations limits the scope of activities from what is in the original House Bill 313. The scope of the center's activities are to be related to the acquisition and dissemination of information in the development of methodology required for wise management of our fisheries resources. The Study Group feels that the immediate management needs for collection of fisheries statistics are already being handled by our department of Fish and Game and NMFS and our other resource management agencies. Likewise, the research and training which will be a necessary ingredient for Alaska to expand its commercial fishing industry will be carried out under the newly formed Fishery Industrial Technology Center of the University. The research center that the Study Group recommends is designed to fill an important gap in our structure: that of providing fundamental approaches to fisheries management to fill basic information gaps and to understand the problems of multi-use of these resources and the impact of man on these resources. Once again, I would like to stress that this research center and its funding, from the Study Group's perspective, must come over and above the existing agencies, both from their budgets and their programs. The activities of these existing agencies must be maintained and expanded as required by the mandates of those agencies. Additionally, the Study Group did not find that there was a great lack of coordination among the existing research

agencies but instead we find that a great deal of coordination does exist. Our recommendation, very quickly, is that (1) the center should be established and that that center should be administratively assigned under the University of Alaska; (2) that it be administered by a board of trustees; (3) that it should have two advisory-type groups (first, one which represents the users of the resource and second, one that represents the scientists of the state); (4) that when this center is fully operational, we estimate that its size should be that of being able to support approximately 40 professionals plus an associated support staff. We estimate that this will cost around 14-15 million dollars annually. As to a location of any of the capital facilities that might come along with such a center, the Study Group has recommended a series of criteria to be used by the agency to which the center is assigned, (in this case we are recommending it to be the University of Alaska) when they develop the plans for such a capital facility. I think with that I would be happy to answer any questions that the committee has.

Sen. Fischer - In the packet is something entitled Alaska Fisheries Center Study Group recommended substitute.

Don Rosenberg (D.R.) - Yes, in the back of our report we do recommend a substitute bill which takes into account our recommendations.

Sen. Fischer - I note that the principle change is that nothing is within in Department of Administration. What other changes are there between the two?

D.R. - Limiting the scope somewhat and spelling out the advisory committees. That is principally all the changes.

Sen. Fischer - I note that the fiscal note is larger for the University operation than what was estimated for the State operation. The FY83 [costs] would be 526 [thousand dollars] under the University instead of the 436 through the Department of Administration.

D.R. - We did not review the original estimate. I think that original estimate was to do some of what the Study Group has done in the first year under the Department of Administration bill. In other words, to look at a structure to recommend locational criteria, and so forth.

Sen. Fischer - Did that provide for an interim board?

D.R. - Yes. And I think that is what that funding was for.

Sen. Fischer - Yours is directly for an operational program?

D.R. - Yes, although the first year is to initiate 1) the start of an administrative structure, and 2) to get the program planning under way.

Sen. Fischer - How much less money could you do it with?

D.R. - As chairman of the Study Group or University of Alaska representative?

Sen. Fischer - As a realist. Forget it.

Sen. Parr - Mr. Rosenberg, I would like to start way down on ground zero. To my knowledge there is some sort of fisheries center in the state and federal as well out at Auke Bay; there was a bill through here last year about some fisheries technology center in Kodiak; there is something down in Seward. I assume, but I'm not sure, the Department of Fish and Game has some research going on; I'm not sure where that is conducted. I wonder if you could define for us what each of these facilities is now doing, whatever facilities they are and, I guess, in essence what [their functions are]?

D.R. - OK, out here at Auke Bay there are really two facilities: There is a federal laboratory, the NMFS Laboratory; and there are people in the room that can address those programs out there better than I can.

Sen. Parr - I would just like you to give me a brief summary. I'm sure the Study Group must have taken into consideration what is already being done.

D.R. - Yes. That center is directed towards fisheries research for mandated type programs.

Sen. Parr - What kind of research?

D.R. - They do basic fisheries research. Most of it is biological out there. It is an arm of a much larger center which is located in Seattle called the Northwest and Alaska Fisheries Center. It does provide, including the Seattle Center, fisheries research, information, fisheries data that is necessary under the Magnuson Fisheries Management and Conservation Act, which is better known as the 200 mile limit [act], for management of the fisheries resources off from 3 miles to 200 miles.

Sen. Parr - That is not biological.

D.R. - It is biological, social and economic. The second entity out of Auke Bay is the University of Alaska School of Fisheries Sciences. This is an educational program, primarily teaching programs designed for providing bachelor and master level individuals for employment either in the state management agencies or in the private industry. It does have a research component, most of which is primarily funded either through my program, the Sea Grant Program, or grants or contracts with the Alaska Department of Fish and Game.

Sen. Parr - What kind of research are they doing?

D.R. - They do primarily biological research and with that there is already an oceanographic research center at Seward. Here they carry out research that is directed towards understanding the ocean environment. Some of that research does lean toward understanding the ocean environment as it relates to fishery resources of the state.

Sen. Parr - But not specific to fisheries research?

D.R. - It is not specific to fisheries. The bill which was before you last year and which is now in reality, has now created a fisheries industrial technology center in the University whose primary facilities will be in the community of Kodiak, [and which] was designed to address the technology, education, and research and development needs of the fishing industry itself, to allow the fishing industry to expand, to undertake the development of the fisheries which are currently harvested by foreign nations off our coast. Its research is not directed towards any management; it's aimed at processing and harvesting the fish.

Sen. Parr - The Department of Fish and Game research sites ?

D.R. - The Department of Fish and Game research has selected sites around, [with] no concentrated efforts, as I understand it, in any one place. They do operate some basic research labs such as their stock separation laboratory which is used to determine various populations of a particular species of fish. Their main research emphasis is directed towards gathering and analyzing information necessary to make the day-to-day decisions of management.

Sen. Parr - In other words you are talking about opening, closing seasons and gear limits and things like that?

D.R. - That's right. There is some limited effort on their part to do long-term research but their main emphasis is directed towards what is needed today to make those decisions.

Sen. Parr - Are there any other fisheries research sites around the state besides ones that we mentioned?

D.R. - There are certain field stations that support certain rather important programs in this state. For example, Little Port Walter Field Station here in Southeast is very important to the state's salmon enhancement program. The University of Alaska is currently operating what is called the Kasistna Bay Biological Laboratory. It is a NMFS laboratory and is designed for shellfish type research; and the NMFS operates, at Kodiak, a resource utilization laboratory and their basic shellfish management type people are there. There is one other important component that should be mentioned here (the fishery research units that support Alaska) and that is the University of Washington. Through their Fisheries Research Institute, they spend a tremendous amount of effort in Alaska.

Sen. Parr - I guess it was my understanding that the center proposed in this bill would both coordinate research and also do some of its own.

D.R. - What we would look forward to with this center is that it would provide for a cooperative type effort in research whereby researchers which are already in existence, either in these existing laboratories or elsewhere in the nation, or the world for that matter, could be brought together to address identified problems that require long-term type research. By long-term I mean where we may require funding for two, three, four or five years.

Sen. Parr - I guess I didn't make my question clear. My understanding was that this center was going to have a two-fold mission: [the first one is that it would] act as a coordinating agency to research that is already going on, and the other one is that it would act as a research agency just like the rest of these research agencies.

D.R. - If you establish it in the manner it's proposed with the board of trustees, the coordination and the advisory groups, the coordination would take place, that's correct. As I said earlier in my testimony, the Study Group didn't find that the coordination doesn't exist. Many of the individuals in this room, my colleagues here, meet almost daily or weekly to coordinate and carry out planning of joint research. What the center would do is enhance that through this board of trustees and advisory groups and it would then provide a mechanism for carrying out some of this research which we now can identify but which we have not resources to undertake. I don't think it was a real plan of the Study Group that the center should have a large permanent staff that lasted indefinitely and went on through the whole tenure process.

Sen. Parr - What are we talking about, 40 researchers?

D.R. - We believe that the optimum number that the state should be looking toward is about 40 professionals working on various problems at any one time.

Sen. Parr - I guess the reason for my line of questioning is just to try to find this out: if we have the number of agencies (and it looks like we do) already doing numbers of kinds of research and they are already coordinating their activities, as you said before (that was the note I made); so, I guess why do we need a coordinating agency if they are already coordinated? The second thing is, if the center is going to be doing its own research, then what are the gaps in research that are not being taken care of? We are researching, essentially (I'm using layman's language) how to catch fish and how to process them. We are doing biological research--basic research going on at Auke Bay. We have got research on salmon enhancement, oceanographic stuff (not specific to fisheries but on which fisheries research is based). We have research towards management. We have a resources utilization lab, and that's not counting what the University of Washington does. So where are

the gaps in our research not now being addressed that this institute will see get addressed?

D.R. - I think the Study Group's feelings on this was that the order of the magnitude (and in our report this is covered): the State, the Federal and the universities are spending about 30 million dollars annually on research.

Sen. Parr - Let me interrupt a moment, just to make sure I understand. The universities, the State and the Federal government are spending 30 million dollars on research which is directed to Alaska?

D.R. - Yes, directed to Alaska. The Study Group feels that that is really insufficient; not anywhere near the order of magnitude that is required to properly provide for protection of the resources. To make sure of their long-term viabilities to the state, we feel that there is a need for an expanded effort in fisheries research.

Sen. Parr - You need more than 30 million dollars a year just for fisheries research? Is that what you are saying?

D.R. - I think that if you put this in perspective of the magnitude of the value of the resource to the State and what it provides in the way of employment, you will find the State's investment in the basic research as used for management is pretty dismal, pretty small. There is a House Research Agency report that was just released on the Alaska fishing industry (and this only dealt with the commercial industry; it did not deal with the recreational or subsistence type of industry). It points out that the State of Alaska is only funding about 2.6 cents per dollar of value of its commercial fisheries resource towards the management, research (and investment in that management and research) of its fishing resource, whereby states such as Oregon and Washington are magnitudes greater. And I can't remember the figures exactly but Washington was something like 47 cents per dollar and Oregon was something like 30 cents.

Sen. Parr - In a range like that you start to wonder whether it pays off or not. I mean after all it isn't all profit. The State of Alaska invests an awful lot of money into their fisheries right now. I don't know how much goes to research but an awful lot of money is going into fisheries and has been ever since I've been down here.

D.R. - Not nearly as much as the magnitude of the industry that is built on it or that could be built on it.

Sen. Parr - Here is something that you should take a look at. I have seen a report not too long ago. I'll dig it out...

D.R. - It's a very good report..

Sen. Parr - I don't mean the report you are talking about, it's another report done that shows the cost benefit ratio to the fishing industry as far as the State is concerned.

Sen. Stimson - I'm curious about the decision to shift the center from the Department of Administration to the University of Alaska and maybe you could explain how you envision the board of trustees functioning within the University structure.

D.R. - The board of trustees was recommended as a principal policy and planning body for the center because we felt that you really had to have those people who are responsible for the management of the resource be giving the policy and program guidance. This will be something new to the University--having such a board that would report say to the President--and I think the University may wish to speak officially to that; I don't think I should. We have a University representative here.

Sen. Stimson - Well that's fine, I'll address my questions to them.

Sen. Colletta - Mr. Chairman, I've got a couple of questions. I think the first one is how come we have the bill in HESS? [inaudible]. tongue in cheek...but anyway, I notice on the both of these fiscal statements the Executive Director sure took a jump in a hurry. \$4500/month to \$6000/month.

D.R. - I suspicion that some of that is a result of when they somewhat changed the scope of the activity and I was not involved in the first fiscal note which was developed. This recommended budget has come not from the University but [was] by the Study Group from their contractors report, although I do believe it is probably within closer [range] to what it would cost. The reason for the very high salary for the Executive Director is you certainly want someone who is a world class leader.

Sen. Colletta - I don't have any quarrel with the amount of money that ... the change in six to seven months makes different interpretations as to what the center wanted to do. But on this new one that was prepared by you... I'm still confused. It goes with what the Chairman was suggesting: what are you going to do? I envision without [reviewing] the bill in detail, that this would become a depository for all the research activities going on, and probably, putting it together in some reasonable order. It seems that you said they are going to do that; and in addition to that you have got 15 researchers, and then each of those researchers have some additional technicians with them and then, on the contractual level you are going to have some more researchers budgeted some \$200,000 for each of the scientists that you contract with. To do what?

D.R. - This operational research budget is to support research projects to gather information. It is literally to address certain

problems dealing with the information needs of the resources. Let me give you an example of the type of research problem that might be addressed by this center. Apparently the herring resources of Bering Sea are increasing, becoming a very important part or segment of the economy of western Alaska. And yet our State's ability to manage those is fairly weak. They do the best they can with their knowledge of that resource. We have no idea whether they are separate stocks of herring out there; whether this is an artificial high we see coming; or that the thing is going to crash in two to three years. We know very little about that resource. So what you might see is that the board of trustees would define a five year program to look at that resource to develop better techniques for management which our management agencies, whether it be National Marine Fisheries Service or Alaska Department of Fish and Game, can use to manage that resource. And then that is what this money would be spent for, to use for scientists coming in to address just that type of problem. The values, the dollar amounts that are here are based on the experience of the existing management agencies and existing research agencies. They were developed by our consultants based on the experience primarily of the Northwest and Alaska Fisheries Center.

Sen. Colletta - I still find a missing ingredient because you enumerated all the different agencies that are doing some type of research and now you have offered a specific case at hand, currently. I guess that would be just special projects as they arose.

D.R. - They would be the long-term type of research that would be identified that is needed. That is only one of a list that we could list off here that would fill a book. Just the separation, for example, of the stocks of king salmon off the coast of Southeast Alaska is very important: management decisions are going to be made with very limited research ongoing on that. Just why did the king crab resources go down--can we expect this to happen every five or ten years?

Sen. Colletta - So if we fund this, literally we might be in a position to reduce Fish and Game's budget?

D.R. - No, I do not believe so at all. As a matter of fact, as the fisheries expand as a result of either encouragement of increased tourism or an encouragement of increased commercial fisheries, you are going to need to expand your management agencies' programs. And those are the people that are going to have to make those year-by-year decisions and use this information that this type of center would provide.

Sen. Colletta - Yes, but that is my understanding that they currently were engaged in accumulating that very type of information.

D.R. - They do not have the man-power or the money to address those problems that I have laid out, such as long-term type of things. They are restricted by their budget constraints and by their personnel constraints to having to deal with research that is on a really short-term basis to gather this information, analyze it and hope they did the right thing.

Sen. Parr - Wouldn't it make more sense, then, to, if that's the case, to beef up the budget of Fish and Game and let them do this job? They would be just as capable of coordinating the operations of other agencies. I understand there was a great deal of discussion in the Study Group where this center should be located and I don't know what the overriding consideration was in saying that it should be with the University. After all, the Fish and Game has the responsibility to the Governor and to the people for the fisheries. What would be... why not just give them more money so they can do the kind of research on the Southeast salmon stocks that you were talking about?

D.R. - I think it better that I don't really try to answer that one. I think there is a representative, Commissioner Skoog is here, who can address that question.

Sen. Parr - Let me ask you one more question then that would be in your bailiwick for sure: What is going to be the relationship between the board of trustees and the Board of Regents/President? This draft bill says that the trustees will provide policy and planning guidance to the University. So, does that mean that they are strictly advisory and that the Regents or President may override their guidance and make their own decision?

D.R. - Obviously, the Regents have definitely and (the president being their chief employee) certainly do have the right to override any decisions that any organization that is under the University would have. That is the intent. That is why (if placed there) there is a feeling that the board of trustees should administer the center for the University.

Sen. Parr - I see. Have the Regents gone along with that?

D.R. - This has not been brought to the Regents. It has been brought to the University's Administration and they are prepared to talk to that.

Sen. Parr - OK. Is someone here to speak from the University?

D.R. - Dr. West is here.

Sen Parr - Then there could be something said for doing away with the board of trustees and simply having a director for the center (who would then have advisory committees, of course) and then the director of the center would get his orders from the President?

D.R. - That actually was one of the alternatives that we looked at--to have a center under Fish and Game or the University of Alaska that had just a director. It was the feeling that, for this center to be fully supportive of the resource management agencies, the Commissioner of Fish and Game and the Regional Director of National Marine Fisheries Service needed to have a very strong say in the direction that the center took, and it was the Study Group's recommendation that that strong say be done through such a thing as the board of trustees or board of governors.

Sen. Parr - Thank you Mr. Rosenberg. Mr. Jefferts.

Testimony of Dr. Keith Jefferts, President, Northwest Marine Technology

Keith Jefferts (K.J.) - Mr. Chairman. My name is Keith Jefferts. I am President of Northwest Marine Technology, Inc. and I serve on the Governor's Study Group for this study. I would like to speak very briefly to matters of investment and research from the thesis that the investment in research in fisheries in Alaska at the present time is inadequate, in spite of the fact that a lot of money is being spent for that. Dr. Rosenberg just made one point already, which is clear (and out of one of your studies which he quoted): the State of Alaska reinvests only about three percent, less than three percent, of the values of its fisheries landing in fisheries research. Three percent is a lot of money--one can't fault that--but by looking further south, in fact, one notes that the State of Washington reinvests forty-three percent of the values of its fisheries landings in research associated with management of fisheries and the State of Oregon about twenty percent. I'm not about to suggest to you that they are doing it right, but at least there are a lot of wise people down there who seem to think that the factor of ten or twenty larger reinvestment is justified than is being carried out here. That at least should be food for thought and I would like to proceed on the matter a little bit. I contend that fisheries management is a high technology industry in the sense that it is characterized by large marginal rates of return on the investment. That is not only so apparent in the positive sense that you can spend another dollar and get thirteen back but it's absolutely true in the negative sense, and I would like to follow on one of Dr. Rosenberg's example and tell you a little more about herring in another place, not so long ago: There is another herring resource about the same size as the one in the Bering Sea but it's in the North Sea and it's an old and well understood fishery that is exploited by eleven member nations under the auspices of the International Commission of the Exploration of the Sea. They proceeded to harvest that stock, they have done it historically for over five hundred years, and they harvested it intensively in the early 1970's essentially without enough information. They didn't do their research. Well, even that needs to be qualified, there were experts around who knew the truth but they couldn't speak clearly enough in the political arena to make it heard. And what they did simply was to overharvest the resource by a factor of two for about five years. They ate their seed potatoes. The result, predictably, was that the resource collapsed. They had to terminate the fishery on it. The economic hardship was large, large numbers of fishermen went home and went on welfare with the balance of them setting off on other kinds of fishing efforts. That fishery is still closed. It is now five years later. Is the fishery recovering (and one must state that there is no guarantee that the fisheries will recover after such a mistake)? In this case it is. The fishery is recovering, and probably next year a commercial fishery will resume. The broadest

sense that one can suggest is that it will proceed at about half the optimum level for the next five years. As one turns the envelope over and writes down the numbers that stem from that scenerio, you discover that mismanagement of that fishery to that community costs no less than a billion dollars--and probably in excess of that. A billion dollars is a conservative estimate for the failure to do that job right. That scenerio has been repeated in some sense or other in every well developed marine fisheries in the world and I suggest to you that the Bering Sea resource that Dr. Rosenberg referred to is a very likely candidate for some more. The price being that of inadequate research which means gathering of knowledge to manage correctly. That is the negative sense of large marginal rate of return. If you don't do it, you lose your resources and there is no guarantee that you will recover after that kind of an ...

I have to qualify my remarks a little bit: I'm not a fisheries biologist, I used to be a research physicist and I turned to investing in research, successfully, I might add, to the point where I can now afford to do things like sit on the Governor's Study Group for things like this. I do that by reinvesting something like twenty percent of the gross income of the corporation in research. The point is, you don't do it for your motherhood or any broad social virtues; the point [is that] ultimately the State expects to make a profit or at least to avoid a loss. And that fact is overriding. You make an investment because you want something back from it and there is every reason to expect that you get it. I can support this whole idea of a fisheries center most intensely from that point of view. There is inadequate investment of that kind being made here. There is incredible opportunity to make it and this is the time it needs to be carried out. That's the essence of my comments. I'd be happy to answer any questions that I can.

Sen. Parr - Let me ask one question. We just got this House Research Agency report you referred to and I haven't had time to go through it except here in the summary of findings in the front. That forty three percent it says is on management programs for every dollar of wholesale fisheries value. It doesn't say for research. Washington is forty three percent and Oregon is nineteen percent, but the way this is worded here, it's for management programs and not research. Are we talking about two different things?

K.J. - Well, no I don't believe we are, sir. I believe we are talking about the same thing: that boiled down to gathering adequate information to carry out catch limitations to manage the catch of stocks at an optimal level. The bulk of that problem is the one of gathering information. And that I certainly lump into research. You really need two kinds to manage a simple stock and one of them is the biological information that relates to the rate at which creatures grow and multiply and the other one is the size of the stock out there so you can control the catch at an optimal level. So you can eat the surplus but not the seed potatoes.

Sen. Parr - What is your estimate, Mr. Jefferts, as to how much we should be spending on research? I mean there is thirty million on research devoted to Alaska related fisheries, what should that figure be?

K.J. - Well, I'm in agreement with my colleagues on the Study Group's board. I think, if anything, the proposal is a lower limit of a wise investment in Alaskan fisheries. There is another example that one can state: If a single corporation owned the Alaskan fisheries resources, I think that one could make powerful arguments that they would invest no less than ten percent and probably twenty percent of the value of the landing of the resource, because they expected to get their money back quickly. And that translates to one hundred million to two hundred million dollars a year. I'm not suggesting that I think that's a good idea, but that argument is still valid.

Sen. Parr - So you'd invest ten percent of the value of the landings?

K.J. - Yes sir.

Sen. Parr - Are there any more questions for Mr. Jefferts? OK, thank you. Commissioner Skoog.

Testimony of Dr. Ronald O. Skoog, Commissioner, Alaska Department of Fish and Game

Comm. Skoog - Mr. Chairman, I'm Commissioner Ron Skoog, head of the Alaska Department of Fish and Game. I'm not sure, coming in late, exactly what you have covered or what you wish to cover, but I would like to speak in support of this concept that's presented here: this idea of establishing a fisheries research center. I am in full accord with its being established, as proposed, attached to the University of Alaska. I think that is the best environment for the fisheries institute. I presume that a lot has already been said about the value of our fisheries and I will not repeat that. In looking ahead now--the reduced revenues we are facing now and (I presume) in the future--certainly the State is going to depend a lot more, in the future, upon our renewable resources of which most of the commercial fisheries are going to be the mainstay. We have a great potential in Alaska, offshore, for developing a lot of fisheries that haven't even been touched yet. The potential revenue there is very great and I think we need, as best we can, to maintain an aggressive and effective management program to insure that these stocks will be perpetuated, as well as to use those stocks in the most effective manner possible for the best cost benefit ratio we can attain. What we have been lacking over the years is ... good biological information about the various fisheries stocks that we have been harvesting. The coasts of Alaska, the many streams that we can utilize, as well as the vast offshore area, are simply too great for us to cover adequately in being able to assess what those populations are and particularly what the various population dynamics are that control the population. All of which is basic to establish an optimal type of harvest for fisheries. The kind of research that the department is involved in is short-term, immediate type of research, for the most part: the kind of assessment that we need to manage our fisheries on a day-by-day or week-by-week basis. We determine what might be coming back next year or what is happening this particular season. There is a need for a longer term kind of research that can answer some of those gaps in the knowledge that we haven't been able to address. For instance, ocean survival or productivity of some of our lakes in production of the red salmon smolt. There are a lot of these areas that we just don't have the knowledge on and can only get through intensive research programs. I think this kind of research best sits in a university environment, apart from the Department of Fish and Game. I think the Department needs to stress the management responsibility that we have; providing the fishermen whatever we can of the surpluses that are available and be sure that they are not overharvested. We do need a short-range, short-term research capability as well, which really isn't research in my mind, it's more assessment, investigation and this kind of thing. The proper arena for longer term research and the answer to some of these problems, is what is being proposed now as the fisheries research center. I think

the State ... obviously this State has made its fishery really [the best] in the world when you come down to it. The potential is there and certainly, I think it warrants an extensive fisheries program in the University of Alaska as well as a fisheries research institute to go beyond what is the academic side of fisheries education. As I view this, this proposal really sets up a basic facility for the institution as well as a core staff of administrative and service staff, including data processing, library facility and so forth, with a core group of scientists that will be permanent to the institute. Presumably a lot of work will be done by visiting scientists from a variety of universities or disciplines that would come through the institute supported by various kinds of grants that would be outside State appropriations--some from Federal grants and private grants from industry or wherever they may be identified. I think the bulk of your effort would probably be related to a standing program that would incorporate the large... of scientists. I guess that's all I have to say, Mr. Chairman.

Sen. Parr - Commissioner, a key question that was asked before you came, I suppose, which no one wanted to answer until you got here: You are responsible to the Governor who, in turn, is responsible to the people for the management of fish and game for the State of Alaska; so one of the key questions might be why the additional funding required for research which is not now being done shouldn't be properly placed in your department? What you said is what you are presently doing is short-term research, you are not doing long-term, you are doing short-term for the management decisions essential to us. But what would be the reason that your department could not handle longer term research well and why shouldn't it be in the Department instead of the University?

Comm. Skoog - I think one good reason in my mind for being attached to the University is simply the availability of the kinds of resources at a university, including a variety of good help from the various disciplines that might be involved. You've got an array of different kinds of professors at a university, that can help you in the program. It is a good idea to be able to consult the people on the spur of the moment, so to speak, when you are discussing these ... involved with a lot of research problems. The academic environment is a little better environment, I think, for more pure research than what the Department is involved in. I think there is a much broader facility, generally, at the university environment, including the very extensive data processing capability the University has. All of these kinds of things provide a great incentive for such a research [center]. It could be within the Department, but then I doubt whether we would be able to staff it in the same manner that the University can. The University can draw a higher caliber scientist simply because a lot of these scientists are oriented towards academia as opposed to a line agency. There is a certain resistance among a lot of academic scientists to a management department. It doesn't have the same attraction. Also I doubt whether, fiscally, the Legislature would

be able to support it. We would have a lot of additional requests. We would have to have data processing capacity, more than we have now, I think, as well as other kinds of facilities. In view of the Legislature's attitudes in trying to reduce government, this would be [seen as] trying to increase our Department. I doubt whether we have the right climate for it. As one of the Department's divisions, Division of Research, let's say, it would also be competing with the rest for funds in the Department, and I know that if it ever comes to a crunch, our priorities nearly always have to go towards management. Our feeling is that our priority responsibility is to maintain the resource, and a large part of that effort is simply trying to manage the fishing activity so we can prevent overharvesting and make sure that the ... What we will find, I think, with such a competing arrangement is research will always suffer when it comes to making the final decision. I don't know, does that answer your question?

Sen. Parr - [Inaudible]... Now the prime fishery is salmon and that's a migratory fish. Do we have an arrangement with Washington and the rest of the ...? They do extensive research activity and, I suspect in this case, with each fish. Do we exchange this information with state agencies?

Comm. Skoog - Oh yes. We have a close relationship with the University of Washington. Dr. Bevan over here, has been an awful lot of help to our people in Alaska and takes part in a lot of analysis that goes on in our fisheries in Alaska. We have utilized their modeling technology...

Sen. Parr - Thank you Commissioner Skoog. Mr. McVey.

Testimony of Bob McVey, Director of the Alaska Region for the National Marine Fisheries Service and also representing the Northwest and Alaska Fisheries Center in Seattle.

Bob McVey - Mr. Chairman, I'm Bob McVey, Director of the Alaska Region for the National Marine Fisheries Service, and I'm also representing the Northwest and Alaska Fisheries Center in Seattle which [operated] fisheries research facilities here in Alaska and we spend something like eighteen million dollars annually on Alaska fisheries research. I'm also a member of the North Pacific Fisheries Management Council. We received our new 200 mile law just a few years ago, the Magnuson Fisheries Conservation Act, and we were immediately put into the position of developing fisheries management plans in accordance with that law. The law required that we use the best available scientific information. As soon as we embarked on that effort, we could see that there were many information gaps in our knowledge about fisheries. And so, we were immediately impressed with how short we were in the kind of information we needed to develop good fishery management plans. Those gaps occurred not only in the biological area; but also, under the law, we were required to consider economic and social effects; and some of our greatest gaps were in the areas of economics and sociology. The gap was critical in many cases and funds were squeezed out or bootlegged to carry on short-term studies, (that other agencies couldn't) in attempts to fill, on a very short-term basis, critical needs. In no sense was the full requirement of the act or the full intent of the act fulfilled with regard to a factual basis on which fishery management plans should have been developed. In addition to the gaps that were evident then, funds for federal fisheries research had been either level-funded over a period of years or in some cases reduced. At this time, of course, in accordance with the present budget proposals, there are prospects for substantial additional cuts to federal fisheries research. One example is the Auke Bay Laboratory here in Juneau. The cuts now proposed in the present budget proposal contemplate a reduction of 74% of the laboratory funding and would require elimination of 60% of the professional staff. The outlook is poor for additional federal funds to come into fisheries research and help fulfill those information gaps we see relative to our 200 mile law... [END OF FIRST TAPE]... and to help fulfill those information gaps that we have all been so aware of in recent years. It would upgrade coordination. We have all agreed, in discussing the study report that coordination has not been nearly as bad as indicated in the report. Really, our researchers are in regular and steady contact with one another; so, coordination between researchers is excellent. Many times the public is not aware of the research that is under way; the center would assist the public in knowing what research is going on. So, it is not just coordination between researchers but also with the public. The center would also allow better prioritization of research. There would be a lot of people, agencies, involved in those deliberations and discussions between those participants.

We would end up with a better priority listing of what the needs are for research. We've had a fair amount of discussion about long-term and basic and I think that in the State's arena that there is almost no long-term basic research under way. There is some by our agency, National Marine Fisheries Service, and some by the Fisheries Research Institute but it's very specific and narrow in scope. Some examples of long-term basic information that we lack: We really cannot identify the larval stages of some of the important species, especially in our ground fish stock. We really don't know what a larval cod looks like or some of the rock fish. We know very little about the relationship of one species to another. That's a ball park that would be extremely helpful in formulating fishery management plans. We simply lack that information and it would be a major research undertaking to obtain it. Our management now is basically single species management. We see the glimmerings of relationships between species but our management really isn't based on it because we don't have the information that would be required. Those are some of the long-term basic types of information that the center would help us achieve. We endorse the concept of the fisheries center as proposed by the Study Group and we'd be willing and eager to assist in any further development of that concept. Mr. Chairman, I'll try to answer any questions.

Sen. Parr - Thank you. Any Questions? Mr. Helle.

Testimony of Jack Helle, District Director for Alaska of the American Institute of Fishery Research Biologists.

Jack Helle - My name is Jack Helle and I'm here representing the American Institute of Fishery Research Biologists and I'm the District Director for Alaska. Our organization has 75 Alaskan members. Personally, I have been involved in long-term research in Alaska for about twenty-four years. I just want to be very brief and say that we strongly support the concept of this Alaska Fisheries Research Center and we think it's needed very badly and I think that most of the things that I might say might be duplications that Mr. McVey has said and others before me. But I would like to say a couple of things that are pertinent: One is that we're seeing at the present time some very incredible returns to our fisheries resources, particularly our salmon. And this is due to two things: due to good management but also due to a favorable marine environment at the present time. And, in spite of good management, if your marine survival start going down, you are not going to see the kinds of runs that you have. Now is the time when you should be doing research on this resource. I don't have to tell most of you that the life cycle of a king salmon is about seven years. That's long-term to just get one life cycle study on king salmon; chums have four years; sockeye six years; and so on. This is long-term research. For genetic research on these populations you certainly need more than one cycle to look at. That is definitely long-term research. Most of the agencies that have been involved in long-term research up here, are now changing their roles and are becoming more responsive to immediate management needs of the 200 mile limit. I think the Auke Bay Lab, in particular, is one who's role is changing. I would just like to end this by saying that I think that research is a very strong investment in the future and I think that now the time is right to do it. I'd be glad to answer any questions.

Sen. Parr - What did you mean, Mr. Helle, when you said that salmon runs are good now and it depends on two things, management and also better marine environment? What did you mean by good marine environment?

Jack Helle - Well, I oversimplified this, but the management of our resources has definitely been getting better. No question we've learned more on how to manage our resources, the State's been doing a good job. On top of this, we are presently seeing extremely warm marine conditions in the North Pacific Ocean and this is, I feel, one of the major reasons we are seeing such an incredible survival coming back to certain areas like Bristol Bay. Prince William Sound has had three record years of returns. They are expecting the all time record return this year. Southeastern is expecting a huge amount of pinks especially in the southern area and this primarily due to the very favorable marine conditions. But, of course, you can have favorable marine conditions and if

you don't have the fish going out you won't have the fish coming back. So, management is a very strong part of it. I have been involved in long-term research on the effects of marine environment on the survival of salmon and some of the data that I've been looking at indicate that we are starting to slide off of this warm period and we may be going back to a period of more austere survival.

Sen. Parr - You are saying that, in layman's terms, that when the ocean is warmer you get better survival rates and when it's colder you get worse survival rates. And we have both cycles from warm to cold; so, even if we did the best job we could, we would have a drop in runs if it turned colder?

Jack Helle - Yes, but management can help compensate for that.

Sen. Parr - I am oversimplifying a great deal. Any questions you want to ask Mr. Helle? Thank you sir. Mr. Bevan.

Testimony of Don Bevan, Director of the School of Fisheries, University of Washington.

Don Bevan - Thank you Mr. Chairman. My name is Don Bevan and I am a member of the North Pacific Fisheries Management Council and Director of the School of Fisheries and Professor of Marine Studies at the University of Washington. I would like to share just a few words with you based on my experience of about 35 years of doing research in Alaska and being a part of the University Center such as the one that they have proposed. As you might guess, I happen to be a strong advocate of something that I've spent my life at. I believe in that approach. I don't think there is any question more pointed than yours: Couldn't we take the money and put it in the Alaska Department of Fish and Game and do a better job? Again,...

Sen. Parr - I don't think I said a better job. I asked why we shouldn't do it.

Don Bevan - I think we could. We could put some more money in the Auke Bay Laboratory and do a better, more effective job for the State of Alaska. We could send some more money down to the University of Washington and we would do a better job. I think that is the first point we all recognize, that there is a lack of resources on these problems. I don't think we are going to add much in the way of money to the Alaska Department of Fish and Game. I think they made their case before this body (not this particular committee, but certainly appropriate committees here). I suspect it's like my own state fisheries department. They have their own responsibilities. The statement with them [is that they] support some of best that they can. I want to be careful in choosing my words in what I say about the University of Alaska because I don't want to be overly critical but I have to be a little critical because the State of Alaska has not devoted resources in making the University of Alaska a fisheries research institution. I guess I can charge that the University can do things, not everything obviously, universities do some things very poorly; however, I think Commissioner Skoog made a very good point that there are certain kinds of people that we have around universities that we can take advantage of. I will give you a couple of examples: the whole basis for forecasting most of our pink salmon runs in Alaska is based on the simple little hydraulic tool that samples eggs in the gravel, which was developed (I remember very well--I was there when it happened around the lunch table in the faculty club) because there was a hydraulic engineer interested in catching steelhead. He had an idea about sampling eggs in the stream. That kind of interaction probably wouldn't take place in a fishery agency that would be charged with solving the sort of next fire fighting problem that comes in because some fishery has gone wrong. I don't want to dwell on that in any great length. I would like to add one other comment in regard

to trustees and regents. I have a visitors committee made up of people around the country, a number of them from Alaska, who tell me how best we ought to do our research program. They are not my boss. They give me advice and counsel. The president of the University and the regents certainly are my boss. They give me direction on policy and they tell me how much resources I'm going to have to work with. But I don't think in any university, the regents are going to tell you how to teach or how to do research. So, I think there is really no conflict there: the regents are charged with running the organization and they do, but I don't know of any institution where there would be a conflict between setting a program and the kind of overall university policies and resources you need to carry that out. One thing that I think is clear: while I can always say that coordination is always important, I don't think that we should set up a center of this kind because there isn't a very good job being done; because I think there is. But, I think there are additional things that need to be done and the University is a very fine place to do some of those things. Coming out on Mr. Jeffert's point: How much investment are you going to put into this? I guess that's the decision only you gentlemen can make. I can't help but make that my point of view: investment and research and the opportunities for development of Alaska fisheries are minimal at best. If there are any questions, I would be happy to answer them.

Sen. Stimson - Do you have a structure similar to what is proposed here with a board of trustees within your University?

Don Bevan - We don't have a board of trustees, we have what is called a visitors committee, that's made up of the Director of Game of the State; the Director of Fisheries; Mr. Walt Yonker head of the Seafood Processing Association in Seattle; Mr. John Peterson who is a member of this Study Group and President of Ocean Beauty Seafoods; Mr. Ken Olsen who is the head of the Fishermen's Union--Much the same kind of board that is being suggested here. I think it's a bit larger. I think mine is ten or eleven.

Sen. Parr - Dr. Bevan, I raise this question to make sure, because for example, the Geophysical Institute of the University of Alaska has had a visitors group of some sort like you are talking about for as many years as I've known anything about it. They don't swing any weight because they give an outside evaluation of how well the institute is doing... That's quite a different thing from having trustees unless you discuss, really, what their scope of authority is. What is the budget of, you are Head of the School of Fisheries I believe, what is the annual budget of that school of Fisheries?

Don Bevan - School of Fisheries budget at the present time is about seven million. About 15% from the State of Washington, mostly federal but some private industry and some from the states of California and Washington.

Sen. Parr - Fifteen percent of that comes from the State, roughly-- of that seven million?

Don Bevan - Yes, and that's including our teaching program as well.

Sen. Parr - Do you offer ... what degrees do you offer?

Don Bevan - We offer Bachelor of Science in Fisheries, BA with a major in Fisheries, BA of Science in Food Science, a Master of Science in Fisheries and a PhD in Fisheries. I'd be happy to provide you with a copy of our annual report, if that would be of use to you.

Sen. Parr - It certainly would, sir. We are looking at a real cost of three and three-fourths million dollars the second year and almost eleven million the year after that. The way the price of oil is going down, I think we are going to have to take a very careful look because when the pie is a certain size, the dollar that goes in that part of the pie is not going in the other part of the pie. Ideally, in the ideal world, when you have all the money to invest in research that is needed--it's ideal. We are, unfortunately, not living in that ideal world. So anything that would be available to me from you would be much appreciated.

Don Bevan - I think it's anticipated and I haven't been a part of the Study Group and as I read their report, certainly they have a willing volunteer from our side that would be enthusiastic about taking part in a center of that kind, much as we do with the WAMI project that the University cooperates with.

Sen. Parr - Is any money contributed to your school by the ... you said one of the members of your board of your visitors committee was the head of the fishing division, I believe...

Don Bevan - The industry supports presently about a level of three hundred thousand dollars a year. My personal research on Kodiak Island is supported, continually since 1948, by seafood processors. I would have to go back and add up the numbers but I suspect we are getting close to two million dollars over that period of time.

Sen. Parr - In this typical seven million budget you are now getting three hundred thousand from the processors? Are you getting anything from the fishermen themselves?

Don Bevan - Yes. There have been some contributions along with the industry from the Bristol Bay. Sorry, I don't remember the exact details about that.

Sen. Parr - How about the fishing industry of Washington?

Don Bevan - I think the only contribution from fishing in the State of Washington is for scholarship funds, not for research.

Sen. Parr - Any more questions? Thank you very much. That is all the names I have listed of people who want to speak. Rep. Gardiner.

Testimony of Representative Terry Gardiner.

Rep. Gardiner - Mr. Chairman, I would like to testify on this bill. It was introduced last year and came over from the House. I think the report that's been done and a lot of the details that have been worked out probably provide a much better framework to implement what was originally envisioned in HB 313. It's been subject to comment and research by a lot of different people and I think they've come up with a pretty good product that I'm very supportive of. To some extent a big difference is reduction in scope and that is probably more appropriate and accomplishable. One of the things I've been interested to see [is the concensus] on this. Fisheries is like many interest group areas in the sense that you bring up an idea and half the people are for it and half the people are against it. Another half are undecided. I know you can't have three halves but sometimes it seems that way with fisheries. This idea, as it has become more developed and some of the details have been worked out, seems to spark a very universal support from many quarters. It's pretty spontaneous from various agencies that might otherwise have some interest in having it in their bailiwick, or what have you, or other political jurisdictions; but, I've been pleasantly surprised to see the unanimous support that has grown up from different people looking at ideas, contributing their efforts towards this and refining the idea to support something that is more workable. I think the process will continue because these people have volunteered their time and their agencies' efforts to be involved and it's resolved some of the questions that were brought up last year and that are being brought up here now.

In terms of my own support for the concept--it grows out of looking at the world fisheries scene and the American fisheries scene. And one of the things that we have spent a lot of time in the State (myself included) giving a lot of political rhetoric about is this great fisheries resource off the coast of Alaska that is being harvested by foreign countries and why aren't we out there and, of course, we thought of political solutions. We have a political solution now but we are still not out there. In looking personally at the fisheries in Northern Europe and in Japan, I was surprised to see quite a bit different effort. There is a very fundamental support of the industry (the industry, its processors and the fishermen and other people involved in the industry), at the research and university level. Basically, looking at this State, I find that absent. I don't find the fishing support through the University or through the research entities that you find in other jurisdictions. In looking at the great fishing powers of the world, you find that their industry, as a total makeup of all the components of it, differs from ours, in that we do not have any real fisheries program in our University, education, or fundamental institutions that do basic research. I think that is why we are partially faced with the problem of somebody else capturing our resource and I think until we give the support to industry and management of this kind we are not

going to be in the same league as these other countries and other states and provinces. To do this, to some extent, we will be [playing] out another act of maturity of becoming a state. We, as a State ... before we were a state we didn't have all that much to do with the fisheries. We took over the management and we have increased our efforts in management much more than what they were when we took over statehood. They have shown many signs, and actual dollar returns, of successes. I think we have to do the same thing with our University and research efforts. One of the things I think is a real positive reason for having this in and associated with the University is that the University has the desire; and I think many people in the Legislature expressed it over the years about it: why isn't the University doing more about fisheries? Why do we have fisheries as a big industry and the University of Alaska isn't renowned throughout this country or any place else as a big place to go to get a fisheries education or any kind of degree in fisheries? We do not have that reputation. I think many people hoped for that and we plowed money into the beginnings of programs in the University and in the last couple of years the University has put a lot of planning efforts into trying to come up with this. I think we could proceed ahead with this but I think we will be much more successful if we have the type of high level and first class fisheries research center within and associated with the University. I think we could argue over the details of the most efficient relationship between that [and other institutions], but I think you will see a lot of back and forth [movements] as you do in other university research systems between the university and research center graduate students working over there, professors here, teaching over there and people moving back and forth between the research scene and the education scene or being involved in both. I think that is going to be real important in terms of developing a good university fisheries program to have this type of research institute and I think we only have to look at our sister states and other foreign jurisdictions to see this kind of relationship. They have organized it in different technical ways but the fundamental components of research and education have been there and have been intertwined in their efforts to generate information to help us wisely utilize our resources. One of the issues that I think is appropriate, it has sort of come up here, and I want to answer that question: What is this thing going to do that isn't being done now? There are some real fundamental problems that a lot of us are aware of that are involved in the fisheries from maybe different aspects, and some of these may involve our fisheries agencies themselves. Some of these involve economics of fishermen beyond biological things because there really are ... it's hard to separate things a lot of times. An example I would give is in a fisheries I'm familiar with (and I use it because I'm more familiar with the details): In Southeast Alaska we have a lot of mixed stock fisheries and these are mixes not only of the same species headed to different streams--there are 2,000 or more salmon streams in Southeast--but they are mixes of different

species of salmon. So, there are some real fundamental management problems (no matter how good the data is) on how many fish are out there, and how much fish the fishermen are catching, and how many got up the stream, and how much we need up the stream, about how to effectively get the right amount of fish into each stream and not wipe out one stock or one species while you are doing it. I think we need to devote some fundamental research efforts figuring out better management systems to do that. I think that kind of thing needs this type of agency or program to do it, though I think it's pretty hard for the Department to do in terms of their day-to-day activities of trying to do the job. Also, there may be the question of conflict of interest, in that, maybe, part of their present management policies are the problem and an independent agency could help them see the solution better than they could from the inside themselves. I think you will find a lot of the other examples may have the same aspect to it, because somebody in some agency is managing every fishery--not to say the reason that we are setting up an independent agency is to analyze every other agency, but I think an independent effort with support from all the agencies and involvement through the University could supply those elements of objectivity. Again, I see another issue that this Legislature, at least the House Finance Committee, is wrestling with: What is the appropriate role of State involvement in supplemental production of salmon? We have the FRED Division that is out, through direct State funds, building hatcheries; and other developmental and supplemental programs for salmon. We have a system of regional, private non-profit hatcheries. There is a lot of debate over what is the best economical system for the State: [whether] to do this; and who should run what; and what have you. Again, I think this is the kind of thing that has some economic questions to it, some financial questions to the State, as well as biological and management considerations that all have to be looked at to help the State policy makers draft the best answers to that question; and we are involved in that question now. We really haven't had any high level group or people (that may require something besides biologists or financial aid from the Legislature) to figure out the answer. This kind of institution we could turn to to help us find the answer to that rather than having to feel our way through with some budget ... filler or that kind of approach. I think those are some of the examples that I would see; and maybe I have more of a little bit of a [particular outlook], being a fisherman type--some of the people from the biology and management side might put a little bit different emphasis than that on some of the types of problems. But, the basic thing is to provide that information, [and furnish everybody] with an equal ability to make better decisions. I think this has been the best suggestion as to where to put it [the center] to do that. I'd be happy to answer any questions.

Sen. Parr - Anyone else want to speak on this?

Testimony of George West, Vice-President for Academic Affairs at the University of Alaska.

George West - My name is George West. I'm Vice-President for Academic Affairs at the University of Alaska. I'm feeling in somewhat of an awkward position here because the Study Group has recommended the establishment of this center, all of a sudden so to speak, within the University of Alaska's system and it's really something we didn't lobby for in the first place. Nevertheless, we are very pleased because we do see the need for long-term basic and applied research in fisheries in Alaska, and we certainly want the University to be deeply involved in that research. We have reviewed this report, which you all have I'm sure, and concur with the direction that has been proposed by the Study Group, and as expressed by the Substitute Bill which is a part of that report. We believe that the center would have to be implemented in such a manner within the University so that it can be a cooperative research entity involving other research agencies, both within the University and the others that have been mentioned--Alaska Department of Fish and Game, National Marine Fisheries Service and the private entities as well. In that regard, the University would have to modify, somewhat, its plan currently underway for improvement of fisheries programs to take into account this expanded responsibility. The University could only accept the center's program, of course, after review and approval of the Board of Regents and could implement the proposed center within the University's fiscal and facilities constraints--and you are all aware of the problems that the University has there with our priority programs that have been presented to the Legislature by the Board of Regents. We would not, as other agencies would not want, this or anything like this to be in competition with our original proposals. We concur with the Study Group's recommendations that start-up funding would only be provided this year. The University would, under such funding, provide a plan by next year for the full integration of the proposed center into the structure and programs of the University. I don't see any problems, as has been addressed by Dr. Bevan, of a reporting of the Board of Trustees to the President and Board of Regents. As he indicated, the Board of Regents is really involved with policy matters which are implemented by the President. Senator Parr mentioned the advisory panel of the Geophysical Institute, and though I do not feel quite the same that they are not really [effective]; it is a national advisory panel; it does set the long range actions and directions of the Geophysical Institute; and it does report to the President. There are some similarities there so I really don't see it is that much of a problem. Are there any questions?

Sen. Parr - Commissioner Skoog testified that, of course, the Department head, say the Division of Research, would be competing for those funds going into the budget, et cetera. It appears

that such a center in the University would also be competing with other University needs when it comes into the final budget.

George West - That depends on how the Legislature [views] their budget; whether it becomes a line appropriation for this center independent from the rest of the University's budget. Otherwise, I guess, to be honest, yes, in all cases, if it's all in the same pot then you have to list your priorities and the Regents do [list] such priorities as advised by citizenry, the faculty and so forth on through the President and there would be the potential of a problem there possibly.

Sen. Parr - You also mentioned, of course, that this would be subject to acceptance and approval by the Regents. We have had a couple of cases in the last couple of years in which the Legislature gave the Regents something and the Regents didn't really want it. When would it be possible to find out at least an informal expression of the Regent's attitudes towards being given such a center that they didn't ask for?

George West - Informally, we could probably do that very fast. The Regents are in town tomorrow, in a work session and a board meeting on Friday. I expect it might be possible to have some [informal expression of interest to you, tomorrow].

Sen. Parr - Dr. Barton has been going around the State, as you know, beating the drums to the fact that the Legislature shouldn't be telling the University what to do and the Regents should be making the decisions on a statewide basis. I know the Legislature has given the Regents institutes before and given them some other things that they didn't ask for too. If they don't ask for it, we really don't want to give it to them.

George West - I can't, of course, speak for the Board of Regents but such a plan as this seems to me [something that they would be interested in].

Sen. Parr - What were you referring to when you said you would need to modify your current plans?

George West - The University has a plan already established for the future of fisheries in the statewide system. There is the marine fishery research going on in Juneau ... those kinds of things that are going on will probably have to be modified somewhat...

Sen. Parr - Anymore questions? Does anyone else want to speak on HB 313? Meeting adjourned.

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST
 Bill/Resolution No. Senate HESS Committee Substitute for HB 313
 Title Alaska Fisheries Center
 Requested by Senate HESS Committee Date 4/12/82

II. FISCAL DETAIL
 Agency Affected University of Alaska
 Program Category Affected _____
 BRU, Program, Or Subprogram(s) Affected _____
 (Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES		52.3	590.3	1,128.3	1,666.3	2,204.3
200 TRAVEL		21.3	65.3	109.3	153.3	197.3
300 CONTRACTUAL		92.0	867.0	1,642.0	2,417.0	3,192.0
400 COMMODITIES		3.0	73.0	143.0	213.0	283.0
500 EQUIPMENT		4.0	409.0	300.0	300.0	300.0
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		172.6	2,004.6	3,322.6	4,749.6	6,176.6

FUNDING (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

FULL TIME		2	16	30	44	58
PART TIME (Grad. Students)			4	8	12	16
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

Based on recommendations contained in The Report of the Alaska Fisheries Center Study Group to the State of Alaska (Feb. 1982), as modified by the University of Alaska after analysis of start-up and program costs.

IV. DATE 4/12/82 PREPARED BY TL for Donald H. Rosenberg
 AGENCY University of Alaska
 Original: Legislative Finance PHONE 474-7086 (AFCSG 586-1869)
 cc: Budget and Management
 Prime Sponsor (First Legislator Named)
 33-001 (Rev. 12/81)

Fiscal Note
HB313

FY83

ADMINISTRATION

Personnel Services

Executive Director (6 mos.)	\$ 32,261
Executive Secretary (6 mos.)	10,629

Staff Benefits 22%	<u>9,436</u>
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Total Personnel Services	\$ 52,326
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TRAVEL

Administration	6,000
Board of Trustees (2 meetings)	6,300
Advisory Committee (1 meeting)	<u>9,000</u>

Total Travel	\$ 21,300
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CONTRACTUAL

Facilities Planning	\$ 50,000
Program Planning (consultants)	30,000
Communications	6,000
Copying and Printing	3,000
Miscellaneous	<u>3,000</u>

Total Contractual	\$ 92,000
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COMMODITIES

3,000

EQUIPMENT

4,000

Two desks/chairs, 2 side chairs,
3 file cabinets, typewriter,
calculator, work table

Total Cost (1st year)	<u><u>\$172,626</u></u>
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Fiscal Note
HB313

FY84, 85, 86 and 87

Increment to be added each year.

A. RESEARCH AND PUBLIC INFORMATION/LIBRARY PROGRAMS

Personnel Services (includes benefits)	
Professional Staff (6) (\$45,000)	\$ 270,000
Technical Staff (4) (\$30,000)	120,000
Graduate Research Assistants (4) (\$12,000)	<u>48,000</u>
Total Personnel Services	\$ 438,000
Travel	
In-state (research related)	25,000
Professional Meetings	<u>5,000</u>
Total Travel	\$ 30,000
Contractual	
Computer Services	40,000
Vessel Charter	100,000
Analytical Services	50,000
Communication	50,000
Equipment Maintenance	50,000
Freight (equipment & samples)	20,000
Drafting and Duplicating	30,000
Space Rental	<u>50,000</u>
Total Contractual	\$ 390,000
Commodities	50,000
Equipment*	
Library Collection	40,000
Scientific Equipment	300,000
Data Processing	<u>35,000</u>
Total Equipment	\$ 375,000
TOTAL RESEARCH PROGRAM	<u><u>\$1,283,000</u></u>

B. ADMINISTRATIVE

Personnel Services (includes benefits)	
Support Staff (4) (\$25,000)	\$ <u>100,000</u>
Total Personnel Services	\$ 100,000

Travel	
In-State	10,000
Out of State	<u>4,000</u>
Total Travel	\$ 14,000
Contractual	
Equipment Maintenance	10,000
Communication	20,000
Equipment Rental	30,000
Space Rental	200,000
Utilities	75,000
Space Maintenance/Renovation	<u>50,000</u>
Total Contractual	\$ 385,000
Commodities	20,000
Equipment*	<u>30,000</u>
Office Equipment (desks, chairs)	
TOTAL ADMINISTRATION	<u><u>\$ 549,000</u></u>

*Initial equipment cost; \$300,000 total budgeted each year for administrative and research program combined.

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST

Bill/Resolution No. CS HB 313
 Title Relating to the Alaska Fisheries Center
 Requested by Senator Parr Date 3/10/82

II. FISCAL DETAIL

Agency Affected Fish and Game
 Program Category Affected NRMEC
 BRU, Program, Or Subprogram(s) Affected Office of the Commissioner
 (Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Source)						
POSITIONS	-0-	-0-	-0-	-0-	-0-	-0-

FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

No fiscal impact to this department

IV. DATE 3/10/82 PREPARED BY Janet Green
 AGENCY Fish and Game
 Original: Legislative Finance PHONE 465-4120
 cc: Budget and Management
 Prime Sponsor (First Legislator Named)
 33-001 (Rev. 12/81)

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST

Bill/Resolution No. CSHB 313(fin)
 Title An Act relating to the Alaska Fisheries Center
 Requested by Senator Parr Date 03-10-82

II. FISCAL DETAIL

Agency Affected Dept. of Administration
 Program Category Affected General Government
 BRU, Program, Or Subprogram(s) Affected Division of Administrative Services
 (Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES	12.3	12.3	12.9	12.7	13.7	13.7
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES	.2	.2	.3	.3	.4	.4
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL	12.5	12.5	13.2	13.2	14.1	14.1

FUNDING (Thousands of Dollars)

	12.5	12.5	13.2	13.2	14.1	14.1
GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

	.5	.5	.5	.5	.5	.5
FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

Impact of the Alaska State Fisheries upon the Division of Administrative Services is expected to be limited to the fiscal section. The preparation and processing of grant and contract documents, combined with other general vendor payments, will require the services of a current part-time accounting position to become full-time.

IV. DATE 03-10-82

PREPARED BY *Kenneth R. Reynolds*
 AGENCY Dept. of Administration
 PHONE 465-2277

Original: Legislative Finance
 cc: Budget and Management
 Prime Sponsor (First Legislator Named)
 33-001 (Rev. 12/81)

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST

Bill/Resolution No. HB 313 (Page 1 of 2) CORRECTED FISCAL NOTE
 Title An act relating to the Alaska Fisheries Center
 Requested by House Resources Date 4/21/81

II. FISCAL DETAIL

Agency Affected Department of Administration
 Program Category Affected Development
 BRU, Program, or Subprogram(s) Affected Alaska Fisheries Center
 (Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 81	FY 82	FY 83	FY 84	FY 85	FY 86
100 PERSONAL SERVICES		68.0				
200 TRAVEL		45.9				
300 CONTRACTUAL		302.7				
400 COMMODITIES		.5				
500 EQUIPMENT		1.1				
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		418.2				

FUNDING (Thousands of Dollars)

GENERAL FUND		418.2				
FEDERAL FUNDS						
OTHER (Specify Fund Source)						

POSITIONS

FULL TIME		1				
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instructions, Section III)

IV. DATE 5/20/81 PREPARED BY Elmer Lindstrom, Fiscal Analyst
 AGENCY Legislative Finance Division
 PHONE 465-3795

Original: Legislative Finance
 cc: Budget and Management
 Prime Sponsor (First Legislator Named)



Personal Services

Interim Director \$4500/mo. +26% benefits x 12 68.0

Travel

Administrative Travel:

9 trips x \$300/trip transportation 2.7

9 trips x \$60/day x 2 days 1.1

Board Travel: (Assumes 5 public members & 4 state employee members)

9 trips x \$300/trip transportation x 5 13.5

9 trips x \$150/day x 2 days x 5 13.5

9 trips x \$300/trip transportation x 4 10.8

9 trips x \$60/day x 2 days x 4 4.3

Total Travel 45.9

Contractual

Facilities design and support 300.0

Office space, 150 sq.ft. x \$1.50/sq.ft./mo.
x 12 months 2.7

Total Contractual 302.7

Commodities .5

Equipment: 1 ea: desk, chair, file cabinet, calculator 1.1

TOTAL. \$418.2

University of Alaska
Fairbanks, Alaska

April 14, 1982

Senator Charles H. Farr
Chairman, Senate HESS Committee
Pouch U
Juneau, Ak 99811

Dear Charlie:

On March 10, 1982, I testified at your committee hearings on behalf of the University of Alaska on Committee Substitute for House Bill 313 to establish an Alaska Fisheries Center. Following is a brief outline of that testimony.

1. The University is pleased that the report of the Alaska Fisheries Study Group has recommended that the Center be established within the University of Alaska. The University has demonstrated its commitment to long term basic and applied research in fisheries and in communicating the products of that research to the Alaskan fisheries industry, to policy makers, to the scientific community, and the general public.

2. The University believes that the center would have to be implemented in such a manner within the University so that it can be a truly cooperative research entity involving other research agencies and groups outside and within the University. In that regard, the University would need to modify its plan for improvement of fisheries programs to take into account this expanded responsibility in the area of fisheries research.

3. The University administration has reviewed the proposed Fisheries Center legislation and encourages its passage. The Board of Regents has informally indicated its willingness to accept the Center should it be offered by the legislature. Implementation of the Center and its programs could only be accomplished within the University's fiscal and facilities constraints.

4. The University concurs with the Study Group's recommendation that start-up funding only be provided this year. The University will, under such funding, provide a plan by next year for the full integration and implementation of the proposed center into the structure and programs of the University. Until that time, the University would administer the Center under the Office of the President.

Sincerely,

George C. West
Vice President for
Academic Affairs

The Alaska Fishing Industry
An Overview of State Expenditures
and Economic Benefits

House Research Agency
Alaska State Legislature
January 1982

House Research Agency Report 81-4

The House Research Agency is the permanent, non-partisan research support arm of the Alaska State House of Representatives. The agency performs research at the request of legislators. A bipartisan governing committee composed of the House Speaker and Minority Leader and the ranking House member of the Legislative Council (i.e., either chair or vice-chair), oversees the agency's work. While the legislature is in session, most research is of a discrete scope. During the interims between legislative sessions, projects of larger scope are undertaken.

THE ALASKA FISHING INDUSTRY

An Overview of State Expenditures and Economic Benefits

Jack Kreinheder
David Teal
House Research Agency
Alaska State Legislature
January 21, 1982

House Research Agency Report 81-4

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INTRODUCTION

The Alaska fishing industry in 1979 employed over 44,000 people, more than any other industry. The value of 1979 fisheries harvests to the fishermen was \$654 million, with a wholesale value of \$1.12 billion. The 1981 salmon harvest is forecast to be the largest in history -- 135 million fish. In addition to providing employment and income to fishermen and processing workers, the fishing industry also provides jobs to workers in transportation, the services industry, and other segments of the economy.

Taxes and fees levied on the fishing industry generated over \$28 million in State revenues in FY 81, plus revenues to local governments in the form of property and sales taxes. In recent years, the value of the fishing industry has been eclipsed to some extent by Prudhoe Bay petroleum development and corresponding increases in State revenues and expenditures. However, the rapid economic expansion resulting from oil development has also highlighted the value of the fishing industry, particularly in future years, as a renewable and sustainable source of revenue, income and employment.

In an effort to expand Alaska's renewable resource base, the legislature has made substantial appropriations for a number of fisheries programs in the past several years. The Governing Committee of the House Research Agency directed the agency to prepare the following report in order to document State expenditures related to commercial fishing, and to evaluate the benefits provided to Alaska's residents by the fishing industry.

The expenditures addressed in this report include those for:

- Fisheries management and regulation enforcement;
- Aquaculture and fisheries rehabilitation and development projects;
- Fisheries development and seafood marketing programs;
- Loan programs for vessels, permits and hatchery construction; and
- Capital appropriations (including general obligation bonds).

Among the economic benefits of the fishing industry are:

- Employment and income from fish harvesting, processing, support industries, and multiplier effects.
- Tax revenues to State and local governments (raw fish tax, corporate income taxes, property and sales taxes).

The report includes expenditures for fiscal years 1978-1982 and fisheries production and value statistics for calendar years 1977-1981, where available. Employment and income information, which is not recorded on a regular basis for all sectors of the fishing industry, is presented for the most recent year(s) available, primarily 1979.

SUMMARY OF FINDINGS

Commercial Fisheries Expenditures

State appropriations for programs related to commercial fishing totalled about \$120 million in FY 1982. This represents a 195 percent increase from the FY 1978 expenditures for these programs of \$40.8 million. Based on the grouping of fisheries programs into four broad categories, FY 1982 appropriations were distributed as follows:

- Fisheries Financing Programs - \$56.3 million
- Management and regulation - \$30.5 million
- Fisheries Development and Marketing Expenditures \$24.1 million
- Capital improvements - \$ 8.8 million

The operating budget for fisheries programs increased by about 145 percent from FY 78 to FY 82, from about \$22.3 million to \$54.6 million. This increase is nearly identical to the 142 percent increase in the total State operating budget over the same period. Fisheries expenditures therefore remained a similar fraction of the total budget -- about 2.2 percent.

The substantial growth in commercial fisheries expenditures over the past five years is a result of both the establishment of new programs and the expansion of existing ones. The most significant new fisheries programs created since 1978 are in the financing, and development and marketing categories. These include the Commercial Fishing and Agriculture Bank, the Alaska Renewable Resource Corporation, the Fish Processing Loan Guarantee Account, and the Alaska Seafood Marketing Institute. Expenditures and appropriations for these four programs totalled nearly \$100 million from FY 80 to FY 82. Among fisheries programs existing as of 1978, the ones which account for the largest share of the total increase in expenditures through FY 82 are the Division of Commercial Fisheries, the Division of Fish and Wildlife Protection, and the Division of Fisheries Rehabilitation, Enhancement, and Development (FRED).

State Revenues

State revenues from taxes and fees levied on the fishing industry totalled about \$28.2 million in FY 1981. Nearly 75 percent of these revenues, or \$20.7 million, were generated by the fisheries business tax levied on the sale of raw fish to processors. Permit, vessel, and license fees contributed an additional \$3.9 million, and the marine fuel tax, corporation income tax, and other taxes made up the remaining \$3.6 million. Municipal property and sales taxes derived from the fishing industry and the municipal raw fish taxes in the Bristol Bay Borough

and Unalaska are also an economic benefit, but these taxes have not been calculated here.

Fisheries revenues were less than one percent of total State receipts in FY 81, with oil revenues providing nearly 90 percent of the total. In terms of non-petroleum income, fisheries revenues were about 7 percent of the total, and were the third largest revenue source, behind investment earnings and the corporation income tax. The percentage of total State receipts contributed by fisheries revenues has declined with the expansion of the Alaskan economy and the recent influx of oil revenues. However, fisheries revenues have risen by 107 percent since FY 1978, as a result of tax increases in 1979 and the increasing value of fisheries harvests.

The \$28.2 million collected in fisheries revenues in FY 1981 obviously covers only a small part of the \$132 million expended for fisheries programs in that year. However, simply comparing the expenditure and revenue figures does not provide an accurate or meaningful measure of the value of State fisheries programs. For one thing, nearly \$73 million, or more than half of the FY 81 appropriations were for loan programs. All or nearly all of these funds will be repaid to the State, though some cost is incurred in the form of foregone interest earnings on low-interest loans. It is also important to consider the revenues generated by other industries benefited by State expenditures, the income and employment benefits of the fishing industry, and other factors.

Many State programs have been enacted to stimulate or develop Alaskan industries which provide little if any direct revenues to the State treasury. The rationale for such expenditures has generally been the creation of jobs for Alaskans and/or the development of a broader and more self-sustaining economy, rather than the establishment of a source of State revenues. The fishing industry is actually somewhat unusual in that a significant portion of State expenditures for the industry are covered by taxes and other fees levied and collected by the State.

Many of the State's fisheries expenditures, such as the aquaculture program, marketing efforts, and some fisheries loans are investments to increase future harvest levels and product values. It can therefore be somewhat misleading to compare present expenditures to current State revenues, harvests, and employment levels. A thorough evaluation would require an assessment of projected increases in fisheries benefits in future years for each program, relative to current expenditures.

An additional consideration is that Alaska's fisheries management expenditures are substantially lower relative to the value of its fisheries and State revenues than for other states. Washington and Oregon spent about 43 cents and 19 cents, respectively, on management programs for every dollar of wholesale fisheries value in FY 81, while

Alaska spent only about 3 cents. Alaska meets roughly 90 percent of its management expenditures through fisheries revenues, while Washington covers about 25 percent of its expenditures from fisheries revenues and Oregon 20 percent.

A thorough benefit/cost analysis of Alaska's fisheries expenditures is beyond the scope of this report, but these points demonstrate that it is important to consider more than just the balance between revenues and expenditures in evaluating fisheries expenditures.

Fisheries Employment and Income

Combined peak employment in seafood harvesting and seafood processing was over 44,000 in 1979, which made the seafood industry Alaska's largest private sector employer in terms of peak monthly employment. The seafood industry's characteristic seasonal fluctuations in employment reduced average monthly employment in 1979 to 15,500, which made the seafood industry Alaska's third largest employer in terms of average employment.

Peak monthly employment in seafood harvesting in Alaska was over 29,000 in 1979. Salmon fishing accounted for roughly 75 percent of harvesting jobs, other finfish harvesting for 17 percent, and shellfish for the remaining 8 percent. In terms of peak monthly employment, seafood harvesting was the third largest private sector employer behind the service and trade sectors.

Monthly employment in the seafood processing industry ranged from 2,700 to 15,000. The Cook Inlet region reported the highest peak employment in the state -- 3,678 jobs, or about 25 percent of total statewide peak processing employment -- although the Aleutian and Kodiak regions had higher annual average employment because of fall and winter shellfish processing operations. Much of the Cook Inlet employment, particularly in Anchorage, is a result of the transportation of fish from Bristol Bay, Bethel, and other areas to Anchorage and Kenai Peninsula processors for freezing and fresh fish shipments. The importance of this processing pattern is shown by the fact that only 5 percent of the total value of the 1979 statewide harvest was landed in the Cook Inlet region, yet the region had 15 percent of the statewide processing payroll and 25 percent of the peak employment. About one-quarter of the Cook Inlet processing jobs were in Anchorage, with the remainder located primarily in Kenai, Seward and Homer.

Statewide average annual employment in seafood processing was 7,272 in 1979, or 4.4 percent of total employment. About 25 percent of harvesting employees provided permanent addresses outside the state. Based on unemployment insurance data, approximately 47 percent of processing workers reside outside Alaska.

The 1979 harvest value to fishermen for all fisheries was \$654 million, with a first sale value of about \$1.13 billion. Ex-vessel values for 1980 and 1981 were estimated to be in the \$600 million range. Net income in the seafood harvesting sector in 1979 is estimated at over \$300 million, or approximately nine percent of all wages and salaries reported in Alaska in 1979. Approximately 60 percent of harvesting income went to fishermen and crew members who claimed a permanent address within the state.

The average earnings of seafood processing employees was \$6,150 in 1979. More than half of processing workers earned under \$4,000 and over 80 percent of processing workers reported no other income outside the processing industry. Total income in the seafood processing industry was about \$110 million in 1979, or three percent of total income in the state.

A computer model of the Alaskan economy, maintained by the Division of Budget and Management in the Office of the Governor, shows that about 28 additional jobs in other sectors result from each 100 jobs created in the processing industry. Sectors most affected by increases in processing employment are services (which include fuel and maintenance facilities), transportation, and government. The model also shows that each \$100 of additional income in the seafood processing sector produces \$84 of income in other sectors of the Alaskan economy. These employment and income multipliers are long-term factors, and assume a developed infrastructure base. Major expansions or new development of processing plants in small communities may require additional support facilities, and therefore result in higher short-term multiplier effects.

Future Development Prospects

The future trends in fisheries harvests and values are a matter of some debate, with projections ranging from substantial declines in values, to equally substantial increases. The fishing industry is presently facing a number of serious problems, including high interest rates, poor markets and prices for seafood products, and increasing production costs. These problems may continue to impede the development of the fishing industry in the future. However, there are a number of mid- to long-term prospects for substantial increases in the size of the fishing industry. Among the most significant of these possible developments are the following:

1. Increased harvest levels, primarily of salmon, through the further development of aquaculture facilities and improvements in propagation techniques, disease control, and other factors.
2. Greater demand, and higher prices for Alaskan seafood products through marketing efforts of the Alaska Seafood Marketing Institute and other programs.

SUMMARY OF FINDINGS

3. Higher levels of participation by Alaskans in groundfish harvesting and the utilization of presently unfished species.
4. Increases in harvests resulting from improved management capabilities, based on advances in technology and/or higher funding levels, thus allowing more accurate control of harvest and escapement levels.
5. Higher employment and value added from increased in-State processing and cold-storage capabilities.

STATE EXPENDITURES FOR COMMERCIAL FISHERIES PROGRAMS

The State of Alaska funds a number of programs which affect various aspects of the commercial fisheries, ranging from education to marketing of fish products. The most significant programs, in terms of expenditures, are for fisheries management, regulation, and enforcement; fisheries development; financing programs; and infrastructure development. Table 1 on the following page shows the primary current functions of the State government with respect to commercial fishing, and the programs or divisions responsible for these functions.

Historical Overview

During the early years of Statehood, expenditures for commercial fishing functions were directed almost entirely to management and regulation of the fisheries. Fisheries management under the federal government before Statehood was generally perceived as inadequate, and the new State government increased funding for stock management purposes in an effort to improve control over escapement and harvest levels. The Fish and Wildlife Protection budget was also increased substantially to improve the enforcement of fisheries regulations.

Figure 1 displays territorial and State expenditures from FY 1959 to FY 1981 for the Division of Commercial Fisheries and the estimated portion of the Division of Fish and Wildlife Protection budget targeted to enforcement of commercial fisheries regulations (about 42%, based on current expenditure breakdowns). This graph is intended to provide an indication of general expenditure trends for these commercial fisheries programs, rather than a precise tabulation of actual expenditures. More detail on these expenditures in recent years is provided later in this section.

The increased emphasis of the new State government on commercial fisheries management and regulation enforcement is readily seen in the difference between the territorial and State expenditures in Figure 1. State expenditures for these programs in FY 1960 were \$664,000, over five times more than the \$125,000 expended by the territorial government in its last year of operation. The State continued to increase expenditures gradually for management and enforcement purposes during the 1960's, but even these basic expenditures were constrained by the limited financial resources of the State. As the State's financial position improved in the late 1960's and early 1970's, expenditures for fisheries management and protection increased and new programs were begun to further develop the fisheries and to improve fishing employment and income opportunities for Alaska residents.

FISHERIES EXPENDITURES

TABLE 1

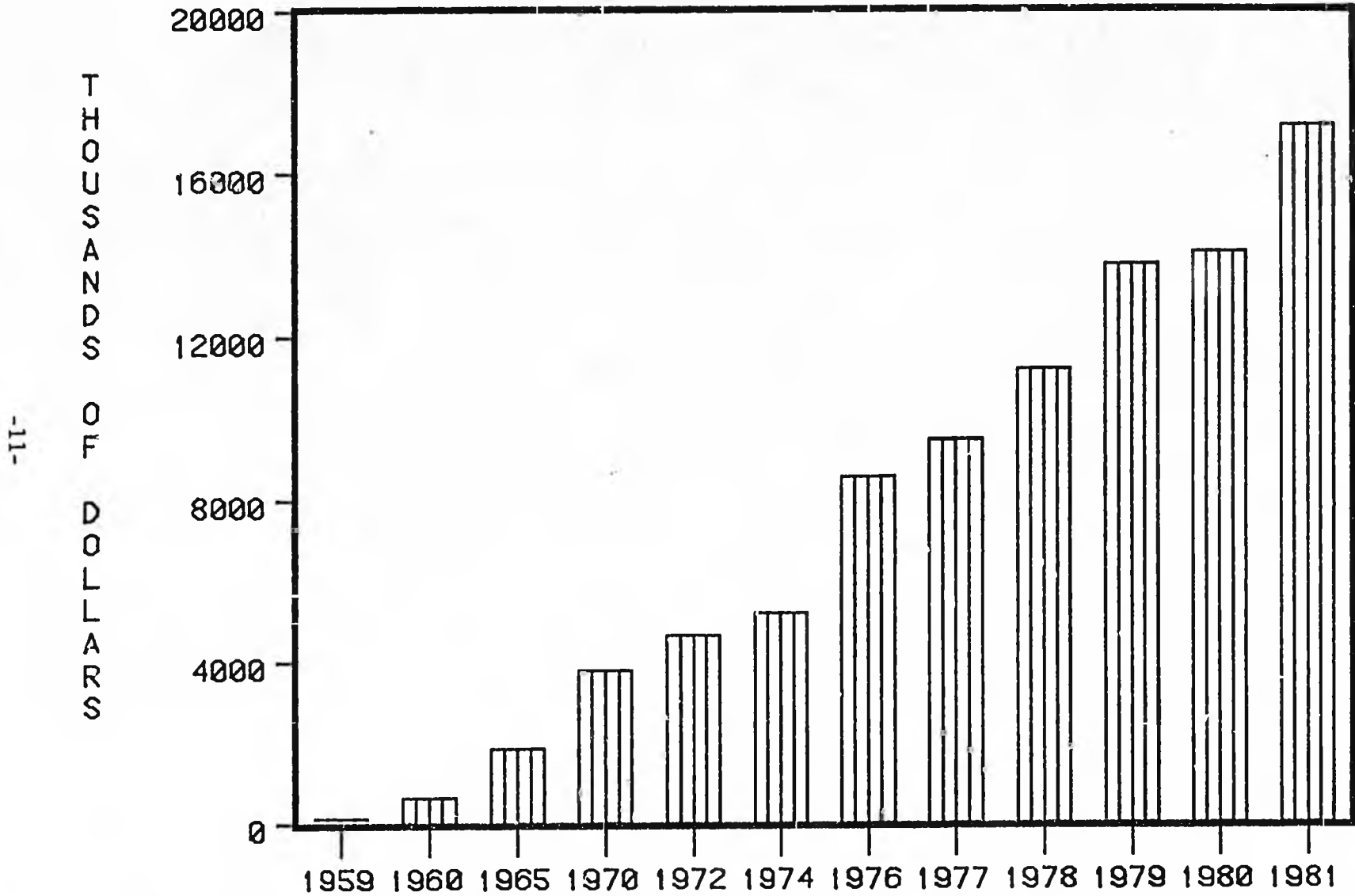
STATE OF ALASKA COMMERCIAL FISHERIES PROGRAMS*

<u>FUNCTION</u>	<u>MAJOR PROGRAMS</u>
Management and regulation of stocks	Division of Commercial Fisheries Fish and Game Vessels Board of Fisheries
Enforcement of regulations	Division of Fish and Wildlife Protection
Fisheries development (biological) and habitat protection	Division of Fisheries Rehabilitation, Enhancement and Development Division of Habitat
Management of participation levels and licensing/permit renewal for fishermen, vessels, and crew	Commercial Fisheries Entry Commission Department of Revenue
Financial Assistance	Division of Business Loans Commercial Fishing and Agriculture Bank Alaska Renewable Resources Corp. Fish Processor Pack Loans
Infrastructure Development	Department of Transportation and Public Facilities Department of Community and Regional Affairs
Fisheries planning, research, marketing, technical assistance and education	Office of Fisheries Development (Dept. of Commerce and Economic Development) Alaska Seafood Marketing Institute State of Alaska Asian Office Sea Grant Program and Marine Advisory Program (University of Alaska) International Fisheries and External Affairs (Governor's Office)

* A number of other State programs do some fisheries-related work. For a more complete program listing and additional detail on program responsibilities, see appendix A.

1/20/82

FIGURE 1
 STATE FISHERIES EXPENDITURES*
 FY 1959 - 1981



* Includes only expenditures for the Division of Commercial Fisheries and Div. of Fish and Wildlife Protection.

FISCAL YEAR

FISHERIES EXPENDITURES

Most of the increase in expenditures since 1970 shown in Figure 1 is attributable to a combination of expanded program functions for the Division of Commercial Fisheries and the Division of Fish and Wildlife Protection, and a high rate of inflation. The value of the dollar decreased by more than 50 percent between 1970 and 1981, so that the FY 81 expenditures of \$17.2 million shown in Figure 1 would only be about \$7.9 million in terms of 1970 dollars. In other words, about \$9.3 million of the increase over the decade has been for cost increases resulting from inflation.

Management Programs

The establishment of the Division of Fisheries Rehabilitation, Enhancement, and Development (FRED) in 1971 marked the beginning of a major effort to increase the population stocks of salmon and other fish species in Alaska. The construction of fish hatcheries has been the principal technique employed to meet this objective, but additional programs, including fish ladder construction, rehabilitation and enhancement of spawning habitats, and lake fertilization have also been undertaken. Operating expenditures for the FRED Division and the related hatchery program have increased from \$1.1 million in FY 72 to \$9.7 million in FY 81 as the program expanded. Roughly 75 percent of FRED operating and capital expenditures have been targeted to commercial fisheries development, with 25 percent benefitting sport fishermen, and to a minor extent, subsistence users.¹

The limited entry program was enacted in 1973 through the creation of the Commercial Fisheries Entry Commission (CFEC). The program was begun in response to rapidly increasing numbers of fishermen, the resulting decline in adequate economic returns to fishermen, and the difficulty of managing the fisheries properly with the increasing levels of participation. All of the state's salmon fisheries have now been placed under limited entry, together with several herring fisheries. Expenditures for CFEC functions increased from \$566 thousand in FY 74 to \$1.6 million in FY 81. Part of this increase reflects the transferral of vessel licensing responsibilities from the Department of Revenue to the CFEC in 1978.

Development and Financing Programs

In addition to these fisheries management programs, a number of development-oriented programs were established in the 1970's. These include the Commercial Fisheries and Agriculture Bank, the Alaska Renewable Resources Corporation, the Alaska Seafood Marketing Institute, and

¹Source: Estimate by Robert Roys, Director of FRED, Personal Communication, 1/4/82

several financing programs administered by the Division of Business Loans.² The first of these programs was created by the Commercial Fishing Loan Act in 1972 (AS 16.10.310), and was established for the purpose of financing the repair or upgrading of vessels, the purchase of limited entry permits, and the construction and purchase of new vessels. Under this program, a loan of up to \$500,000 may be obtained for a term of 15 years, at an interest rate of 9.5 percent.

The Fisheries Enhancement Loan Program (AS 16.10.500) was enacted by the 1976 legislature and subsequently amended in 1977, 1979 and 1980. This program was established to provide long-term, low interest loans for the planning, construction, and operation of fish hatcheries and for other fisheries enhancement activities. Loan amounts may be up to \$6 million for regional aquaculture associations and \$1 million for other nonprofit hatchery corporations, with an interest rate of 9.5 percent and a term of 30 years. The statute also authorizes the payment of grants to qualified regional aquaculture associations for organizational and planning purposes.

In 1980, the Fishermen's Mortgage and Note Program (AS 16.10.650) was created to make financing available to fishermen who are economically dependent on commercial fishing and do not qualify for other state or private loan programs. The purposes for which loans may be used under this program are similar to the Commercial Fishing Loan Program described earlier; however, this program operates through the purchase by the State of mortgages or notes financed by private lending institutions, rather than direct State financing. Loans can be up to \$200,000 in value and 15 years in duration.

The Commercial Fishing and Agriculture Bank (CFAB) was created in 1978 (AS 44.88.010), but did not begin public operations until April of 1980. CFAB was designed as a cooperative bank to provide loans to Alaska residents engaged in agriculture and fishing, including harvesters, processors, suppliers, and marketers. The bank was originally established as a public corporation within the Department of Commerce and Economic Development, but was redesignated in 1981 as a private cooperative bank which also serves a public purpose. This change was made in order to clarify the bank's status and to improve CFAB's access to loan funds.

²More detailed information on fisheries financing programs than the brief summaries given here can be found in Summary of Reports Submitted by State Loan Programs, House Research Agency, April 1981; and Summary of State Lending and Investment Programs, Division of Legislative Audit, March, 1981.

FISHERIES EXPENDITURES

The Alaska Renewable Resources Corporation (ARRC) was also established by the legislature in 1978 (AS 37.12.010). ARRC was intended to provide a source of capital for Alaska-based firms engaging in renewable resource development or utilization, including research and marketing efforts. ARRC may either loan funds directly to borrowers or guarantee loans made through private lending institutions. In the 1981 session, the legislature appropriated only operating expenses for maintaining existing investments to ARRC; no funds for new investments were appropriated. The future of the corporation appears uncertain at this point.

The primary purpose of the Alaska Seafood Marketing Institute (ASMI), established in 1981, is to promote the sale and consumption of all types of seafood harvested in Alaska's commercial fisheries. ASMI was originally created as a private, nonprofit organization in 1980, called the Alaska Seafood Foundation, but was redefined by the 1981 legislature as a public corporation of the State under the Department of Commerce and Economic Development. Initial funding was primarily from State appropriations, with some federal funds and processor dues; in FY 83 and subsequent years, marketing assessments on seafood processors are to fund at least part of the Institute's activities.

Recent Expenditure Trends - FY 1978-82

Before discussing in detail the recent trends in State fisheries expenditures, it is important to point out that some of these expenditures are difficult to isolate. A number of programs provide benefits to other industries, groups, or individuals in addition to the commercial fishing industry, and the program budgets do not separate the expenditures by industry or group served. For example, the hatcheries operated by the FRED Division release fish which are caught by sport and subsistence fishermen, as well as commercial harvesters. The Division of Fish and Wildlife Protection enforces not only commercial fishing laws and regulations, but also those for game hunting and other fish harvesting. Other programs which involve functions not entirely related to commercial fishing include the Division of Habitat, the Board of Fisheries, CFAB, ARRC, and the State's foreign offices.

In spite of these difficulties in separating commercial fishing expenditures from some program budgets, we were able to obtain reasonable estimates of fisheries expenditures from program administrators or staff. While useful for the purposes of this report, these estimates are approximate and should not be misconstrued as actual expenditures.

Capital projects such as harbor developments are particularly difficult to evaluate with respect to commercial fisheries benefits. While fishermen and processors are major harbor users, nearly every resident of a community or region may benefit to some extent from improved freight transportation or recreational boating advantages resulting from such developments. In addition, the cost of such capital improve-

ments represents benefits to users throughout the life of the project, not just in the year of completion.

No reasonable means of allocating the benefits of all capital projects to the commercial fishing industry could be determined in the scope of this study. Therefore, those capital appropriations which are clearly targeted to commercial fishing, such as hatcheries and patrol vessels, have been separated in Table 6 from more general projects such as harbors and airports.

The total commercial fishing spending figures in Table 2 include only appropriations for hatcheries and other fisheries-specific projects. The more general appropriations for harbors, airports, etc. have not been included in Table 2. These more general capital expenditures benefit other users as well as commercial fishermen, so including them in the total spending figures would overstate fishing expenditures. The general capital appropriations are listed in Table 6 simply to provide an indication of recent expenditure trends for such projects.

In this section, State expenditures for commercial fisheries purposes are divided into four broad groups: (1) regulation and management; (2) fisheries development and marketing; (3) State financing assistance; and (4) Capital project expenditures. Table 2 summarizes State expenditures (or appropriations) for each of these program categories. Detail on the specific program expenditures for each of these categories is provided in Tables 3 through 6.

Expenditure Summary

Total commercial fisheries expenditures for all program categories increased from \$40.8 million in FY 1978 to a peak of \$132 million in FY 1981, and declined to \$119 million (appropriated) in FY 1982 (see Table 2, following page). The largest budget increases were for the fisheries financing and fisheries development expenditure categories, as shown numerically by Table 2 and illustrated graphically by Figure 2. Regulation and management expenditures increased over the five-year period at a fairly even rate, while capital appropriations, including general obligation bonds for aquaculture and other fisheries facilities and equipment, were highest in FY 1979 and declined in subsequent years.

FISHERIES EXPENDITURES

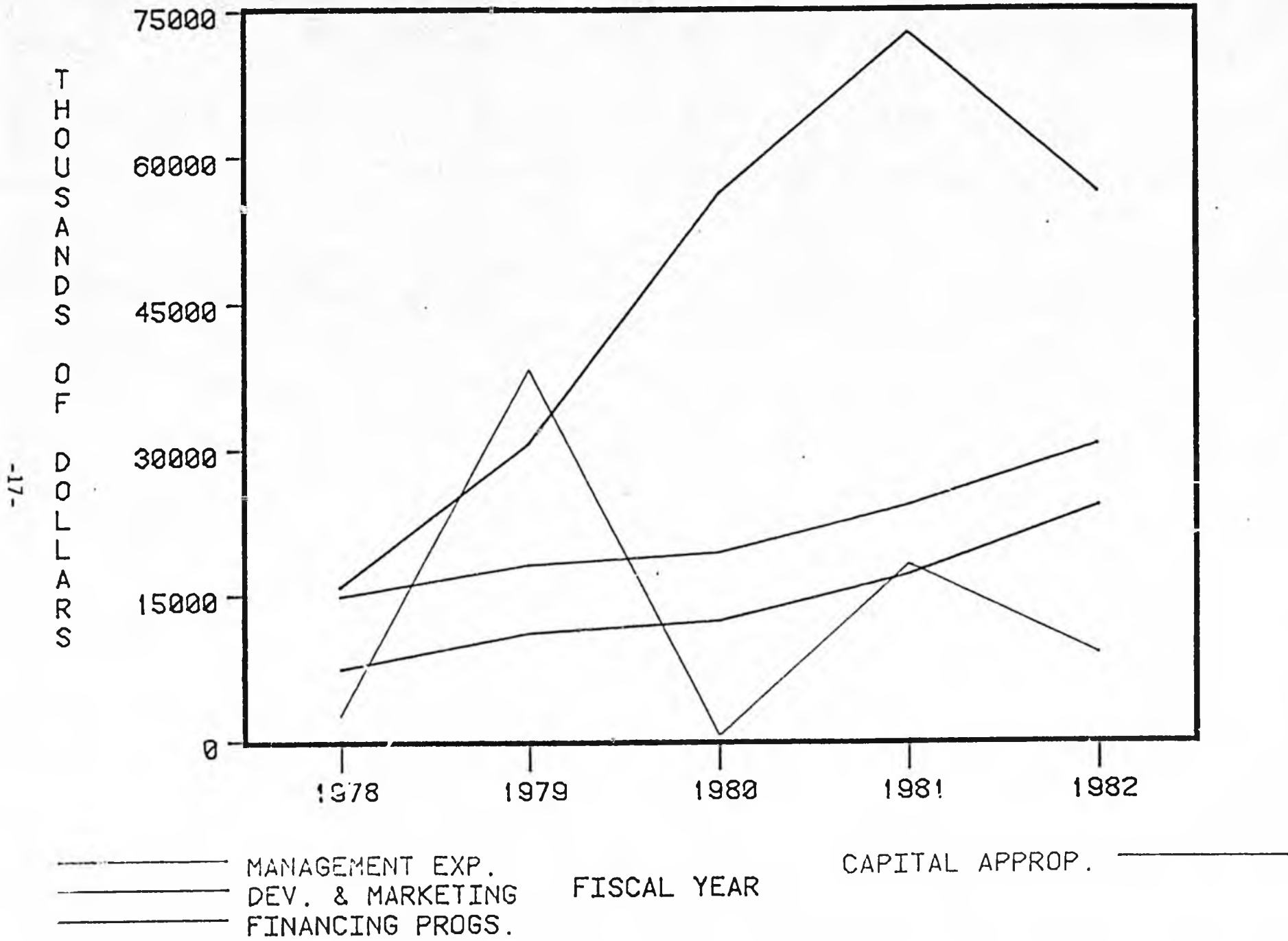
TABLE 2
 SUMMARY OF COMMERCIAL FISHERIES EXPENDITURES
 FY 1978 - 1982
 (Thousands of Dollars)

Program Category	1978	1979	1980	1981	1982
Regulation and Management Expenditures	\$14,900	\$18,074	\$19,290	\$24,227	\$30,519
Fisheries Development and Marketing Expenditures	7,361	11,091	12,283	17,049	24,114
OPERATING BUDGET SUBTOTAL	22,261	29,165	31,573	41,276	54,633
Fisheries Financing Programs	15,909	30,680	56,263	72,772	56,345
Capital Appropriations (Fisheries-Specific)	2,652	38,268	484	18,073	8,817
TOTAL EXPENDITURES	\$40,822	\$98,113	\$88,320	\$132,121	\$119,795

In terms of total expenditures, both over the five-year period and in FY 82, fisheries financing programs were the largest spending item, comprising about \$231 million, or 35 percent of the \$658 million five-year total (see Table 2). Although this \$231 million will be returned to the State treasury through loan repayments, it represents a real cost to the State in terms of foregone earnings and the dedication of revenues to revolving loan funds. Management expenditures ranked second, followed by development and marketing expenditures and capital appropriations. The capital appropriations figures would be substantially higher if it were possible to include the additional expenditures listed in Table 6 which also benefit the fishing industry.

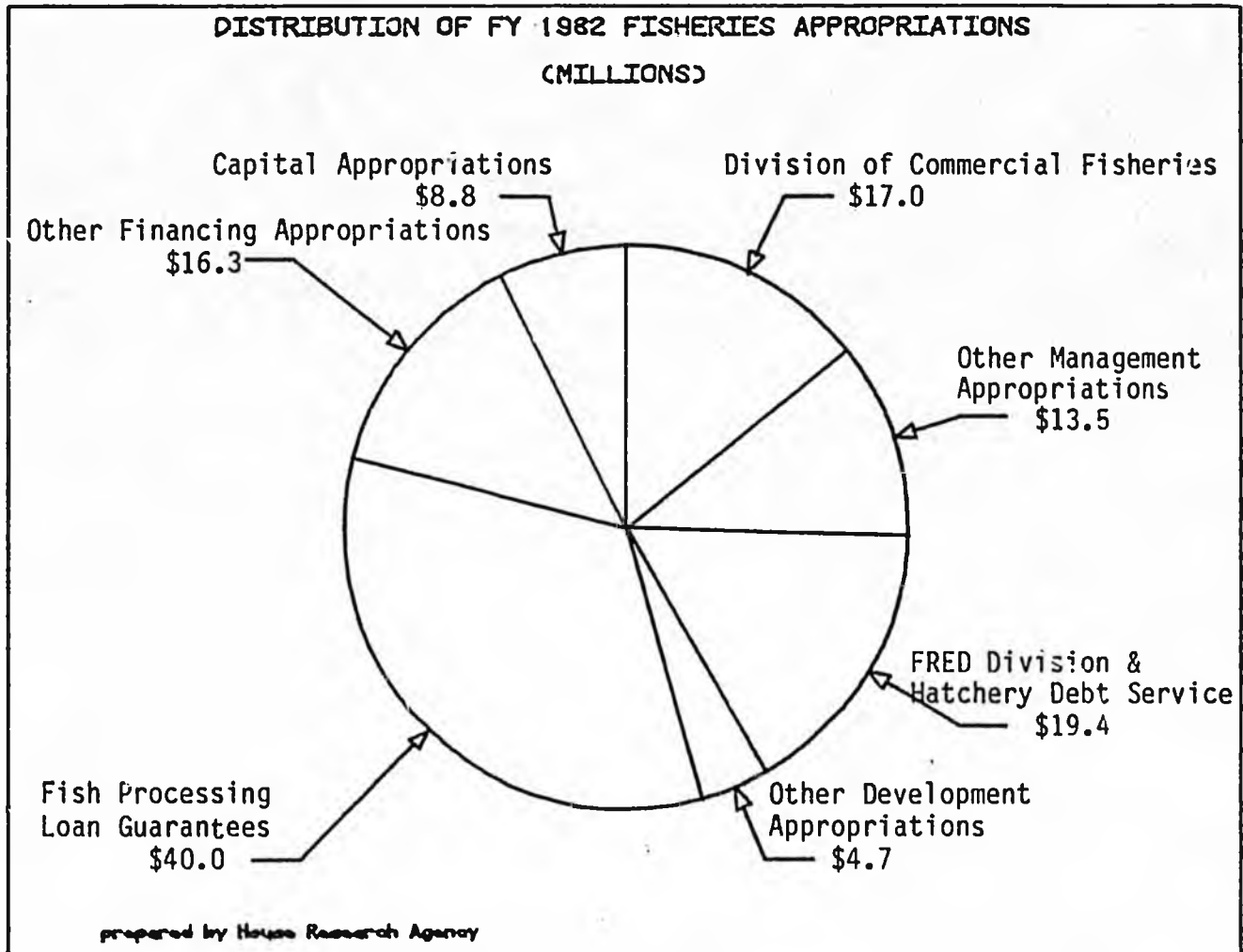
Figure 3 illustrates how the State's fisheries dollars were divided among the different program categories in FY 82. Major programs have been broken out from each category to demonstrate their significance.

FIGURE 2
 COMMERCIAL FISHERIES EXPENDITURES
 FY 1978 - 1982



FISHERIES EXPENDITURES

FIGURE 3



Operating Expenditures - Tables 3 and 4

The operating budget for commercial fisheries programs increased by about 145 percent between FY 78 and FY 82, from \$22.3 million to \$54.6 million. For purposes of comparison, the total State operating budget rose from about \$1.0 billion in FY 78 to \$2.4 billion in FY 1982, for an almost identical increase of 142 percent. Thus, commercial fisheries operating expenditures remained approximately the same fraction -- 2.2 percent -- of the total State budget over this five-year period.

The average annual increase in commercial fisheries operating expenditures was about 25 percent. Regulation and management expenditures rose from \$14.9 million to \$30.5 million over the five-year period, an increase of 105 percent. Fisheries development and marketing expenditures grew by 228 percent, from \$7.4 million to \$24.1 million, as a result of the establishment of new programs and the expansion of existing development programs.

Most of the increase in fisheries regulation and management expenditures was for the Division of Commercial Fisheries and the Division of Fish and Wildlife Protection. In the fisheries development and marketing category, the most significant expenditure increases were for the FRED Division, debt service on FRED aquaculture facilities, and the establishment and expansion of the Alaska Seafood Marketing Institute.

Financing Programs - Table 5

In FY 1978, the only State fisheries financing programs in operation were the commercial fishing loan program and the fisheries enhancement loan program. Expenditures for these two programs in FY 78 totalled about \$15.9 million. In FY 80, about 17.1 million was appropriated for capitalization of the Commercial Fisheries and Agriculture Bank, with an additional \$5.4 million for the Alaska Renewable Resources Corporation. Together with a large increase in the value of commercial fishing loans, these appropriations raised FY 80 spending for fisheries financing programs to about \$56.3 million.

Financing appropriations reached a peak in FY 81 at 72.8 million, \$15 million of which was for the newly established fishery product revolving loan fund in the Department of Revenue. In FY 82, CFAB and ARRC received no additional loan funds, and there was a substantial decrease in the commercial fishing loan program appropriation. However, the fish processing loan guarantee account received an appropriation of \$40 million. Total fisheries financing appropriations for FY 82 were \$56.3 million.

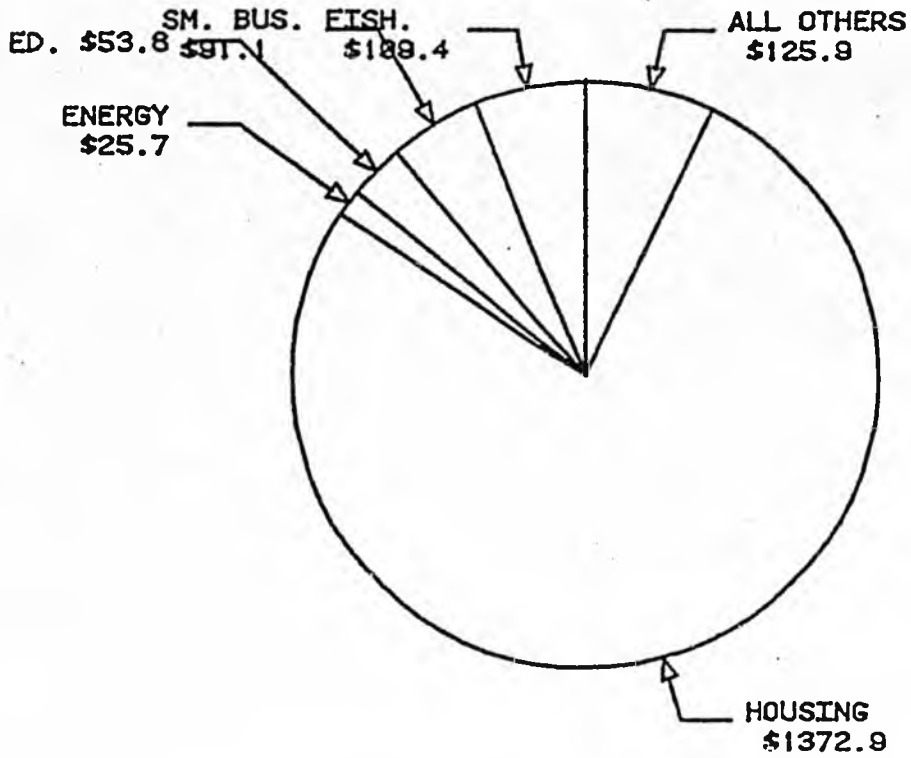
It is important to consider that the appropriations for these financing programs will eventually be returned to the State through repayment of outstanding loans. However, most of these programs are revolving loan funds in which money received from loan payments is recycled into new loans. Therefore, from the point of view of alternative uses of State funds, these loan appropriations are essentially committed for use in fisheries loans as long as the programs continue. The subsidized interest rates for several of the loan programs also represent a cost to the State in terms of foregone interest revenues. It is not possible to fully develop these points in this paper, but they are important considerations.

Figure 4 on the following page shows in pie-chart form the value and number of State fisheries loans outstanding as of June 1981, relative to other State loan programs. Fisheries loans of all types totalled about \$110 million, or 6 percent of the total value of all loans of about \$1.8 billion. In terms of the number of loans, fisheries loans were about 2.4 percent (1,569) of the 65,590 outstanding loans at that time.

FIGURE 4

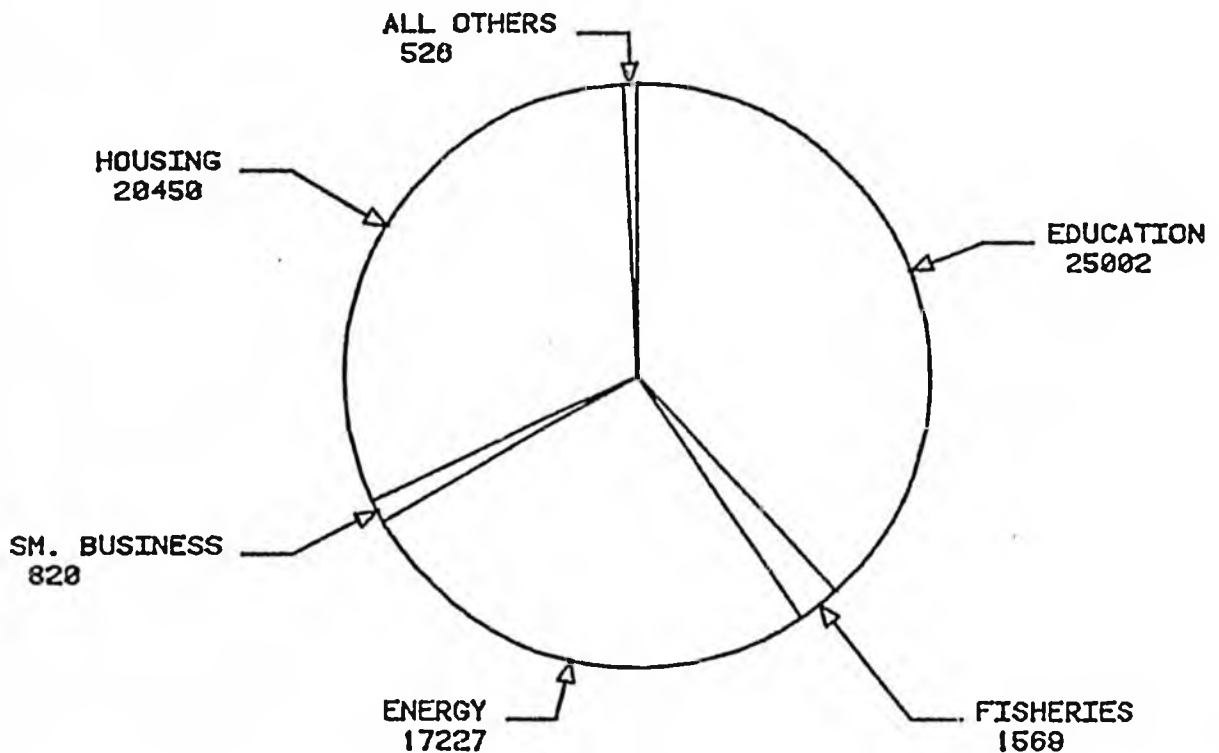
\$MILLIONS OF LOANS OUTSTANDING TO DATE

END OF FY 1981



NUMBER OF LOANS OUTSTANDING TO DATE

END OF FY 1981



FISHERIES EXPENDITURES

TABLE 3

COMMERCIAL FISHERIES REGULATION AND MANAGEMENT EXPENDITURES¹
 FY 1978 - 1982
 (Thousands of Dollars)

Program	1978	1979	1980	1981	1982
Department of Fish and Game					
Division of Commercial Fisheries	\$8,363	\$10,458	\$10,638	\$13,106	\$17,003
Division of Habitat Protection* ²	374	748	752	1,794	2,212
Commercial Fisheries Entry Commission	1,158	1,137	1,370	1,594	2,236
Fish and Game Vessels ³	1,145	1,283	1,465	1,616	1,785
Board of Fisheries* ⁴	74	148	150	227	247
ADF&G Administration and Support (prorated)*	1,134	1,154	1,341	1,491	1,278
DEPARTMENT TOTAL	12,248	14,928	15,716	19,828	24,761
Division of Fish and Wildlife Protection (Dept. of Public Safety)* ⁵	2,577	3,041	3,432	4,110	4,978
Seafood Inspection Program (Dept. of Environmental Conservation)	75	105	142	289	780
TOTAL EXPENDITURES	\$14,900	\$18,074	\$19,290	\$24,227	\$30,519

FY 1981 Funding Sources: State General Funds - \$20,589
 Federal Funds - \$ 1,953
 Program Receipts - \$ 663
 Other Funds \$ 1,022

* Expenditures for these programs are estimated because of overlap between commercial fisheries work and other functions.

FISHERIES EXPENDITURES

TABLE 4
 FISHERIES DEVELOPMENT AND MARKETING EXPENDITURES
 FY 1978 - 1982
 (Thousands of Dollars)

Program	1978	1979	1980	1981	1982
Division of Fisheries Rehabilitation, Enhancement, and Development (ADF&G)* ⁶	4,306	6,951	6,301	7,278	9,695
Fish and Game Facilities Debt Service ⁷	1,848	2,791	3,974	6,313	9,695
King Crab Marketing and Quality Control Board	325	246	350	396	449
Office of Fisheries Development (Dept. of Commerce and Economic Development)* ⁸	107	200	190	250	738
Alaska Seafood Marketing Institute	--	--	--	1,200	2,000
State of Alaska European and Asian Offices (DCED)* ⁹	55	103	397	467	239
Fisheries Commissions (Governor's Office)	201	180	232	241	--
Sea Grant and Marine Advisory Programs (University of Alaska) ¹⁰	519	620	839	904	1,298
TOTAL EXPENDITURES	\$7,361	\$11,091	\$12,283	\$17,049	\$24,114

*Estimated expenditures.

FISHERIES EXPENDITURES

TABLE 5
 APPROPRIATIONS FOR FISHERIES FINANCING PROGRAMS
 FY 1978 - 1982
 (Thousands of Dollars)

Program	1978	1979	1980	1981	1982
Division of Business Loans ¹¹					
Commercial Fishing Loans	\$13,044	\$29,734	\$32,548	\$24,608	\$4,680
Fisheries Enhancement Loans	2,865	946	2,210	6,152	8,321
Fishermen's Mortgage and Note Program (Div. of Bus. Loans)	--	--	--	6,165	1,872
Commercial Fishing and Agriculture Bank* ¹²	--	--	16,116	14,100	--
Alaska Renewable Resources Corporation* ¹³	--	--	5,389	6,747	1,272
Fishery Processor Assistance Loans (ARRC - 1980), Fish Processing Loan Guarantee Account (Dept. of Revenue - 1982) ¹⁴	--	--	--	15,000	40,000
Fishermen's Fund (Dept. of Labor) ¹⁵	--	--	--	--	200
TOTAL EXPENDITURES	\$15,909	\$30,680	\$56,263	\$72,772	\$56,345

* Estimated Expenditures

FISHERIES EXPENDITURES

TABLE 6

CAPITAL APPROPRIATIONS RELATED TO COMMERCIAL FISHERIES DEVELOPMENT¹⁶
 FY 1978 - 1982
 (Thousands of Dollars)

Fiscal Year	Appropriations		Major Projects
	Fisheries Specific	Other	
1978	\$ 2,652	\$ 4,865	Specific: Fish & Game Facilities, University of Alaska Facilities, Public Safety Vessel Repair. Other: Statewide Harbor Development & Repair, Western Region Harbors
1979	\$38,268	\$61,470	Specific: \$20.2 million G.O. Bonds for Aquaculture Facilities, Fish & Game and Public Safety Vessels. Other: \$28.8 million G.O. Bonds for Ports & Harbors, Statewide Harbors.
1980	\$ 484	\$ 8,549	Specific: Fish & Game Facilities, Fishery Industrial Technology Center. Other: Statewide Harbors, Dillingham Airport Paving.
1981	\$18,073	\$55,106	Specific: \$6.2 million G.O. Bonds for Hatcheries and Patrol Vessel; Aquaculture Facilities, Bottomfish Development, Grants. Other: \$48.4 million G.O. Bonds for Ports and Harbors; Southeast and Central Region Ports and Harbors, Unalaska Runway Extension.
1982	\$ 8,817	\$22,823	Specific: University of Alaska Marine Technology Facility & Fisheries Center, Aquaculture Facilities. Other: Southeast and Western Region Harbor Development & Repair; Homer Port & Harbor; Unalaska, Naknek, and King Salmon Airport Improvements.
TOTALS	\$68,294	\$152,813	

NOTES TO TABLES 2 - 6

¹ In Tables 2 - 4, the FY 81 figures are appropriations adjusted for changes in program funding; FY 82 figures are Free Conference Committee Appropriations, adjusted for Governor's vetoes; all other figures are actual expenditures as reported in the Executive Budget document.

² About 35 percent of the Habitat Section's FY 82 appropriation is for commercial fisheries purposes, based on approximate estimates for each budget category by Dick Logan, Chief of the section.

³ Carl Lehman, Chief of the Vessels Section, estimates that 95 percent of the section's operations are commercial fisheries-related. This figure is therefore 95 percent of the section's total expenditures.

⁴ Figures for the Board of Fisheries are 50 percent of the total expenditures for the Boards of Fish and Game, based on an estimate by the Executive Director.

⁵ The commercial fisheries breakdown for the Division of Fish and Wildlife Protection is based on estimates by Lt. Rod Mills of the Division for FY 1982, and equal 42 percent of the total Division budget. Figures for earlier years assume that the same percentage holds true for these years.

⁶ Approximate FRED Division expenditures for commercial fisheries were estimated at 75 percent of total expenditures by Robert Roys, Director of the Division.

⁷ Fish and Game Facilities Debt Service includes payment of principal and interest on general obligation bonds sold for the construction or purchase of hatcheries, patrol vessels, and other capital expenditures. Because most of the debt service costs relate to fisheries development facilities, all debt service costs have been included in this table.

⁸ The Office of Fisheries Development was created in FY 81; in earlier years fisheries development specialists were employed by the Division of Economic Enterprise. Fisheries expenditures for FY 1978-81 are based on estimates by Division personnel, as cited in Basic Issues in the Management of Alaska's Fisheries Programs, prepared by David Hoffman for the Lieutenant Governor's Office (May, 1981). The FY 82 appropriation figure includes several grants to non-profit organizations administered by the Office of Fisheries Development.

⁹ Figures for the State Foreign Offices are 70 percent of total expenditures for the European Office and 50 percent for the Asian Office, based on personal communication with Shari Gross, former Director of the European Office, and House Research Agency estimates.

FISHERIES EXPENDITURES

NOTES TO TABLES (Cont.)

10 The Alaska Sea Grant Program is about two-thirds federally funded; therefore, these figures reflect only State expenditures, rather than the total budget (the Marine Advisory Program is entirely State funded).

11 No direct appropriation was made for these loan programs before FY 1981. In previous years, loans were funded through purchases of loans by the Department of Revenue from General Fund moneys. The figures shown here for FY 1978 - 1980 represent the value of loans made in each year. All loans figures in this table include operating expenditures where applicable.

12 These amounts are 94 percent of the total amounts appropriated by the legislature to CFAB. The remaining 6 percent was excluded because this was the approximate percentage of non-fisheries (agriculture) loans made as of July 1, 1981.

13 The ARRC figures for FY 1980 are the amounts designated for fisheries programs by the legislature. The FY 1981 amounts are estimates by Dean Olson, an ARRC Trustee, as cited in the Hoffman paper. The 1981 figure is for operating expenditures only, as no new loan funds were appropriated by the legislature.

14 An additional \$60 million in processor loan guarantees was appropriated by the legislature in FY 81, but this amount is not included because it will only be expended in the event of major defaults on loans, which is not likely.

15 The Fishermen's Fund, which pays for the treatment of injuries resulting from commercial fishing activities, is primarily supported by revenues collected from fish and game licenses. However, a shortfall in the fund in FY 1981 necessitated the \$200,000 appropriation in FY 82 to meet the Fund's expected obligations. The need for future appropriations, if any, will depend on the number and size of injury claims submitted to the fund each year.

16 Capital appropriation and G.O. Bond figures for aquaculture facilities are 75 percent of the total amount, based on an estimate by Robert Roys of the FRED Division. Portions of this table are derived from appropriations tabulated in the paper by David Hoffman.

STATE TAX REVENUES FROM THE FISHING INDUSTRY

Revenue Sources

The State of Alaska collects revenues from a number of different taxes and permit and license fees levied on the fishing industry. FY 1981 fisheries receipts totalled about \$28.2 million. In terms of total State receipts, the commercial fishing revenues from these sources appear almost insignificant -- about eight-tenths of one percent of total revenues in FY 1981. The contribution of fishing revenues to the State treasury, like most income sources, is overshadowed by petroleum revenues, which comprised nearly 90 percent of total FY 1981 collections. However, fisheries tax revenues do offset some of the cost of commercial fisheries budget outlays, and represent a significant portion of the non-petroleum revenue category.

The major sources of fisheries revenue for the State, in order of the amount collected in FY 1981, are the following:

- taxes on cold storages and other processors - \$11.0 million
- raw fish tax - \$5.9 million
- permit, vessel and fishermen license fees - \$3.9 million
- taxes on floating processors - \$3.8 million
- marine fuel tax - \$3.6 million (only part of which is from commercial fishing operations)

These revenues total about \$28.2 million.³ Less than half of the marine fuel tax is probably attributable to commercial fishing, with the remainder generated by marine transportation and sport boating/fishing. However, additional revenues from other sources appear to be more than the \$2 million or so of the marine fuel tax which is not from commercial fishing activities. These additional revenue sources include the corporation income tax, the Alaska business license tax, and the aviation fuel tax.

Fishermen no longer pay income taxes since the repeal of the individual income tax in 1980 (except for the relatively few fishing operations that are incorporated), but fish processors pay both corporate income taxes and the business license tax. In addition, some portion of the

³Source: Statement of Licenses and Taxes Collected, Alaska Department of Revenue.

FISHERIES REVENUES

taxes paid by companies in transportation, services, and all the other secondary industries affected by commercial fishing is attributable indirectly to the fishing industry. Revenues from the corporation income tax and the business license tax for all companies in Alaska totalled about \$40.2 million in FY 1981.

The aviation fuel tax (FY 1981 collections: \$4.1 million) is also an indirect source of fishing industry tax revenues, through the transportation by air of fish, supplies, and industry workers, and the use of aircraft for fish spotting and patrols. The amount of commercial fishing revenues represented by these additional sources could not be quantified during this research effort, but it appears that they would total less than \$5 million.

Fisheries Tax Structure

The primary elements of the State's current fisheries business tax (AS 43.75) were established in 1979. On June 1, 1979, the new tax schedule established by Chapter 79, SLA 1979, took effect. Under the new tax structure, the following rates are levied:

CURRENT TAX SCHEDULE

Shore Based Processors

4.5% for canned salmon;
3% for all other fish except
canned salmon or development fish;
1% for development fish.

Floating Processors

5% for all fish except
development or bottom
fish;
3% for development fish.

Prior to June 1, 1979, fish processors were taxed as follows:

PRE-1979 FISH TAX SCHEDULE

Shore Based Processors

1% of wholesale value for
all fish processing except
canning.

Floating Processors

1% Herring (did not
include roe).

Canneries (Shore Based and Floating)

3% salmon;
2% crabs and clams;
1% herring & butter
clams.

The legislature noted in the statement of findings of the 1979 fish tax legislation that the State had funded and implemented several fisheries-related development programs, fishery loan programs, the limited entry program, and expanded the fishery protection and management program. The stated purpose of the legislation was threefold:

- (1) to insure that the State is able to continue its efforts toward overall fisheries-related development programs by raising additional revenue to pay for the programs;
- (2) to make the imposition of the fisheries tax more uniform among fisheries businesses; and
- (3) to provide funding for the development of new fisheries.

The 1979 fisheries tax legislation increased tax rates considerably. The tax on frozen salmon and shellfish was tripled from one percent to three percent and the canned salmon tax was increased by 50 percent from 3 percent to 4.5 percent. Rather than raising taxes equally for all types of fish, the legislation levied a greater increase on frozen production in recognition of the increasing percentage and higher value of fish processed in this manner in recent years. Taxes on floating processors were also increased up to five-fold to account for the increased use of such processors and their generally lower production costs. The tax rates on development fish (to be administratively defined) were limited to one percent for shore-based plants and 3 percent for floating processors, so that developing fisheries would not be excessively burdened in the initial years of marginal profitability.

Although fisheries taxes were raised substantially by the 1979 law, the legislature did not intend for the tax increases to fully cover the cost of all fisheries programs, for several reasons. First, the tax rates were raised by up to five-fold as it was, and any greater increases were thought by many legislators (as well as the industry) to be an excessive tax burden. A second factor was the recognition that a number of fisheries expenditures, such as the FRED hatchery budget and the bottomfish program, were investments to increase future fisheries production. As such, these expenditures would be at least partly compensated by future increases in revenues resulting from an expanded fishing industry.

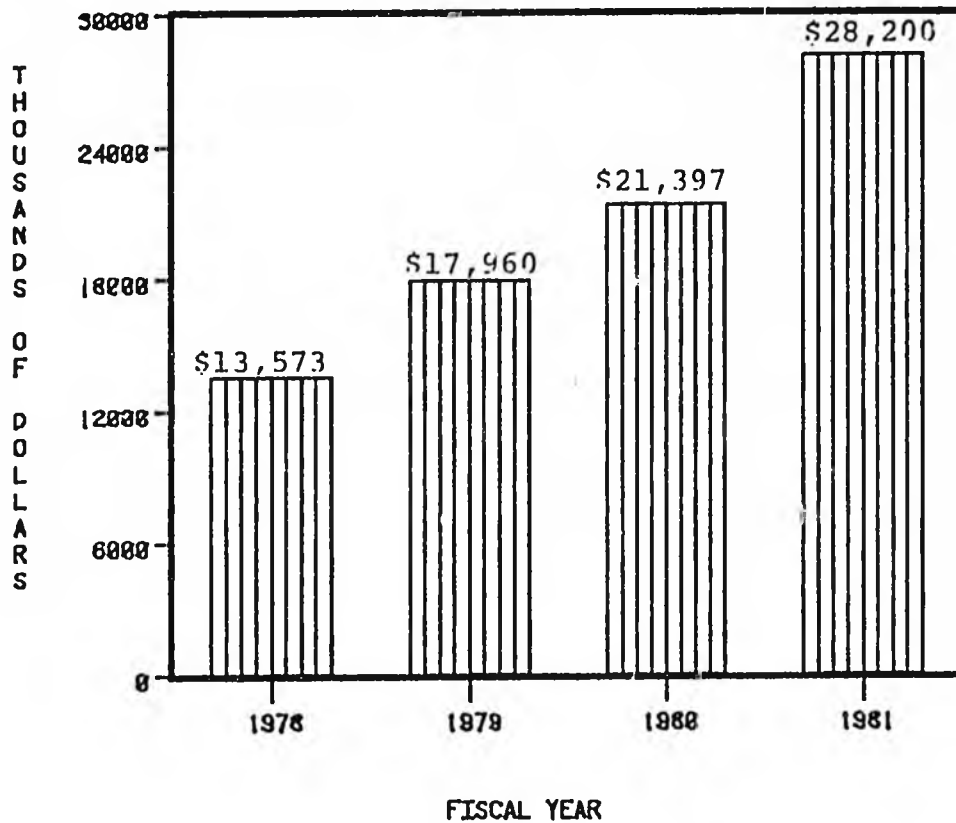
Another consideration was that many State programs, ranging from agricultural development to housing loans to energy programs, involve some level of subsidization from the State treasury. Expenditures for fisheries programs were therefore viewed as part of the general policy of the State to use some of its surplus revenues to expand employment opportunities and economic development in Alaska.

FISHERIES REVENUES

Recent Fisheries Revenue Trends

The effect of the 1979 fisheries tax increase can be seen in a comparison of fisheries revenues over the past several years. Figure 5, below, shows total State revenues from the fishing industry from FY 1978 to FY 1982.

FIGURE 5
STATE FISHERIES REVENUES
FY 1978 - 1981



Fisheries tax revenues increased by about 107 percent between FY 1978 and FY 1981, from \$13.6 million to \$28.2 million. The two principal reasons for the increase in revenues were the 1979 increase in fisheries tax rates, coupled with the growth in the value of fisheries harvests during the four year period.

As mentioned earlier, fisheries revenues in FY 1981 constituted about 0.8 percent of total State revenues. However, when compared only to other non-petroleum income, fisheries revenues were about 7 percent of the FY 81 total. Fisheries revenues ranked third among non-petroleum income sources, behind investment earnings and the corporation income tax. Over 50 percent of non-petroleum revenues were from investment earnings, which, although they are sustainable revenues, were derived almost totally from the investment of petroleum income. Excluding these investment earnings results in fishing revenues representing about 15 percent of non-petroleum revenues.

The percentage of total State revenues contributed by revenues from the fishing industry has declined as the State's economy diversified and expanded. In 1949, fish taxes and fees totalled one-third of the territorial budget and were the largest source of revenue. By 1953, the fisheries contribution had dropped to 17 percent, by 1966 to 8 percent, and by 1971 to 6 percent. The large influx of petroleum revenues beginning in the late 1970's was the major factor in reducing this percentage to its current level of 0.8 percent.

Comparison of Fisheries Revenues and Expenditures

In FY 1981, the State spent about \$132 million on commercial fisheries programs, while direct revenues from the fishing industry totalled approximately \$28.2 million. On the surface, these figures appear to suggest that the fishing industry does not pay for itself, and that the benefit/cost ratio and return on the State's investment from fishing expenditures is rather low. However, an accurate evaluation of State expenditures and revenues in commercial fishing requires more than just totalling the two sides of the balance sheet. One important point is that over \$72 million of the \$132 million appropriated in FY 1981 was for fisheries loan programs, and will therefore be returned to the State through loan repayments. The foregone interest earnings associated with the low-interest loans do represent a cost to the State, as explained earlier. It is also important to consider the functions of the different fisheries programs relative to the expenditures for each, as well as the additional benefits of the fishing industry in terms of employment and income to Alaska residents. While it is beyond the scope of this paper to evaluate the effectiveness

FISHERIES REVENUES

or overall value of the State's commercial fisheries programs, some observations can be made which provide a broader perspective on the State's fisheries expenditures.⁴

A number of fisheries managers and others associated with the industry stated that it is misleading to compare State fisheries revenues with all fisheries-related expenditures. According to this point of view, fisheries revenues are collected to pay for management and enforcement expenditures, and more than cover these costs. Expenditures for long-term fisheries development, such as the FRED hatchery program and market development, are investments and will be reflected in increases in future State revenues as a result of larger harvests, and so on. Other programs such as loans and fisheries education are viewed as serving other purposes besides fisheries development. For example, State loans for vessel or gear purchases in the salmon or shellfish fisheries do not increase the economic value of these fisheries, because the full allowable harvest can be easily taken with the existing vessels and gear. Therefore, such programs are considered as providing low-cost financing to Alaska residents, rather than fisheries development expenditures.

A second point to consider is that a larger percentage of fisheries expenditures is offset by State revenues from the industry than in several other areas of State development activity, including agriculture, hardrock mineral development, housing, and others. Although the generation of tax revenues is certainly a valuable benefit of development expenditures, it is usually secondary to the main objective of economic development.

A third perspective on Alaska fisheries expenditures and revenues can be had by comparing Alaska's situation with that of other states. In FY 1981, the State of Washington spent approximately \$17.5 million on commercial fisheries management, while fisheries revenues totalled \$4.4 million in that year. The value to fishermen of the 1980 harvest (the most recent year available) for all fish species was an estimated \$59.3 million. Fisheries tax rates in Washington are, on average, somewhat higher than Alaska's, particularly for salmon, and are the highest of the three West Coast states.

⁴ For evaluations of individual fisheries programs, see reports prepared by the Division of Legislative Audit and the Division of Internal Audit in the Office of the Governor. Agencies reviewed include the Department of Fish and Game, the FRED Division, ARRC, CFAB, the Fisheries Enhancement Loan Fund, the Alaska Fisheries Council, and the Division of Fish and Wildlife Protection.

In Oregon, commercial fisheries management expenditures in FY 1981 were roughly \$10.3 million; fisheries revenues were \$2.1 million. The 1980 harvest value for all species was \$54.9 million. Oregon's fish tax rates are relatively low, averaging about one percent of value to fishermen. The comparable management expenditures in Alaska in FY 1981 were about \$34 million.⁵ Fisheries revenues and harvest value, as mentioned earlier, were \$28.2 million and \$1.125 billion, respectively. The expenditure/revenue ratios in Washington and Oregon are clearly much higher than in Alaska. Alaska spent about 2.4 cents per dollar of wholesale fisheries value, compared to 43 cents for Washington and 19 cents for Oregon. It is important to note that Washington and Oregon do not have the extensive loan and capital project programs that Alaska does, but on a management basis, Alaska's expenditures are relatively small in relation to revenues and the harvest value of the fisheries.

The employment and income generated by the fishing industry are also important factors to consider in the evaluation of fisheries expenditures, as discussed in the last section of this report. An additional consideration not mentioned there is that the fishing industry is labor intensive relative to the value of sales. Research performed earlier by this agency indicated that in Alaska, seafood harvesting and processing provides an annual average of 14.2 jobs per million dollars of wholesale value.⁶

Although some industries have higher employment/value of sales ratios -- tourism is 20.1, building construction is 15.5 -- most others are lower, including mining at 10.4, paper mills at 7.8, and oil and gas extraction at 1.6 jobs per million dollars of sales. It is essential when evaluating State expenditures to consider not only these employment ratios, but also how much a given State investment is likely to increase the sales of the affected industry. However, these figures demonstrate that State expenditures which maintain or expand the value of fisheries production in Alaska do provide a relatively high number of jobs compared to other industries. Research into the actual sales and employment effects of specific fisheries (and other industry) development programs would be very valuable in evaluating the effectiveness of the programs and other development options.

⁵ For the purposes of this comparison, FRED Division and Debt Service expenditures have been considered as management expenses rather than fisheries development programs. The Washington and Oregon budget figures cited also include aquaculture expenditures, and are based on personal communications with budget officers in the two states.

⁶ Source: House Research Agency Memoranda 80-106, Effect of State Expenditures on Unemployment and In-migration, 1980.

FISHING EMPLOYMENT AND INCOME

Although the development of Prudhoe Bay and the associated rapid growth in State revenues has reduced the significance of the fishing industry as a source of State revenues, the industry remains important in terms of employment opportunities and income. In 1979, more people were employed in the fishing industry than in any other sector of the Alaska economy⁷. An additional consideration is that the impact of the industry on many regional and local economies is greater than on the state as a whole. In many communities, fish harvesting and processing provide the primary opportunities for non-government employment. The overall economic contribution of the industry is limited in that it is by far the most seasonal sector of the economy, but available statistics suggest that for many people, fisheries work provided their only employment throughout the year.

A Note on Methodology

Commercial fishing is commonly considered as one of Alaska's major industries, but determining the actual employment and income generated by fishing has always been a difficult proposition, particularly for the harvesting segment of the industry. Good statistics are available on most industries in the state because they involve salaried or hourly wage employees covered by unemployment insurance (U.I.). In order to fulfill U.I. reporting requirements, employers must submit detailed information on the number of employees and wages paid. These reports form the basis for the employment and income figures published by the State Department of Labor.

Independent business operators such as fishermen, however, are not generally covered by U.I. and therefore don't show up in regularly published employment figures. Indirect indicators such as licenses, fish landing records, and estimates of crew size must be used in estimating employment. While relatively accurate records are available on the value of fishermen's gross earnings, much of these earnings go to pay fishing expenses. Net earnings are therefore much lower, and are difficult to determine because of the wide variability in expenses and profitability.

In this report, published information on the fishing industry has been combined with unpublished data and agency estimates to produce the employment and income estimates included in this section. Although

⁷ In terms of the total number of individuals who worked at some time during the year. Average employment was much lower because of the pronounced seasonality of the industry, as discussed later in this section.

EMPLOYMENT AND INCOME

additional research needs to be done in this area, the resulting figures appear reasonably accurate. It should be noted that much of the employment and income information for the fish harvesting sector has been derived from Department of Labor estimates. This employment series is no longer funded and no estimates of harvesting employment beyond 1979 will be produced unless additional funding is made available.

Types of Employment

In this section, employment and income benefits of Alaska's seafood industry are placed in three broad categories. Direct impact refers to employment and earnings in fish harvesting activities. Secondary impact refers to employment and income resulting from the processing of seafood products. Induced effects include employment and income in occupations such as repairing or maintaining vessels, selling goods to fishermen, and financing fishing operations. Also included as induced effects are the additional jobs and income resulting from goods and services purchased by those employed in harvesting or processing activities.⁸ Each of these categories is discussed below. In each discussion, there is an attempt to distinguish between resident and non-resident employment and income.

Direct Impact--Fish Harvesting

Employment. Over 29,000 people were employed in fish harvesting in Alaska in 1979, based on peak employment. The actual number of people fishing was somewhat higher, because the peaks in different fisheries do not coincide -- salmon and crab, for example. In 1979, 15,683 vessel licenses were issued, and 25,210 crew licenses were purchased. Maximum fishing employment would therefore be 40,893; however, some licenses were probably unused, and actual employment would be slightly less than this figure.

Table 7 on the next page shows monthly low and peak employment as well as average monthly employment by region in fish harvesting during 1979. Salmon fishing accounted for roughly 75 percent of the fishing jobs in the state. Harvesting other finfish accounted for 17 percent of jobs and shellfish for the remaining 7 percent.

⁸ These categories differ from commonly used employment definitions, which usually consider fish harvesting and processing as direct or primary employment, support services as secondary employment, and the respending of fisheries income as induced employment effects. This change was necessary because the economic model used to analyze these employment relationships could not separate each of the different types of employment.

TABLE 7

ESTIMATED EMPLOYMENT & INCOME FROM SEAFOOD HARVESTING IN ALASKA

	SALMON				OTHER FINFISH				SHELLFISH				TOTAL				
	Mo. Employment			Value of Catch (\$000's)	Mo. Employment			Value of Catch	Mo. Employment			Value of Catch	Mo. Employment			Value of Catch	%
	Low	Peak	Avg.		Low	Peak	Avg.		Low	Peak	Avg.		Low	Peak	Avg.		
Southeast	31	5,716	1,749	60,382	15	2,577	611	16,813	55	116	80	4,995	126	8,162	2,440	82,190	13
Prince William Sound	0	1,361	385	35,092	0	544	106	7,518	30	187	97	4,537	39	1,597	588	47,147	8
Cook Inlet	0	3,350	684	20,935	0	1,812	373	767	32	321	145	6,737	32	5,042	1,202	28,439	5
Kodiak	0	3,040	509	23,048	2	597	131	3,105	32	786	398	42,534	86	2,886	1,038	68,687	11
Bristol Bay	0	6,351	1,173	139,602	0	2,074	183	9,100	0	0	0	0	0	6,353	1,356	148,702	24
Aleutians	0	1,517	343	52,897	0	133	11	507	20	214	91	34,480	146	1,872	859	87,884	14
Rest of State	0	3,103	759	12,615	0	371	39	1,171	87	902	384	145,449	0	3,102	798	159,235	26
Total	31	23,637	5,605	344,571	29	5,464	1,480	70,206	256	2,321	1,196	238,732	1,155	29,015	8,281	653,509	

* Figures for low and peak employment may not add to totals either horizontally or vertically because the time at which peaks and troughs occur are different in various fisheries.

** Value of halibut is included in total value of catch but was not distributed among regions. Employment in halibut fishing has been included in the regional distribution.

Source: Department of Labor, Department of Fish and Game 1979 Catch and Production Statistics, House Research Agency.

EMPLOYMENT AND INCOME

More salmon fishermen worked at one time in Bristol Bay than in any other area, but the season in Southeast was longer so that average year-round employment was higher in Southeast. The Southeast region employed more people in other finfish harvesting as well, and again the longer season can be inferred from the relationship of peak to average employment.⁹

Fish harvesting is by far the most seasonal sector of Alaska's economy. An index of seasonality can be developed by dividing both low and peak monthly employment by the number of full-time equivalent positions as determined by the DOL formula for computing average monthly employment. Figure 6 on the following page displays this index for salmon, other finfish, and shellfish harvesting. Other sectors of Alaska's economy are included in the figure for the purpose of comparison.

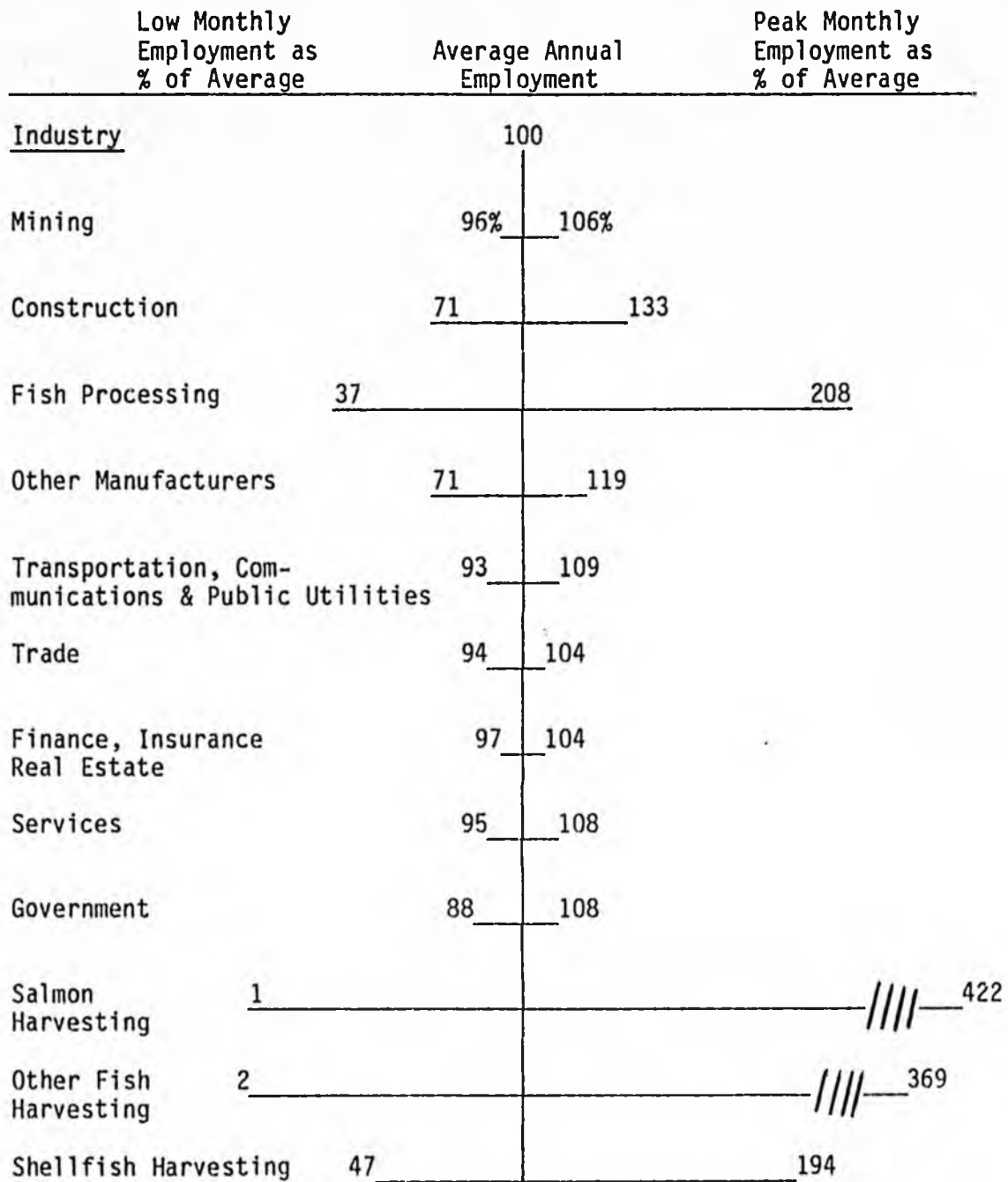
Figure 6 shows that salmon fishing is the most seasonal fishery, with low monthly employment of only one percent of the annual average, and peak employment of 422 percent of the average. Shellfish harvesting is the least seasonal of the fisheries, with low and high employment of 47 percent and 194 percent of the annual average, respectively. Due to the high degree of seasonality, estimates of peak employment as well as average monthly employment are useful in determining the importance of fish harvesting to the Alaskan economy.

⁹ These harvesting employment estimates are based on methodology first developed by George Rogers and Richard Listowski. In work for the Institute for Social and Economic Research (ISER), they calculated employment by counting the number of vessels landing fish in each fishery each month and multiplying by a crew factor appropriate to the type of gear used. The crew factors were based on consultation with fishery biologists, fishermen, and fish processors in each fishery. [Measuring the Socioeconomic Impacts of Alaska's Fisheries, George Rogers, et al., Institute of Social and Economic Research, April 1980.]

Barbara Baker, an economist for the Department of Labor, revised data on crew factors and used the ISER methodology to produce estimates of employment in Alaska's fish harvesting sector through 1979. Her (unpublished) estimates are used in this analysis. The estimates include only the captain and crew of fishing vessels. Tender and packer crew and onshore workers are categorized as processing, rather than harvesting employment.

FIGURE 6

AN INDEX OF SEASONALITY FOR VARIOUS SECTORS OF THE ALASKAN ECONOMY
1979



Source: Statistical Quarterly 79:4, Alaska Department of Labor, revised 12/15/81; House Research Agency.

EMPLOYMENT AND INCOME

Figures 7 and 8 on the following page show the distribution of employment in Alaska's economy during 1979. The distribution of peak monthly employment in Figure 7 shows that the fish harvesting sector ranked as Alaska's third largest private sector employer behind the service and trade sectors. Combined employment in fish harvesting and fish processing was 44,157, which made the seafood industry Alaska's largest private employer in terms of peak monthly employment. The distribution of average monthly employment in Figure 8 shows that the impact of the seafood industry is less pronounced in terms of full-time equivalent positions. Combined employment in fish harvesting and fish processing was 15,553, which made the seafood industry Alaska's third largest private employer in terms of full-time equivalent positions.

Income. Table 7 also gives approximations of income from fish harvesting. As with employment, 1979 data are the latest available and are used throughout this analysis. The values in Table 7 represent gross income to the fishermen; no account is taken of fishing costs, which may vary considerably between species, gear type, and area. The information in Table 7 does not allow conclusions to be made about the amount of income expended in a particular geographic area. Significant expenses -- such as crew share, boat payments, and operating expenses -- may be paid outside the area to which the income is allocated in Table 7.

Table 7 shows that gross income to fishermen was \$652.5 million in 1979. Salmon accounted for \$344.6 million (53 percent), shellfish for \$238.7 million (37 percent), and other finfish for \$70.2 million, or 11 percent of total gross fishing income. The fisheries of highest value were the Bristol Bay salmon run (\$139.6 million) and the shellfish harvest in the Bering Sea (\$145.5 million). Comparison of gross fishing income to income in other sectors is misleading because fishing costs--food, fuel, maintenance, equipment, etc.--vary widely and should be deducted to obtain a measure of fishing income comparable to income in other sectors.

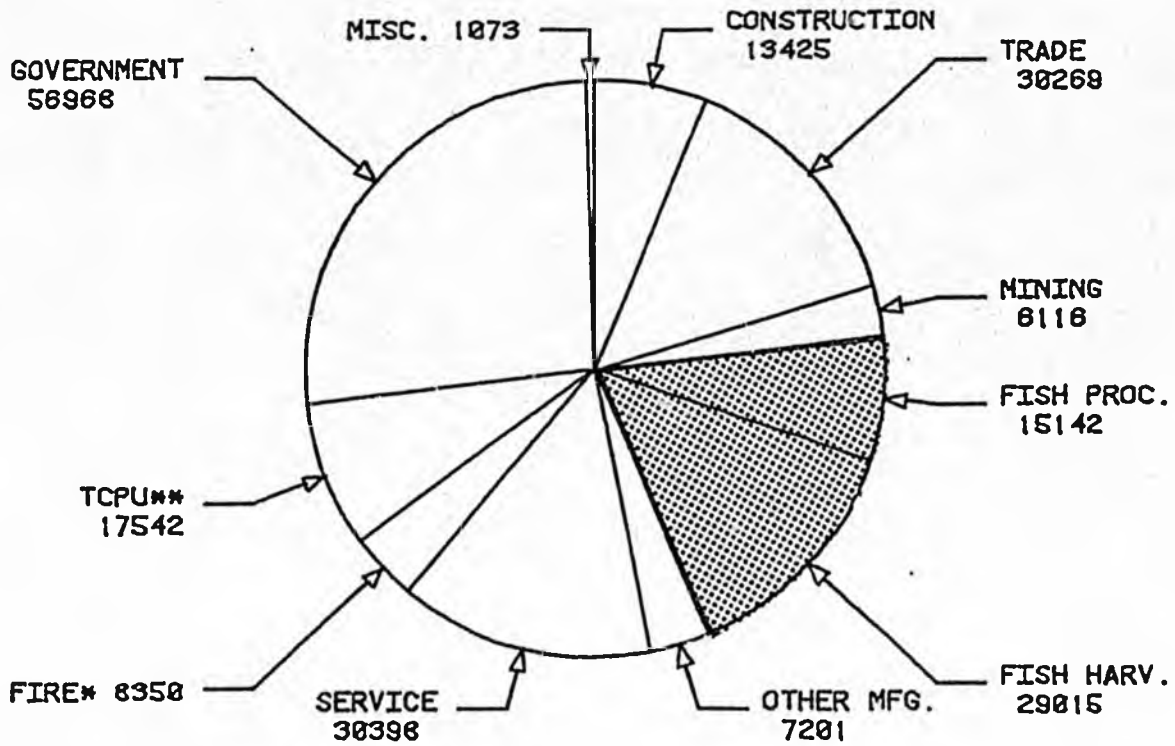
Data limitations make accurate assessment of net fishing income for all fisheries impossible, but a rough calculation indicates that income from fish harvesting was approximately nine percent of total income in Alaska in 1979. The calculation is based on two fisheries income surveys, one a salmon and herring study performed by the University of Alaska Sea Grant Program¹⁰, and the second a shellfish survey by the Commercial Fisheries Entry Commission.¹¹

¹¹ 1979 Fisherman's Income Survey, Herring and Salmon Fisheries, Alaska Sea Grant Program Report 80-5, Compiled By Doug Larson.

¹² Alaska Shellfish Bio-Economic Data Base, Commercial Fisheries Entry Commission, by Lewis Queirolo, et al., February, 1979.

FIGURES 7 and 8

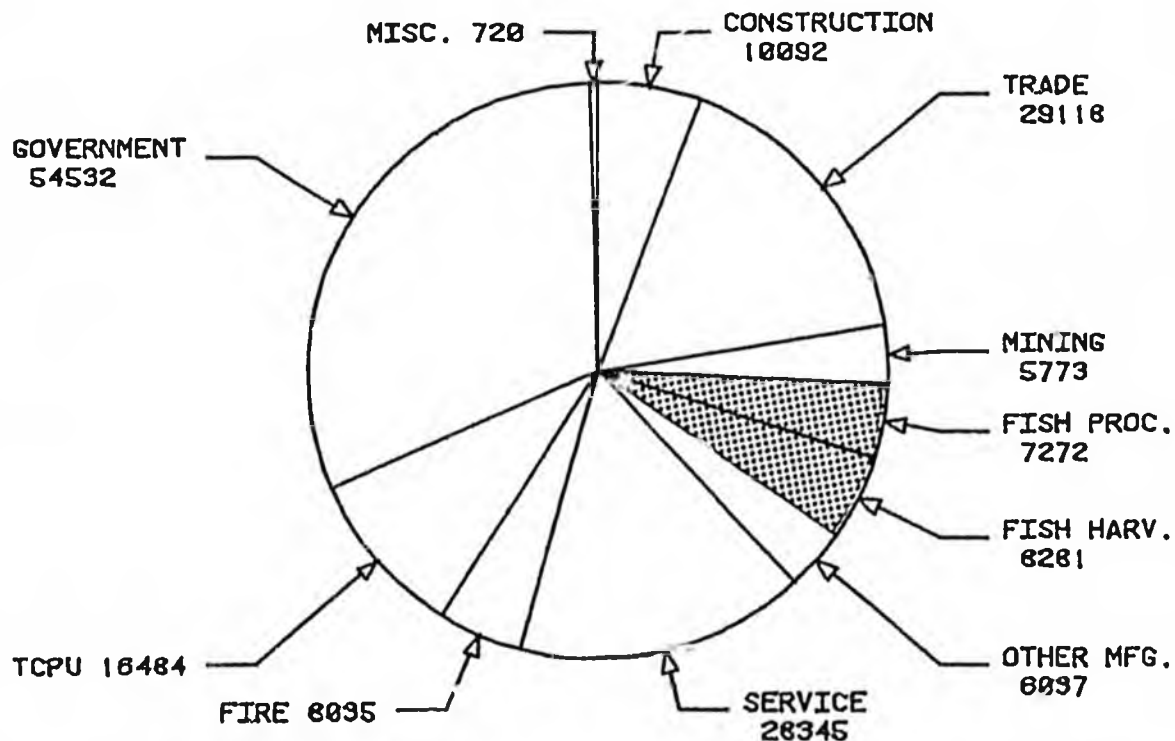
COMPARISON OF PEAK MONTHLY EMPLOYMENT
IN VARIOUS SECTORS OF THE ALASKAN ECONOMY—1979



*Finance, Insurance, & Real Estate

**Transportation, Communications & Public Utilities

COMPARISON OF AVERAGE MONTHLY EMPLOYMENT
IN VARIOUS SECTORS OF THE ALASKAN ECONOMY—1979



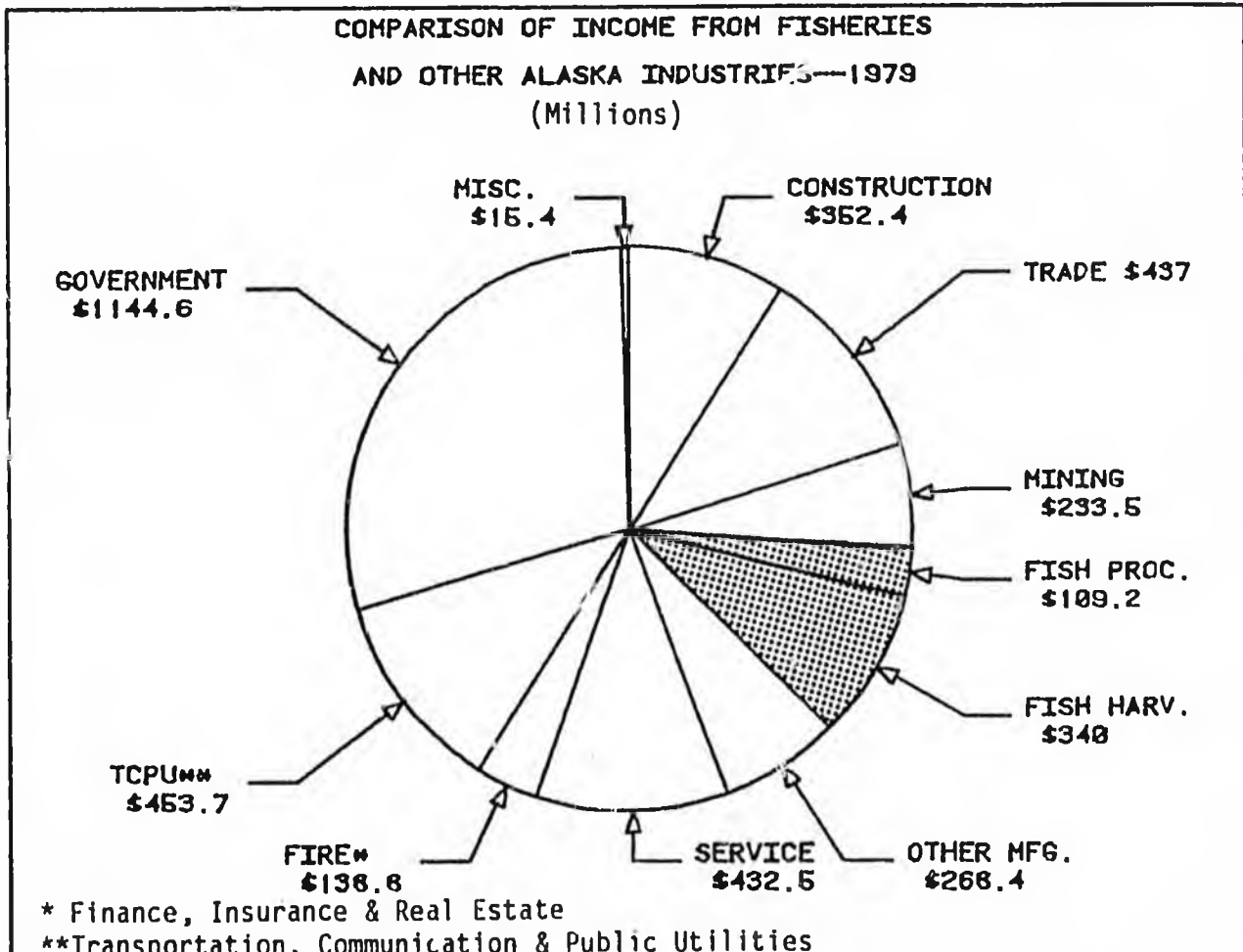
prepared by Haines Research Agency

EMPLOYMENT AND INCOME

The Sea Grant study indicated that net income in salmon fisheries in 1979 was approximately 37 percent of gross income. The shellfish survey was based on 1976 data, and coincidentally found that net income for crab and shrimp vessels also averaged 37 percent of gross earnings. The net/gross earnings ratio can be expected to vary widely from year to year with changes in harvest values and gross earnings, but 1979 shellfish gross earnings were similar to 1976 earnings when inflation is considered. Crew shares vary widely among fisheries and vessels within fisheries, but for the purposes of this comparison, an average crew share (total crew) of 10 to 20 percent of gross income is assumed. Based on these assumptions, total net income for skipper and crew would be roughly 47 to 57 percent of gross earnings, or \$310 million to \$370 million. This range of net harvesting income is equivalent to 8.1 to 9.8 percent of total Alaska income in 1979 as reported by the Department of Labor. Figure 9, below, shows the relationship of this amount to income in other sectors of the Alaskan economy. The figure shows that fish harvest produces more income than the mining, finance, and manufacturing (split into processing and other manufacturing) sectors, and is fifth among all private industries. When fish processing income is combined with harvesting income, the fisheries sector ranks second, after transportation, communications and public utilities.

FIGURE 9

COMPARISON OF INCOME FROM FISHERIES
AND OTHER ALASKA INDUSTRIES—1979
(Millions)



Resident and Non-resident Employment and Income.¹³

A reasonable approximation of the number of fishing jobs held by Alaskans and the amount of fishing income that remains in Alaska can be made by combining information from the Sea Grant survey with information on licenses and permits from the CFEC.

The Alaska Department of Revenue reports that 16,525 (66 percent) of all commercial crew licenses sold in Alaska in 1979 were resident licenses. The 15,683 vessel licenses issued in 1979 by the Commercial Fisheries Entry Commission are not differentiated by residency, but fishery permits offer an approximation of the proportion of vessels operated by Alaskan residents. Data provided by CFEC show that about 81 percent of the total of 17,609 commercial fishing permits were held by Alaskans in 1979. If the ratio of permits per vessel is similar for resident and non-resident owners, these data imply that about 12,700 Alaskan vessels (.81 x 15,683 total vessel licenses) fished at some time during 1979.

Combined figures for vessel and crew indicate that as many as 29,200 Alaskans fished commercially in 1979. This figure is roughly 71 percent of all license and permit holders. If this 71 percent ratio is applied evenly throughout the year, about 20,700 of the 29,000 people employed at the peak of the harvesting season were Alaskans and roughly 5,900 of the 8,281 "full-time equivalent positions" in fish harvesting were held by Alaskans in 1979.

Table 8 on the following page shows the proportion of gross value of salmon caught by Alaskan fishermen in 1979. The Alaskan share ranges from a low of 50 percent in Bristol Bay to a high of 78 percent in Cook Inlet. The average Alaskan share of the total value of salmon fisheries was 59 percent.

¹³ Alaska residency is generally defined for the purposes of fishing licenses and permits as one year of continual dwelling in the state, with no registration to vote or permanent residence in another state.

TABLE 8

DISTRIBUTION OF SELECTED SALMON PERMITS AND GROSS EARNINGS AMONG RESIDENTS AND NON-RESIDENTS¹

	Number of Permits ²			Average Income per Vessel ³			Value of Catch ⁴ (\$000)	Estimated Value of Catch by Alaska Residents ⁵ (\$000)	Estimated Proportion of Catch by Alaska Residents ⁵
	Total	Alaska Residents	Non-Residents	Average	Alaska Residents	Non-Residents			
Southeast	1,816	1,245 (69%)	571	\$42,622	\$37,717	\$53,538	\$60,382	\$36,632	61%
Prince William Sound	816	613 (75%)	203	42,573	41,575	45,565	35,092	25,670	73%
Cook Inlet	1,373	1,146 (83%)	227	25,232	27,717	19,148	20,935	16,306	78%
Kodiak	559	419 (75%)	140	59,438	56,685	67,268	23,048	16,339	71%
Bristol Bay	2,628	1,722 (66%)	906	70,263	61,823	81,452	139,602	69,893	50%
Rest of State ^b	--	--	--	--	--	--	65,307	38,652	59%
Total	7,192	5,145(72%)	2,047	--	--	--	\$344,571	\$203,492	59%

¹Permit numbers in this table do not include fisheries in the Arctic-Yukon-Kuskokwim region, hand purse seines, beach seines, or these fisheries: Chignik purse seine, Peninsula/Aleutians purse seine, drift and set gill net, and Yakutat set gill net. The total number of salmon permits held statewide in 1979, including interim use permits, was 10,335, of which 8,135 (79%) were resident and 2,200 (21%) were non-resident.

Sources: ²Commercial Fisheries Entry Commission 1979 Annual Report, ³Sea Grant Report 80-5, ⁴Department of Fish and Game Catch and Production Statistics, ⁵House Research Agency

Revised 2/24/82

Similar data are not available for other species; the estimates in Table 9 are based on permit and license data obtained from the CFEC and the Alaska Department of Fish and Game. Data are insufficient to provide a regional breakdown.

TABLE 9
DISTRIBUTION OF PERMITS AND GROSS EARNINGS IN ALASKAN FISHERIES
1979

Fishery	Total	Alaska Residents	Per- cent	Non Resident	Value of Catch (\$000)	Estimated Value of Catch by AK Resident (\$000)
Halibut	4,282	4,001	93%	281	\$31,225	\$29,039
Black Cod	329	265	81%	64	935	757
Shrimp	674	629	93%	45	12,867	11,966
King Crab	1,829	1,278	70%	51	148,745	104,122
Tanner Crab	1,070	802	75%	268	71,992	53,994
Dungeness	454	395	87%	59	4,166	3,624
Clams	363	331	91%	32	92	84
Herring	1,161	1,012	87%	149	32,709	28,457
TOTAL	10,162	8,713	86%	1,449	302,731	232,043

There is reason to believe that share of permits held does not accurately reflect share of value of catch. Note (see Table 8) that Alaskan residents held 72 percent of salmon permits but earned only 59 percent of gross fisheries income. If this relationship applies to other fisheries as well, the Alaskan share of other fisheries income is approximately 70 percent of total income in the fisheries rather than the 86 percent implied by the share of permits held. Averaging salmon fishery income and income from other fisheries indicates that Alaskan fishermen's share is about 64 percent of the total gross value of seafood landed in Alaska.¹⁴

¹⁴ The actual percentage of resident income may be somewhat lower, because this methodology does not account for variances in specific fisheries or vessel sizes. For example, while Alaskans held 70% of king crab permits statewide, the percentage of Alaskan crab earnings in the Bering Sea was probably substantially less than this, because more "outside", large boats fish there and take a larger share of the catch.

EMPLOYMENT AND INCOME

The conclusion that 64 percent of the harvest (in terms of gross value) was landed by Alaskan fishermen does not imply that 36 percent of the \$652 million gross income left the state. Food and fuel are two major expense items that tend to decrease the amount of gross income which leaves Alaska. Some payments for maintenance work and a portion of crew shares might also be expected to remain in Alaska, but the amounts are a matter of speculation. Rough calculations based on data from the Sea Grant survey indicate that about 83 percent of gross income from seafood harvests remains in Alaska.

Secondary Impact--Seafood Processing¹⁵

Employment. The indices of seasonality presented in Figure 6 show that seafood processing is a highly seasonal industry. The data in Table 4 on the next page show that processing employment ranges from less than 2,700 in slack periods to over 15,000 at the peak of the season. The Cook Inlet area reports the highest peak employment (3,678 jobs), although both the Aleutian and Kodiak regions have higher average annual employment because of shellfish processing there. About one-quarter of the Cook Inlet processing employment was in Anchorage.

Almost no fish is landed in Anchorage directly by fishermen, but a large volume of salmon is flown in each summer from Bristol Bay, Bethel, and other areas for processing. In 1979, Anchorage plants processed about 18.5 million pounds of salmon, or approximately 12 percent of the statewide fresh, frozen and cured pack.¹⁶ The 1980 processing capacity in Anchorage more than doubled from 1979 levels, substantially increasing processing employment.

¹⁵ The employment and income estimates discussed in this section were obtained from the Research and Analysis Section of the Department of Labor. The estimates are higher than those reported by the Alaska Seafood Marketing Institute because these figures include employment and income in fish tendering and packing and cold storage activities. The estimates may be low because they are based on employment covered by unemployment insurance. To the extent that tenders and packers are self-employed or working on contract rather than as employees of a covered employer, both employment and income will be underreported. Correction of potential understatement would require a survey of processors and/or tenders and packers. No formal survey was performed and no estimate made of the number of jobs and amount of income not reported to the Department of Labor.

¹⁶ Capacity Analysis of the Anchorage Salmon Industry, Dames & Moore, prepared for the Municipality of Anchorage, June 1980.

According to the Department of Labor formula for computing full-time equivalent positions, statewide average annual employment in seafood processing was 7,272 in 1979. Table 10, below, shows processing employment and wages for each region in the state. Figure 8 (page 41) shows that average processing employment was 4.4 percent of total employment in Alaska in 1979.

TABLE 10
1979 EMPLOYMENT AND EARNINGS IN SEAFOOD PROCESSING

Region	Average	Low	Peak	Dollar Value
Southeast	1,128	506	2,832	\$ 15,135,211
Prince William Sound	325	90	828	5,921,431
Cook Inlet	1,480	412	3,678	16,180,749
Kodiak	1,586	748	2,466	24,089,446
Bristol Bay	669	95	2,617	14,505,073
Aleutian Islands	1,746	670	2,740	29,706,612
Rest of State	338	50	918	3,696,829
Total	7,272	2,692	15,142	109,236,361

Source: Department of Labor, Division of Research and Analysis; House Research Agency, 1/15/82

Unpublished data available from the Department of Labor show that about 21,400 individuals worked in the processing industry during 1979. This is the number of individuals who worked at any time during the year and is therefore higher than the 15,142 peak generated by the Department of Labor's formula for estimating representative employment. Standard practice for adjusting these data includes deleting "casual workers" from the count. Casual workers are defined as those workers who earned less than the \$1,000 minimum requirement to qualify for unemployment insurance benefits. After this adjustment, the number of seafood processing workers is 16,670.

EMPLOYMENT AND INCOME

Income. The average annual wage of these 16,670 workers was about \$6,150, but more than half of all processing workers earned less than \$4,000 in 1979. Despite low average earnings--average and median income in processing were lower than in any other sector of Alaska's economy--and high seasonality, 83 percent of processing workers reported no other income in Alaska outside the processing industry in 1979. Two probable explanations for this high degree of dependence on processing as a source of income are that 1) other employment opportunities are scarce in many areas where processing occurs and 2) a high proportion of processing workers report no other earnings in Alaska because they leave the state. The latter point will be discussed after reviewing the payroll data in Table 10.

Table 10 shows that total wages paid to seafood processing workers was \$109.2 million in 1979. Figure 8 (page 41) shows that this is about 2.9 percent of total income from wages and salaries plus net income from fishing. The Aleutian region had the largest share of processing income--\$29.7 million, or 27 percent--followed by Kodiak with \$24.1 million, or 22 percent. Bristol Bay had a far lower share of processing payroll (13 percent) than of value of catch (24 percent). The Kodiak and Cook Inlet regions share of processing income was higher than the shares of catch in those regions. The Cook Inlet region showed the largest gain; approximately five percent of gross value of fish harvested was in Cook Inlet, but 15 percent of the processing payroll can be attributed to the area.

The variations within the state in share of harvest and share of processing payroll may be due to several factors. Transporting fresh fish from Bristol Bay to Anchorage, crab from the Bering Sea to ports in the Aleutians, and other incidences of processing in regions outside the area of harvest may explain a large portion of the shift. Type of catch can also have an impact on processing income. For example, crab is a high value catch but processing is relatively mechanized so requires relatively less labor than salmon.

Payroll arrangements of the processors offer a third explanation for relatively high payrolls in Kodiak and Cook Inlet. Processing plants in remote areas may pay relatively low wages but provide food and lodging to workers while Anchorage processors may pay higher wages but do not provide similar benefits to employees. In-kind payments are not reflected in the payroll data reported to the Department of Labor. The lower wages in Dutch Harbor, for example, relative to wages in Anchorage would tend to reduce the Dutch Harbor share of total state-wide processing wages.

Resident and Non-resident Employment and Income. Information provided by the Department of Labor shows that about 47 percent of unemployment insurance claims filed in 1981 by former processing employees were

filed from outside Alaska.¹⁷ Unemployment insurance data is the best available indicator of residency of workers. Employment data collected by the Department of Labor do not record the residency status of employees. Unemployment insurance files do indicate the location from which a claim was initiated. If we assume that the tendency of residents and non-residents to file unemployment insurance claims is similar and that non-residents return to their permanent homes before collecting unemployment compensation, unemployment statistics will offer a good approximation of residency of workers.

1981 claims reflect earnings during 1980. Data corresponding to earnings in 1979 have insufficient detail to identify processing workers separately. The data also show that non-resident processing employees who collected unemployment compensation earned about \$250 per year more than did residents and that non-residents collected benefits an average of one week longer than residents. No regional breakdown of these data is available, nor do the data allow conclusions on the proportion or amount of processing wages that were spent in the state.

Induced Impact--Other Sectors of the Alaskan Economy¹⁸

Induced impact refers to the jobs and income created when income from a given source is used to purchase goods and/or services. Induced impact is often referred to as the "ripple effect" or the "multiplier" because the income ripples through other sectors of the economy and multiplies the impact of the original amount of employment or income.

National or regional employment multipliers are generally expected to fall in the range of 1.8 to 2.5, meaning that .8 to 1.5 additional jobs result from each new position created. Due to relatively high dependence on supplies of goods and services from outside its borders, multipliers for Alaska will generally be 1.7 or less. The multiplier

¹⁷ Source: Unemployment Insurance Actuarial Study, Alaska Department of Labor, December 1981.

¹⁸ The induced effects discussed in this section were determined by a special run of the econometric model used by the Division of Budget and Management, Office of the Governor. Although the results appear reasonable, the reader should be aware that the figures were produced by computer simulation and not by actual measurement of employment or income. The base of comparison is the control forecast which appears in the October 1981 issue of "The Alaska Economic Information and Reporting System." The special run made only one change to the input of that model; anticipated fish harvest in 1982 was increased by ten percent over the estimate used in the base scenario.

EMPLOYMENT AND INCOME

for fish processing employment will be one of the lowest in Alaska's economy because of the relatively low income of processing employees and the relatively high proportion of non-resident workers. Low income implies that less money for re-spending in other sectors will be generated by processing jobs. High non-resident employment implies that leakage outside Alaska will be higher than in other sectors. Both factors tend to reduce the multiplier effect.

Employment Multiplier. Table 5 compares output from this special run of the model to output from the original model and indicates the induced employment impact of processing employment on other sectors of Alaska's economy. The multiplier applicable to average annual employment is 1.28, which means that 28 additional jobs in other sectors result from each 100 jobs in the processing sector. The 723 additional full-time equivalent positions in processing which are the projected result of increased harvest levels create 202 other jobs. Maximum effects occur in the third quarter, when 291 jobs (in addition to those in the processing sector) are created. Sectors most affected by increases in processing employment are service (which include fuel and maintenance facilities) with 157 jobs; transportation, with 47 jobs; and government, with 39 jobs.

This exercise cannot determine a multiplier for employment in fish harvesting because adding fishermen does not necessarily mean that more fish will be caught. Weather, harvest limits, and other factors outside the control of fishermen influence yield and income so that it is impossible to specify a fixed linkage between employment in fish harvesting and employment and income in other sectors of the economy.

The multiplier for the processing industry was determined by increasing processing employment by an arbitrary amount and then examining changes in other sectors of the economy. A ten percent increase in the quantity of fish harvested was chosen as the means of generating a second set of model output with higher processing employment. The model was not designed to specify a precise relationship between fish harvest and processing employment and may not accurately enumerate processing employment resulting from increased harvest levels. However, the purpose of the analysis was to determine the effects of processing employment on other sectors of Alaska's economy, so this point is not critical to the analysis.

TABLE 11

COMPARISON OF EMPLOYMENT EFFECTS OF CHANGES IN SEAFOOD PROCESSING EMPLOYMENT*

	<u>Average Annual</u> <u>Base</u>	<u>Annual</u> <u>New</u>	<u>Employment</u> <u>Difference</u>	<u>1st Qtr.</u>	<u>Additional Employment</u> <u>2nd Qtr.</u> <u>3rd Qtr.</u> <u>4th Qtr.</u>			
Mining	8,835	8,835	0	0	0	0	0	
Construction	14,299	14,309	10	2	8	14	16	
Food	8,162	8,885	723	439	723	1,178	553	
Transportation	18,779	18,807	28	21	18	47	25	
Utilities	6,167	6,176	9	3	5	12	14	
Trade	2,900	26,910	10	3	6	8	16	
Finance, Insurance, Real Estate	8,623	8,624	1	0	1	1	2	
Service	31,928	32,030	102	57	93	157	98	
Government	56,890	56,926	36	22	31	39	53	
Miscellaneous	669	669	0	0	0	0	0	
Total	187,553	188,478	925	551	891	1,469	787	

* The "base" case assumes no change in fisheries harvests or seafood processing employment; the "new" case assumes a 10 percent increase in total pounds of seafood landed. See text for detailed explanation.

Source: Alaska Economic Information and Reporting System Computer Model,
House Research Agency

1/15/82

EMPLOYMENT AND INCOME

As discussed earlier, only those workers covered by unemployment insurance are reported to the Department of Labor. Because the model uses input from that source, it does not include self-employed individuals in the processing industry and may not accurately reflect self-employed individuals in projections of impact on other sectors of the economy. This omission may be of particular importance in the transportation sector. Individuals who transport fish by small aircraft may be under-represented in the model projections.

Income Multiplier. A multiplier for income can also be determined by comparison of model output, and is estimated to be 1.84. This means that each \$100 dollars of additional income to the processing sector results in an increase of \$184 throughout the economy. Personal income was about \$20 million higher in the special model run than in the original run. About \$10.9 million of this amount was paid to the additional processing workers, leaving \$9.1 million to be distributed among the induced employment.

No regional breakdown of the model is available, but all jobs are created within Alaska. The multipliers for Anchorage and other major cities may be slightly higher than the statewide figures and multipliers for remote areas may be slightly lower. This variation would occur if a greater proportion of workers in remote areas tend to leave the area when the processing season is completed and if the more developed economies of Anchorage and other cities absorb a larger share of expenditures before these dollars leak outside the state. Additional research would be required to document this possible variation in multiplier effects in different regions and communities of Alaska.

It is important to note that higher income multipliers, in the range of 2.7 to 4, are sometimes cited for the fishing industry. The main reason for the higher multipliers is that these studies are often based on the multiplier effects of the value of seafood landings, rather than the value of wages paid to processing workers, as in the above analysis. By using the value of seafood landings as the multiplier base, such studies are simply starting one step earlier in the production process.

Short-Term Multipliers

The above discussion has focused on long-term multiplier effects, or the number of additional jobs created year after year by an expansion in fisheries employment. The short-term multiplier effects of major fisheries developments may be substantially larger, particularly for new processing plants or other facilities established in localities lacking basic support services like docks, roads, water & sewer facilities, etc. The establishment or expansion of a major processing operation may result in significant short-term additions to employment in construction, transportation, and other sectors.

For example, if a major bottomfish processing facility were established in Unalaska or another remote community, the existing docks, water system, and other systems would likely need considerable improvement or expansion. The employment multiplier resulting from the additional fish processing employment may therefore be substantially higher than the figure of 1.8 cited above, until this additional development is completed.

FUTURE DEVELOPMENT PROSPECTS

As noted earlier, the value and employment figures developed in this section have been based mainly on 1979 information, the most recent available. However, the harvest levels and prices of Alaskan fisheries products are highly variable from year to year, and it is therefore necessary to consider more than just one year's production when evaluating the long-term value of Alaska's fishing industry. There is a wide variance of opinion on the probable direction of fisheries harvests and values.

Both the salmon and shellfish fisheries had relatively high harvest levels in 1979 which some fisheries managers and others do not believe can be sustained over the next ten years or longer. This group believes that mild winters, favorable survival conditions, and other factors which are unlikely to persist for any length of time have been largely responsible for the current high harvest levels; therefore, average harvest levels over the next 10 years or so are expected to be lower for most fisheries. The Division of Commercial Fisheries has estimated the short-term average value of all Alaska fisheries to be approximately \$394 million, nearly 40 percent less than the \$640 million value of the 1979 harvest.¹⁹

Other individuals associated with the fishing industry feel that this projection is very conservative, and does not adequately reflect factors which will continue to have a positive influence on fisheries harvests and values. These factors include the reduced Japanese high seas interception of North American salmon stocks, aquaculture production, bottomfish development, and marketing efforts. According to this point of view, fisheries values in future years are not likely to drop below the 1980-1981 levels of about \$600 million (ex-vessel value), and may be substantially higher.

Although the probable direction of future fisheries harvests and values is subject to debate, some observations can be made on the effects of increased, or reduced, harvests on fisheries employment. In the harvesting sector, the number of fishermen does vary somewhat from year to year based on expectations of harvest and earnings levels, but these

¹⁹Source: Memorandum to Regional Supervisors from John Clark, Chief Fisheries Scientist, March 20, 1981. This estimate is based on 1980 average prices, by species by area, and the short-term harvest objectives of the Division of Commercial Fisheries. The short-term harvest objectives are, in turn, based on average survival conditions, current funding levels, and present management technology. The objective for salmon is 65.2 million fish, and for shellfish is 327 million pounds.

FUTURE DEVELOPMENT PROSPECTS

fluctuations tend to be much smaller than the variances in harvests and values. Fishermen's earnings are closely linked to harvest and price levels, however. On the processing side, more substantial changes in employment could be expected with increased or reduced harvest levels.

One concrete and recent example of this linkage is the processing plant layoffs associated with the poor 1981 fall king crab harvest. In Unalaska, workforce reductions of 30 to 60 percent in processing employment had taken place by midseason, which ended with a harvest of only 31 million pounds, less than one-quarter of the previous year's 130 million pound catch. Projections of an equally poor harvest for the February, 1982 tanner crab season have also led to planned reductions in processing employment for that fishery, with one Unalaska processor expecting to start the season with only half of its usual 500 person workforce.²⁰

On the other hand, the effect of increases in harvest levels on processing employment can be seen by comparing the 1977 salmon season, in which a total of about 50.8 million fish were landed, to the 1979 season, when 89.4 million salmon, or 76 percent more, were caught. Peak seafood processing employment in July of 1979 was 14,252, about 55 percent higher than the peak 1977 level of about 9,250 employees. Although there are other factors affecting processing employment besides harvest levels, these comparisons demonstrate that there is a definite relationship between the two.

Despite the recent high harvest levels, the fishing industry is saddled with several serious problems: high interest rates, poor product markets and prices, and increasing production costs. These problems may continue to limit the growth of the industry in coming years. However, there are a number of prospects for the further development of the Alaska fisheries in the mid- to long-term which may substantially boost fisheries production, employment, and income. Among the most significant or likely of these prospective developments are the following:

1. Increased harvest levels, primarily of salmon, through the further development of aquaculture facilities and improvements in propagation techniques, disease control, and other factors.
2. Greater demand, and higher prices for Alaskan seafood products through marketing efforts of the Alaska Seafood Marketing Institute and other programs.

²⁰Source: Alaska Fisherman Newspaper, "The King Crab Boom is Over in Dutch," December 1981.

3. Higher levels of participation by Alaskans in groundfish harvesting and the utilization of presently unfished species.
4. Increases in harvests resulting from improved management capabilities, based on advances in technology and/or higher funding levels, thus allowing more accurate control of harvest and escapement levels.
5. Higher employment and value added from increased in-state processing and cold-storage capabilities.

Discussions of future trends in economic or industrial development are almost always highly speculative, especially for an industry as variable as the Alaska fisheries. The intent of this discussion is not to forecast future developments, but simply to summarize the probable effects on fisheries employment and income levels of the development possibilities listed above to whatever extent they might occur. Possible regional impacts are noted where appropriate.

Aquaculture

The successful artificial rearing of fish, primarily salmon, has been a goal of fisheries managers and others for a number of decades. Aquaculture has proven to be an expensive investment and has been saddled by a number of problems, such as brood stock diseases and uncertainties about the effects of artificial propagation on the genetic diversity and health of wild fish stocks. However, substantial progress has been made in handling these problems and hatchery fish are now beginning to make a significant contribution to Alaska salmon harvests.

In 1981, more than three million salmon released from FRED Division hatcheries returned as adults. Three years earlier (1978), the number of returning salmon was less than 250,000. Private non-profit hatcheries contributed an additional 2.5 million salmon to the 1981 return. FRED Division facilities now on line are expected to produce an annual return of 10 to 12 million salmon when full capacity is reached. Based on 1980 prices, this number of fish would be worth approximately \$30 million to the fishermen, and about double that in wholesale value. Although 10 to 12 million salmon are not a great number in comparison to a harvest such as the 135 million fish expected in 1982, hatcheries are most valuable in the years of poor survival conditions when natural runs are severely reduced. Over the long term, the FRED Division's objective is to eventually produce, in conjunction with the private non-profit hatcheries, adult salmon returns in the range of 47 million fish. The FRED Division produces a detailed annual report each January which provides more information on the Division's operations and objectives.

FUTURE DEVELOPMENT PROSPECTS

The geographic distribution of harvests and income to fishermen from hatchery production can be expected to correspond to the general locations of hatcheries around the state. Figures 10 and 11 show the locations of existing and planned FRED and private hatcheries.

Marketing

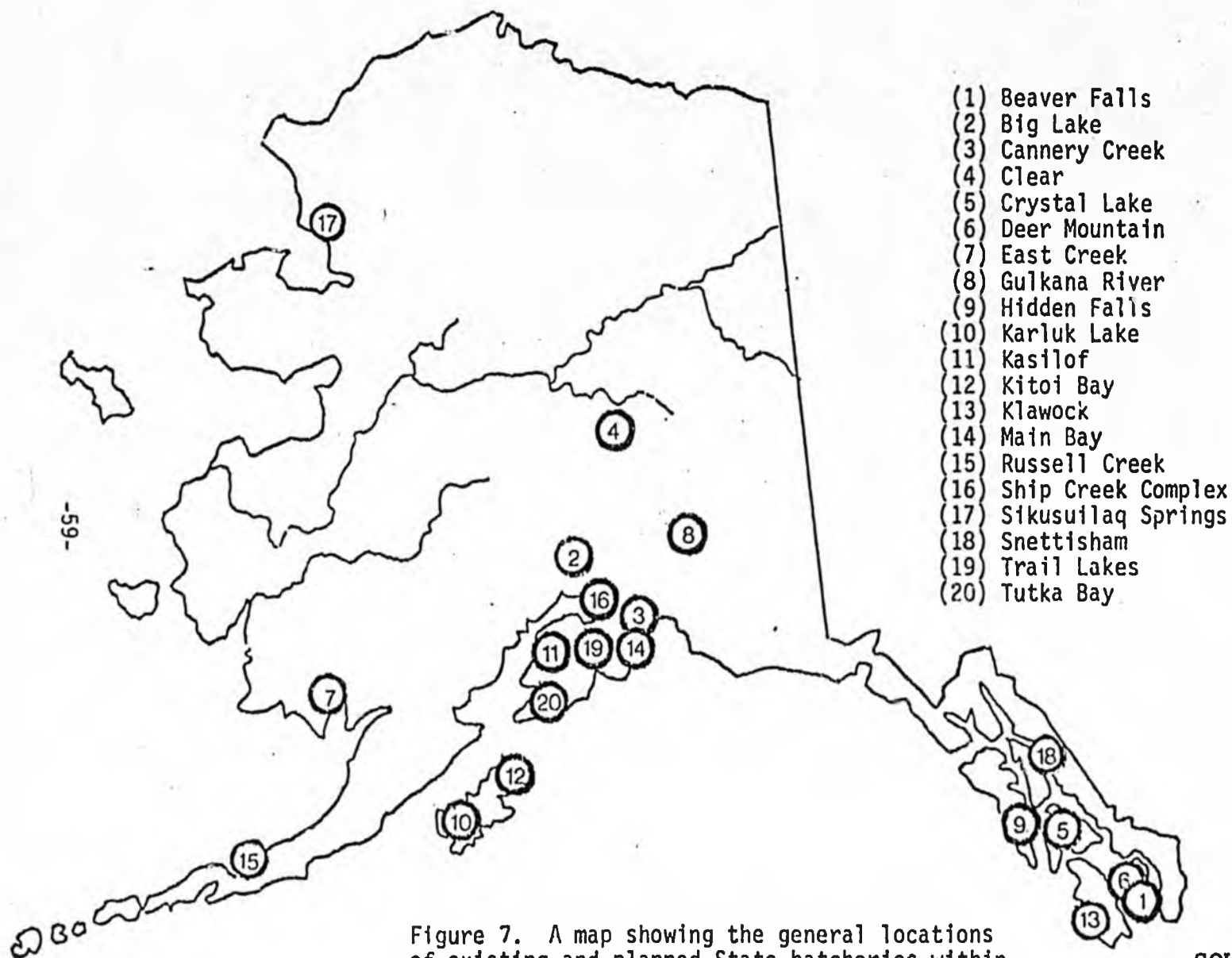
Over the long term, low returns of wild salmon stocks are likely to occur in some years, and hatcheries will help balance the yearly fluctuations in salmon harvests. In the short term, however, Alaska salmon fishermen and processors are faced with what is almost too many fish.

As mentioned earlier, the 1982 salmon harvest is forecast to reach an all-time high of 135 million fish. With salmon markets in a generally depressed condition since the 1979 season and large backlogs of unsold salmon, processors are concerned about difficulties in finding buyers for such a large volume of salmon, and fishermen face the possibility of low prices and insufficient processing capacity. Marketing is therefore one of the seafood industry's highest priorities.

The State's present involvement in marketing is primarily through funding of the Alaska Seafood Marketing Institute (ASMI). Although the Institute will probably not be able to have more than a marginal impact on price levels and markets for the 1982 salmon season, its efforts over the mid to long term may help prevent a recurrence of the current market difficulties by expanding markets and increasing demand for Alaska seafood products. ASMI's current advertising and marketing budget is divided according to the value generated by each type of seafood. About 47 percent of the total budget will be targeted to salmon marketing, 44 percent to crab, and whitefish species, including halibut and shrimp, will receive 9 percent. Canned salmon is presently ASMI's first priority, because of the large pink salmon harvest expected in 1982 and the fact that most pink salmon are canned.

Bottomfish/Underutilized Species

The extent and potential of Alaska bottomfish resources has been well documented and publicized in recent years. Although the pace of development of Alaskan bottomfish harvesting has been slower than some had projected or hoped for, significant progress appears to be occurring. Harvests of bottomfish by U.S. vessels in Alaska's offshore waters have nearly doubled in every year since 1978, and increased from about 85 million pounds in 1980 to 237 million pounds (preliminary estimate) in 1981 -- a nearly three-fold increase. About 211 pounds of this amount was taken in joint ventures between U.S. fishermen and foreign processing vessels, primarily Soviet and Korean, with limited participation by the Japanese and Poles. The shore-based catch of 26 million pounds was also a large increase from the 1980 level of about 14 million pounds.

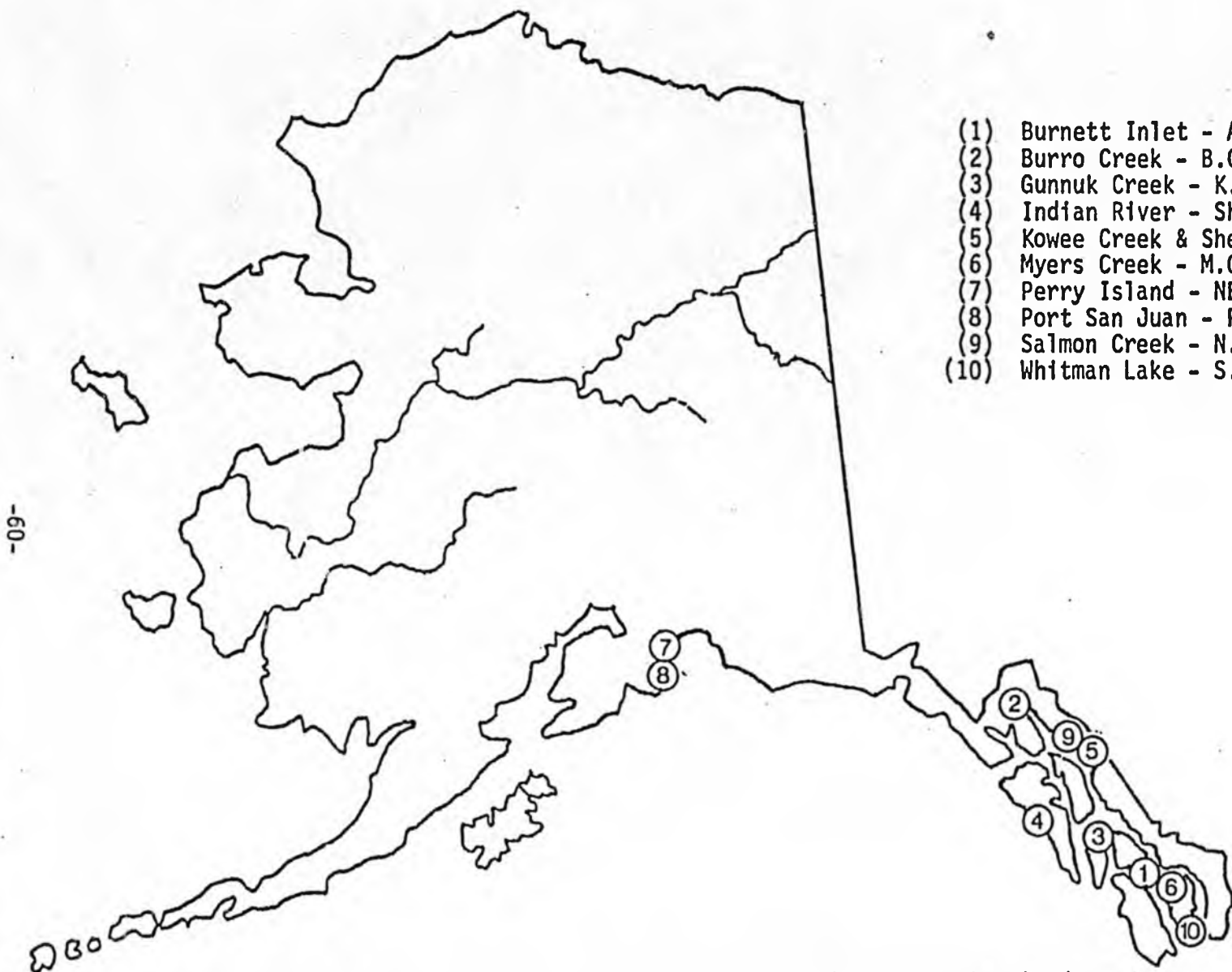


- (1) Beaver Falls
- (2) Big Lake
- (3) Cannery Creek
- (4) Clear
- (5) Crystal Lake
- (6) Deer Mountain
- (7) East Creek
- (8) Gulkana River
- (9) Hidden Falls
- (10) Karluk Lake
- (11) Kasilof
- (12) Kitoi Bay
- (13) Klawock
- (14) Main Bay
- (15) Russell Creek
- (16) Ship Creek Complex
- (17) Sikusuilag Springs
- (18) Snettisham
- (19) Trail Lakes
- (20) Tutka Bay

FIGURE 10

Figure 7. A map showing the general locations of existing and planned State hatcheries within Alaska, 1980.

SOURCE: FRED Division Annual Report



- (1) Burnett Inlet - A.A.F.
- (2) Burro Creek - B.C.F.
- (3) Gunnuk Creek - K.N.P.F.D.C.
- (4) Indian River - Sheldon Jackson College
- (5) Kowee Creek & Sheep Creek - D.I.P.& C.
- (6) Myers Creek - M.C.A.A.
- (7) Perry Island - NERKA
- (8) Port San Juan - P.W.S.A.C.
- (9) Salmon Creek - N.S.R.A.A.
- (10) Whitman Lake - S.S.R.A.A.

FIGURE 11

Figure 9. A map showing the general location of PNP hatcheries within Alaska, 1980.

SOURCE: FRED Division

On-shore processing of Alaska bottomfish still appears to be somewhat marginal in terms of profitability. Icicle Seafoods in Southeast Alaska has discontinued most of its bottomfish operations, and the Alaska Food Co. bottomfish plant in Kodiak has filed for a Chapter 11 bankruptcy reorganization. However, a salted cod plant is being constructed in Unalaska by Jangaard Fisheries and bottomfish plants are planned for Akutan and Sand Point. Alaska Food is still purchasing bottomfish, as is the Universal Seafoods plant in Kodiak. It appears that bottomfish development is likely to have the greatest impact in the Aleutian Chain, primarily Unalaska, and in Kodiak, Seward, and Sitka. Other communities such as Anchorage would benefit indirectly from the provision of support services to the industry.

The joint venture bottomfish harvest in 1982 may increase substantially over 1981 levels. The U.S. State Department is withholding 50 percent of the foreign bottomfish allocations pending a review of joint venture arrangements. A goal of 20 percent of the total bottomfish harvest has been proposed for the U.S. harvest, including both joint ventures and on-shore processing. This goal, which would be about 800 million pounds of bottomfish, is a very large increase from 1981 harvest levels and appears fairly optimistic. However, it is clear that the State Department is willing to use the leverage of the foreign allocations to encourage bottomfish development in Alaska.

Another potential long-term development is the harvest of presently underutilized species, such as capelin. There are several fish species which are now harvested only as incidental catches, but which are present in large enough concentrations to be commercially harvested if a market were available. Capelin is one of the major fisheries in the North Sea, with recent landings of over four times (in pounds) the total domestic Alaska landings for all species. The lack of marketing channels, processing capacity, and fishing experience for underutilized species make such development primarily a long-term prospect.

Improved Management Capabilities

State and federal fisheries management capabilities have been strengthened considerably in recent years, but there are still possibilities for further improvements which could raise harvest levels for some Alaska fisheries. Recent management actions may also have a strong continuing impact on harvest levels in future years. The reduction in the high seas interception of Alaska salmon by Japanese and other nations is generally believed to have played a major role in the recent increases in salmon harvests to record levels. The reduction was a result of treaties negotiated by the U.S. State Department during the establishment of the 200 mile limit, and should continue to have a favorable impact on salmon harvests in future years.

FUTURE DEVELOPMENT PROSPECTS

Future management improvements may be realized through both technological developments such as more accurate sonar fish counters, and additional management resources from increased funding levels. For example, it is now difficult to monitor salmon escapements in heavily glaciated or silted rivers, as both visual salmon counting and existing sonar equipment are inadequate. Research is currently under way to develop sonar gear which will provide accurate fish counts in such rivers, thereby ensuring that escapements are adequate and that surplus fish can be harvested by fishermen. Additional management funding could allow closer monitoring of individual fisheries, greater separation of mixed stock fisheries, and so on.

Several fisheries are suffering continuing declines in harvest levels or are in danger of declining, and could therefore particularly benefit from improvements in management techniques or resources. These include the Southeastern king, coho, and chum salmon stocks, Copper River sockeye, Cook Inlet coho, and Kotzebue chum salmon. Crab harvests in several regions are also declining. Although fisheries managers generally expected the crab decline and attribute it mainly to less favorable survival conditions, additional research into the crab fisheries could prove beneficial to long-term yields.

Expanded Fish Processing, Storage Capacity

One way in which the economic value of Alaska's fisheries could be increased without catching more fish is to develop more in-state processing and storage capability. While most Alaska seafood products are currently processed in the state, much of the storage and marketing of the processed products occurs in cities outside of Alaska, primarily Seattle. Greater cold storage capacity in the state could therefore increase the amount of fisheries value remaining in the state, as well as potentially increasing control over the marketing process. A 1980 study of the Anchorage salmon processing industry found that cold storage capacity was very limited, so much so that a few day's disruption of marketing channels from weather or other factors could require reductions in the volume of fish processed. A number of the processors interviewed believed that a major cold storage facility in Anchorage could be a major benefit to the industry, although the economic feasibility has yet to be determined.

The processing of seafood into higher value products is also a possible development strategy. The trend in recent years toward more frozen processing of salmon, rather than canning, is an example of higher value processing. The marketing of fresh, smoked, and other specialty seafood products has also increased substantially, and offers additional development potential.

APPENDIX A

INVENTORY OF STATE AGENCIES

Source: Coastal Fisheries Assistance Program, Final Report, Department
of Fish and Game, November 1981

INVENTORY OF STATE AGENCIES

A. Office of the Governor

1. Special Assistant on Natural Resources - Provides guidance on State policy regarding fisheries and other natural resource issues.
2. Division of Budget and Management - Analyses budget proposals for fishery related departments and programs.
3. Division of Policy Development and Planning
 - a. Policy and Program Specialist for Fisheries
 1. Responsibilities
 - a. Monitors compliance of fisheries development projects with program policies.
 - b. Develops options for regional planning process in Aleutian Islands.
 - b. Office of Coastal Management
 1. Oversees the development of coastal management plans by local governments. These plans identify sites which are used for subsistence, recreation or commercial fishing, important habitat, or suitable for fisheries related facilities.
 2. Coordinates State review of Federal permitting processes which regulate activities which may impact fisheries habitat.
4. Alaska Fisheries Council - The Council is composed of the Commissioners of Fish and Game and Commerce and Economic Development; State legislators; the Director of FRED Division (Department of Fish and Game); representatives from the National Marine Fisheries Service, the Board of Fisheries and the Office of the Governor; and private citizens. The Council played an active role in developing the State's private non-profit hatchery program and presently monitors the progress of fisheries enhancement and development programs. The special Projects Coordinator, Office of the Governor, coordinates the Council and for this reason the Council is described here.

B. Department of Commerce and Economic Development

1. Commercial Fisheries Development Division
 - a. Lead agency for fisheries development, coordinates programs in other agencies which deal with development. The State's Tokyo and Copenhagen offices previously under the Office of International Fisheries and External Affairs will be directed by this division.
 - b. Present and planned programs include:
 1. Mustad autoline production trial

2. Prince William Sound jigging system trial (with Alaska Fisheries Development Foundation)
3. Marketing of food herring (with Danish consultant)
4. Production and marketing of herring (with Alaska Federation of Natives)
5. Marine Advisory System (with Bering Straits Fishermen's Association)
6. Quality control for Bristol Bay sockeye (with IMAKPIAK Regional Aquaculture Association)
7. Bottomfish profiles - review of stock information by species to help fishermen locate large concentrations of bottomfish.

2. Division of Business Loans

- a. Commercial Fishing Loan Program - Up to \$50,000 may be loaned at 9.5% for the construction, purchase, or renovation of fishing vessels.
 - b. Fisheries Enhancement Loan Program - Up to \$6,000,000 to regional associations and \$1,000,000 for other nonprofit hatchery corporations, at 9.5% for 30 years for hatchery preconstruction and construction activities and operating costs.
3. Commercial Fisheries and Agriculture Bank (CFAB) - Makes loans to commercial fishermen and farmers. The Bank has been established as a public corporation with a legal existence independent of the State. It is, by statute, also an instrument of the Department of Commerce and Economic Development and for this reason is listed here.

C. Department of Community and Regional Affairs

1. Commissioner's Office - Rural Development Council -

- a. Composed of 3 commissioners, 3 federal officials, 2 legislators, the Director of DPDP, and 6 representatives from rural areas.
- b. Responsibilities. Newly formed, it is not yet clear what role the Council will play in fisheries.

2. Division of Community Planning

- a. Assists communities in planning for infrastructure needs resulting from development. Administers Coastal Energy Impact Program (CEID) which provides funding for studies which determine the effects of energy development.
- b. Recent and current programs include:

1. an evaluation of 5 communities as potential sites for support facilities for the bottomfish industry. Evaluation of 5 more communities is underway.
 2. funding planners in Unalaska, Sand Point, King Cove, and Yakutat.
 3. funding wildlife evaluations and salmon tagging program.
- D. Department of Education, Adult and Continuing Education Unit.
1. Provides statewide interagency coordination and development of fisheries education.
 2. Assists in developing new fisheries education programs.
 3. Develops instructor training programs and education research capabilities.
- E. Department of Environmental Conservation
1. Coordinates State's environmental management efforts. Establishes water quality standards and reviews and certifies development projects which may impact salmon spawning streams.
 2. Meat and Seafood Inspection Program - Inspects quality of seafood produced in Alaska. Products which are contaminated are confiscated.
- F. Alaska Board of Fisheries - The seven member Board of Fisheries is appointed by the Governor to establish seasonal fishing regulations. The Board's activities are coordinated by a staff located within the Department of Fish and Game.
- G. Department of Fish and Game
1. Commercial Fisheries Division
 - a. Implements and maintains the State's commercial and subsistence management programs.
 - b. Conducts management related research covering domestic fisheries with particular emphasis on stock status and fishery performance.
 - c. Serves as scientific staff to the Board of Fisheries which establishes fisheries regulations.
 - d. Coordinates interaction between the State and the North Pacific Fishery Management Council.
 2. Fisheries Rehabilitation Enhancement and Development
 - a. Develops, maintains and coordinates State plan for present and long range rehabilitation.
 - b. Operates State hatchery facilities and other enhancement projects such as fish ladders, lake fertilization and stocking and stream clearances.
 - c. Conducts research on fish culture technology, genetics and pathology.

3. Sports Fish Division
 - a. Manages and develops sport fish resource.
 - b. Stocks fish in freshwater systems.
 - c. Conducts harvest, life history, and land use studies.
4. Habitat Section
 - a. Responsible for the protection, maintenance and improvement of fish and wildlife, habitat.
 - b. Regulates by permit process activities in anadromous streams, game refuges and critical habitats. Reviews and monitors projects associated with pipeline and Haul Road.
 - c. Participates in land use planning and coastal management program.
 - d. Solicits nominations for critical habitat areas.
5. Subsistence Section
 - a. Compiles existing data and conducts studies on the role of subsistence activities in lives of State residents.
 - b. Provides information and analysis to the public, agencies, and other organizations.
 - c. Assists the Department and Boards of Fisheries and Game in classifying subsistence users, uses, and methods of harvest.
6. Public Communication Section
 - a. Issues news releases and prepares public service announcements.
 - b. Publishes Fish Tails and Game Trails, the Department's magazine.
7. Commercial Fisheries Entry Commission (The Commission is grouped with ADF&G for administrative purposes, but functions autonomously). Responsible for determining optimum gear levels for sustaining economic viability of the State's fisheries.
 - a. Application Section - Evaluates initial permit applications.
 - b. Permit Section - Permit renewal and vessel licensing.
 - c. Data Processing Section
 - d. Research and Planning Section - Last year helped develop limited entry program for hand troll fishery. This year will review capitalization trends and classification by fishery, gear type, and resident/nonresident status.

8. Alaska King Crab Marketing and Quality Control Board (The Board is grouped with Fish and Game for administrative purposes, but functions autonomously) - Promotes king crab through marketing and quality control programs.

H. Department of Labor

1. Commissioner's office - Responsible for mediating price disputes when asked by industry to participate. The Bristol Bay strike was the only dispute they were brought into formally this year.
2. Wage and Hour Division - Responsible for bonding of fish buyers and processors to ensure that they will pay employees and fishermen. A \$10,000 bond must be posted by all buyers and processors.
3. Employment Security Division, Employment Services - Administers program for placing Alaskan residents in processing jobs. Focus is on identifying problems with hiring residents and rural recruitment.
4. Research and Analysis
 - a. Conducted survey on the intent of fishermen and processors to participate in bottomfish fisheries.
 - b. Conducted survey of fisheries education programs.
 - c. Plans to develop employment statistics to aid in policy analysis and decision making.

I. Department of Law

1. Provides legal council to the State on fisheries related issues. The Department works closely with all state agencies listed in this section.
2. Works closely with attorneys in the National Marine Fisheries Service, Department of the Interior and U.S. Justice Department regarding joint investigation and enforcement activities as well as cooperation with federal legal officers regarding prosecutions involving illegal activities that represent violations of both state and federal laws.

J. Department of Natural Resources

1. Division of Forest, Land, and Water Management
 - a. Classifies State lands, sale of State lands, mineral resources, sand, gravel and timber.
 - b. Develops land use plans which include designation of fish and wildlife habitats (plans for two areas have been completed).
2. Division of Parks - Responsible for park management. Conducting a comprehensive outdoor recreational plan which will include assessment of the importance of sports fisheries to the State's park system.

K. Department of Public Safety.

1. Division of Fish and Wildlife Protection

- a. Responsible for the enforcement of state laws and regulations pertaining to the fish and game resources for vessels and persons licensed by the state for fishing.
- b. Enforces provisions of the Alaska Commercial Fisheries Entry Commission regulations.
- c. Enforces state fishing license provisions required by state statute.
- d. Conducts patrols in state and offshore waters, investigating, apprehending and prosecuting violations of state fisheries laws and regulations.
- e. Maintains close liaison with the Alaska Department of Fish and Game, the Alaska Board of Fisheries, the U.S. Coast Guard and other fisheries orientated agencies in order to develop enforcement programs which are compatible with management goals and the maintenance of cooperative associations with federal and state agencies.

2. Aircraft Section

- a. Provides and maintains department aircraft for fisheries enforcement.

3. Vessels Section

- a. Operates and staffs Marine Section vessels; carrying out fishery enforcement programs, search and rescue missions. Develops and evaluates department vessel needs, procures vessels through competitive bidding, schedules maintenance, trains and evaluates vessels operators performance.

4. Investigative Support Unit (I.S.U.)

- a. Conducts complex investigations into major fisheries violations preparing case material and obtaining evidence for prosecution by the Alaska Department of Law. Maintains a criminal laboratory and staff capable of performing complex scientific studies on evidence.

5. Information and Education Section

- a. Develops and participates in informational and public educational programs through the use of presentations to schools, public and private organizations and through newspaper, radio and television media networks to gain public compliance and support of divisional programs and goals.

6. Division of Alaska State Troopers

- a. Though primarily responsible for the enforcement of criminal laws, the Alaska State Troopers often assist Fish and Wildlife Protection in enforcing Fish and Game Laws and in protection of the public's safety. Examples of this would be their participation in the Bristol Bay salmon fishery strike related activity last summer and expectedly again this summer. Being "brother" enforcement divisions within the same department activities are often exchanged when the need arises.

L. Department of Revenue

1. Administers fish taxation programs.
2. Alaska Renewable Resources Corporation - Serves as a venture capital bank to finance development of the State's renewable resources. Over \$18 million have currently been invested in various fisheries projects. ARRC operates independently from the Department of Revenue, but is associated with the Department for administrative purposes.

M. University of Alaska

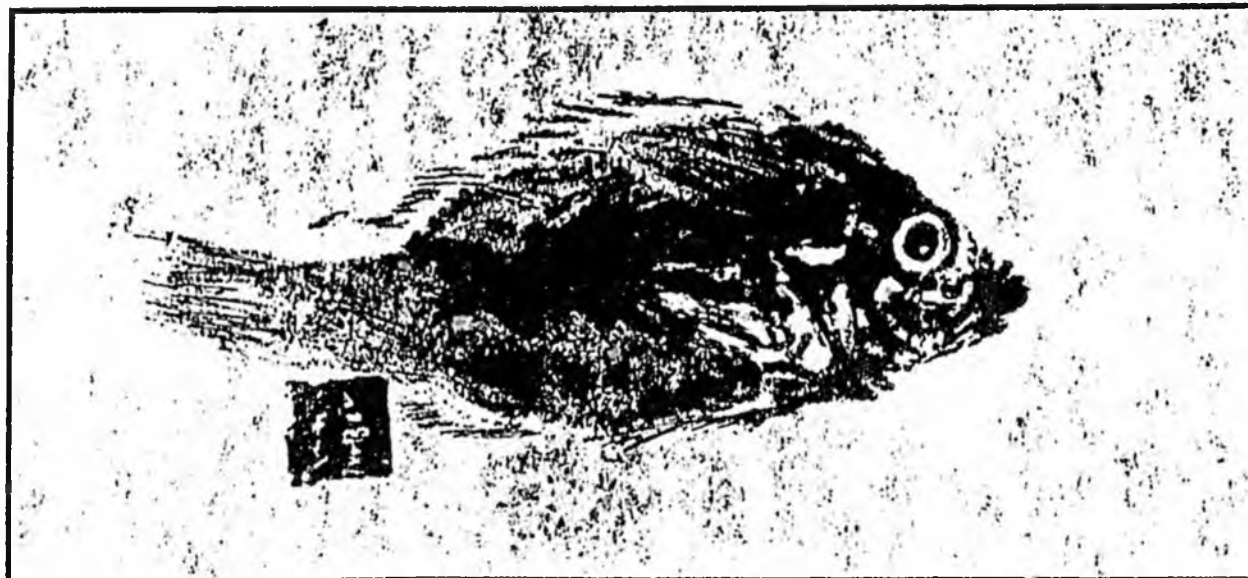
1. College of Environmental Sciences, Sea Grant - Conducts programs in education, research and public service dealing with marine science, fisheries harvesting and processing, and food technology. Long term plans include upgrading bachelor's and creating a masters degree program in fisheries and developing a fisheries technology center.
2. Marine Advisory Program - Serves as a communication link between scientific, educational and marine industrial communities. Has provided technical assistance and training to aquaculture industry, harvestors and processors.

1981 SPECIAL REPORTS
HOUSE RESEARCH AGENCY

- 81-1 Petroleum Refining and Consumption in Alaska: Implications
for Management of Royalty Oil
May 1981
- 81-2 Potential for Local Coal Use in Rural Alaska
January 1982
- 81-3 Personal Income in the Lower Yukon-Kuskokwim Region: An Overview
of Income, Government Services and Transfer Payments
January 1982
- 81-4 Financing Agriculture in Alaska
January 1982
- 81-5 The Alaska Fishing Industry: An Overview of State Expenditures
and Economic Benefits
January 1982
- 81-6 Import Substitution in Rural Alaska
January 1982
- 81-7 Rural Economic Development: An Analysis of State Policies
January 1982

*All reports will be available by February 1, 1982

**The Report of the
Alaska Fisheries Center Study Group
to the State of Alaska**



February 1982

**THE REPORT OF THE
ALASKA FISHERIES CENTER STUDY GROUP
TO THE
STATE OF ALASKA**

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The Study Group's work was facilitated greatly by the staff of the Governor's Special Projects Office, particularly Ms. Suzanne Mullen, and by Ms. Karen Slack, Special Assistant to the Governor.

Alaska's fisheries, both marine and freshwater, constitute the state's most valuable renewable resource. The use of this resource for recreational, subsistence and commercial purposes plays a major role in the lifestyle and economy of the state.

The purpose of this study was to evaluate the need for and feasibility of the State of Alaska developing an expanded program of fisheries research. The Governor appointed a 12-member study group to undertake this evaluation and to report their findings to the state.

Three specific needs relating to Alaska's fisheries resources are identified:

1. An urgent public need for increased economic, social and biological knowledge and understanding concerning Alaska's fisheries.
2. A need to strengthen the capabilities of Alaska's fisheries management program.
3. A critical need for improved communication and coordination among Alaska's fisheries resource users and researchers.

The benefits to the state of establishing a well organized research program as well as the consequences of taking no action are identified.

Various alternatives, ranging from an increase in activities within existing agencies and institutions to the establishment of an independent state research agency, are analyzed. The recommendation represents a consolidation of various components from several of these alternatives.

The Study Group recommends that the State of Alaska establish a fisheries research center with the goal of providing the information and a foundation upon which fishery management programs can be developed and executed. The center's principal activities will be the acquisition and dissemination of information and the development of methodology required for wise management. The center, in addition to its own research staff, must develop cooperative research efforts with existing fisheries groups and agencies.

The center should be established under the University of Alaska with a Board of Trustees providing policy and planning guidance. The Study Group also recommends two advisory committees, one representing users and the other the scientific community.

The staffing of this center will consist of approximately 40 professionals requiring 70,000 square feet of office and laboratory space. The projected facility costs are \$21.7 million and when fully operational, the annual operating costs are estimated at \$14.7 million.

A schedule of implementation is provided. Costs for the first year are \$525,000. During the second year, \$2.0 million are required to establish research activities.

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Alaska's fisheries, both marine and freshwater, constitute the state's most valuable renewable resource. The use of this resource for recreational, subsistence and commercial purposes plays a major role in the lifestyle and economy of the state. The challenge to the state is to provide for the long-term viability of this resource while continuing economically sound use. Currently there is insufficient methodology and data upon which to base decisions to maximize the benefits to Alaska as well as to preserve the long-term viability of the resource.

This document is the report of the Alaska Fisheries Center Study Group to the Governor of Alaska and to the Alaska Legislature. The report presents the findings of an investigation of Alaska fisheries research needs and recommends a program for the state to satisfy those needs. The Study Group, in developing these findings and recommendations, was assisted by a report prepared by Dames and Moore entitled "Fisheries Research Alternatives for the State of Alaska."

The purpose of this study was to evaluate the need for and feasibility of an Alaska Fisheries Center as the principal entity for conducting fisheries research in the state. As a part of that assessment, the Study Group determined the optimal direction and organization of fisheries research in Alaska and the most appropriate level of state involvement.

The Study Group addressed the following questions:

1. What should be the State of Alaska's goals in fisheries research and what benefits will Alaska derive from an expanded fisheries research program?
2. What are the current fisheries research activities in existing agencies and institutions?
3. What additional capability is required and what is the appropriate means of providing additional capability?

During the 1981 Legislative session, a bill (HB 313) was introduced in the Alaska House of Representatives to establish an Alaska Fisheries Center. The center was to be the principal agency in the state for conducting fisheries research, gathering and disseminating information on fisheries resources, and improving coordination and communications among agencies and groups involved in fisheries research. A nine-member board of trustees appointed by the Governor was to manage the center and representatives from specified fishery-related agencies were to serve as advisors. The bill passed the House and is currently under consideration by the Alaska Senate.

The bill was introduced because of concern that insufficient support was being provided for fisheries research in the state, and that the research was dispersed through a variety of agencies, and not always well-coordinated. In addition, much of the research on Alaska's fisheries was conducted by agencies located in other states. While there was general support for the objectives of the proposed legislation, many felt that the concept of a center for fisheries research required further evaluation. As a result, the Legislature requested that the Office of the Governor conduct a study of the need for and feasibility of such a center. The Governor established an Alaska Fisheries Center Study Group and appointed 12 members with a wide variety of fishery-related backgrounds. The Study Group met in September, 1981 to formulate a plan of action and agreed that there was a need for increased fisheries research in the state. The Study Group hired an executive director and retained a team of consultants (Dames and Moore) to assist in the evaluation of methods for providing increased fisheries research.

This report contains the findings and recommendations of the Study Group's investigation.

The importance of Alaska's fisheries resources to the citizens of Alaska is impossible to fully quantify. Alaska's fisheries resources support a very important segment of the state's recreational and tourist industry. Commercial use of these resources maintains

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one of the state's major industries. Moreover, a large portion of the state's population depends upon these resources for its principal source of subsistence.

The State of Alaska, by constitutional mandate, must provide for the utilization, development and conservation of these fisheries resources for the maximum benefit of the citizens of the state. Appropriate management will be required in order to satisfy increasing demands on these resources while allowing for important subsistence needs.

During the next decade these resources will experience increasing demand for their use and major conflicts will develop between user groups. Increases in tourism and recreation will require greater allocation of these resources and expansion of the state's commercial fishing industry is expected.

The Study Group has reviewed the current status of state, federal and other research activities which are providing information to mitigate these demands. Three specific needs have been identified:

1. An urgent public need for increased economic, social and biological knowledge and understanding concerning Alaska's fisheries to provide for appropriate development and conservation.
2. A need to strengthen the capabilities of Alaska's fishery management programs in order to contribute to the wise utilization, conservation and development of Alaska's fisheries resources and to provide the maximum economic and social benefits to the citizens of the state.
3. A critical need for improved communication and coordination among Alaska's fisheries resource users and researchers in order to make optimum use of scientific and financial resources.

The benefits the state will derive from a well organized fisheries research program are:

1. The capability to continue high quality recreational fisheries, a choice not open to many states and foreign countries who have neglected their resources.
2. The assurance of the availability of fisheries resources for subsistence.
3. The continuation of a healthy, competitive commercial fishery that provides the state's major private employment.
4. The capability to develop and manage new fisheries; doubling the current employment and increasing fish production by 500 to 1,000 percent.
5. The opportunity to develop management techniques which encourage efficiency in the industry.

The implication of not addressing these needs could be severe. Some possible consequences of taking no action are:

1. Continuation of loss to the industry and the state from fishery disasters.
2. Continuation of reliance on non-Alaskan fisheries researchers and institutions.
3. Continuation of under-achievement of harvest.
4. Continuation of inefficiencies and duplication in fisheries research.

ALTERNATIVES ANALYZED

Existing Agency Alternative

The Study Group determined that an enhancement of fisheries research capabilities of the state is required. Various alternatives to provide those enhanced capabilities were developed and analyzed. Primary analysis of these alternatives was undertaken by the contractor. A review of the contractor's analyses and the Study Group's findings follow.

The initial assumptions in this alternative were that the basic organizational structure of agencies involved in fisheries research would remain intact and that increased funding for fisheries research would be passed directly to those agencies. In order to

accommodate an enhanced research program, however, changes were recommended in:

1. The internal organization of some agencies.
2. Interagency coordination and cooperative agreements.
3. Procedures for setting goals and objectives.
4. Information dissemination.
5. Standardization of research methods and reporting.

This alternative includes the creation of an Alaska Fisheries Research Steering Committee in the Office of the Governor. The steering committee would not modify the authority or responsibility of any agency, but would provide advice to the legislative and executive branches and would review research programs and proposals on a cooperative basis. Additional changes include:

1. The creation of a Fisheries Research Division in Alaska Department of Fish and Game (ADF&G).
2. A central fisheries research library.
3. The establishment of a fisheries journal.
4. Fisheries conferences and workshops.
5. New research facilities for ADF&G.
6. Expansion of the National Marine Fisheries Service Auke Bay Fisheries Laboratory.
7. Implementation of the University of Alaska's fisheries plan.

This alternative would provide an enhanced research capability with a minimum of disruption to the status quo, but would also offer the highest risk of a fragmented effort. The Study Group believes that increasing fisheries research funding to existing agencies would not be productive without substantial changes in agency structure.

This alternative would provide common support facilities and services to agencies performing fisheries research. Increased funding for fisheries research would be provided directly to the agencies. A board of trustees would manage the research park, establish institutional goals, publish reports and develop criteria for facilities use.

**Research Park
Alternative**

The Study Group feels that this alternative could provide the means for closer contact between agencies but would not be conducive to the long-term stability and coordination of fisheries research in the state.

This alternative would involve the creation of an institute, in addition to existing agencies and facilities, to augment the state's fisheries research capability. The institute would be housed in a state agency and would be under the direction of a board of trustees. The institute would maintain a research staff and facilities and would emphasize cooperative interagency research programs. Research goals and priorities would be set by the institute rather than by individual agencies. Research and user committees would advise the institute.

**Cooperative Institute
Alternative**

The Study Group feels that this alternative would provide for long-term fisheries research and required long-term institutional stability.

The center proposed under this alternative would be associated with either the University of Alaska or the Alaska Department of Fish and Game. It would be managed by a director reporting to the president of the University of Alaska or the commissioner of the Department of Fish and Game. The center would have its own

**Research Center
Alternative**

research capabilities while also providing for cooperative research activities. Policy committees would make recommendations to the center's director.

The Study Group feels that the organizational relationship to a parent agency would assure long-term stability but that the close association with the parent agency would impede cooperative programs.

Other Considerations

In addition to the above alternatives, the Study Group considered an independent fisheries research center which would be responsible for all fisheries research functions in the state. The Study Group concluded that such an approach would disrupt fisheries management and academic programs and would be counterproductive.

RECOMMENDATION

The Study Group reviewed the report of the contractor, including the background information concerned with existing fisheries research efforts. It is important to note that the alternatives developed were designed to provide the State with a capability for undertaking the more fundamental research needed to improve the management and conservation of the living marine and freshwater resources in and adjacent to Alaska.

To achieve this goal, the Study Group determined that a new institutional arrangement is required to protect the researcher from the pressures associated with resource management agencies and to provide a research environment attractive to the scientific community. The program of research will require a guidance mechanism to insure that it conforms to the fisheries research needs of the state and does not duplicate programs of existing state and federal research agencies. Finally, the capacity of the center to serve as a focal point for state, national and international seminars and to assist in the coordination of state and federal fisheries research efforts was considered important in influencing all recommendations.

The Study Group feels that these features and needs are partially met in all of the alternatives evaluated. However, no single alternative was considered adequate to meet the required goal. The Study Group's recommendation has, therefore, combined components from several of the proposed alternatives.

Establishment of a Fisheries Research Center

In order to further address the state's responsibility to its citizens to provide for proper and wise utilization, development and conservation of the fisheries resources both within and adjacent to the state, the Study Group recommends the establishment of a Fisheries Research Center.

Goal

The goal of the Fisheries Research Center will be to provide information and a foundation upon which fishery management programs can be developed and executed which will provide for the wise utilization, development and conservation of Alaska's fisheries resources.

Scope of Activities

The principal activities of the center will be the acquisition and dissemination of information and development of methodology required for the wise management of Alaska's fisheries resources. The center should not duplicate the research activities of existing agencies and groups. It should not be involved in the collection and analysis of information required for immediate management nor the collection of fishing statistics.

The center will develop cooperative research efforts with existing groups and agencies. Research will be directed toward development of fundamental approaches to fisheries management, filling basic gaps in our knowledge about the resources in-

cluding biological, social and economic data required for sound management programs. The center's activities should also include research that leads to an understanding of the problem of "multiple use" of the fisheries resources and the effects of various natural and man-made impacts.

The center must provide an environment to encourage excellence in fisheries research. Involvement of renowned visiting fisheries scientists to address specific research problems is essential to that environment. Association of Alaska's scientific and academic community with visiting scientists will encourage excellence in performance and serve as a unique "in-service training" program.

Additionally, the center should provide for improved coordination and communication among members of the scientific and management communities, fishermen, processors and the public by providing a forum (workshops and conferences) for discussion and information dissemination.

The Study Group recommends that the Fisheries Research Center be established under the University of Alaska. Establishment of the center under the University of Alaska would maximize the center's ability to attract top scientific personnel. This arrangement would be most conducive to providing for the long-term stability of the center's research activities and would provide maximum protection of the center's activities from immediate management pressures. Additionally, this arrangement would provide for a direct interaction between the center's research and information activities and the university's academic and public service programs.

The Study Group recognizes that it is exceedingly important that the center's activities support the needs of the primary management agencies. The proposed administrative structure and funding mechanism will reduce any tendency of the center to be solely influenced by the university environment.

Organizational Structure

Administrative Structure

Board of Trustees

The Study Group recommends that the principal policy and planning body for the center be a Board of Trustees. The board would provide policy and program guidance for the center. At a minimum, membership should include:

1. Commissioner or representative, Alaska Department of Fish and Game.
2. President or representative, University of Alaska.
3. Alaska Regional Director or representative, National Marine Fisheries Service.

Other members of the board will be appointed by the President of the university based upon recommendations from the Governor.

Other board members should be selected for their ability to represent the research needs of all fisheries interests. Membership of the board should not exceed seven and the majority of members should be Alaskan residents.

The duties of the board shall include but not be limited to:

1. Establishment of institutional goals and objectives for the center.
2. Review and approval of selection of the center's Executive Director.
3. Review of the programs of the center to insure that they are providing meaningful contributions and are responsive to the institutional goals and objectives.
4. Active encouragement of the development and support of cooperative research programs.

Executive Director

An Executive Director will be the principal scientific and administrative officer for the center. The Executive Director will be responsible for all activities and personnel of the center. The Executive Director will serve as a non-voting member of the Board of Trustees.

Other administration

Further refinement of the administrative structure of the center will depend upon the magnitude of the activities. These could include a research program director, a cooperative program director and an information services program director. Additionally, as the center grows, an administrative manager will be necessary to oversee the day to day administrative functions.

Advisory Committees

The Study Group recommends that the Fisheries Research Center have two advisory committees, a research advisory committee and a user advisory committee.

Research Advisory Committee

The Research Advisory Committee will advise the board of trustees and the executive director on the scientific activities of the center. The committee will play a major role in the scientific evaluation of the center's programs. The committee will prepare for the Board of Trustees periodic reports on the need for research to solve fisheries problems. The committee will make recommendations on and encourage the development of cooperative research programs within the center. Membership on the committee will be by appointment by the Board of Trustees. Principal membership is expected to be from primary state and federal fisheries management agencies (ADF&G, NMFS) and universities but it is noted that membership should also include scientific staff from user groups.

Balance should be maintained between scientific disciplines with the majority of the membership representing fisheries science, marine science and the economic and social sciences as applied to fisheries resources.

User Advisory Committee

The User Advisory Committee will advise the Board of Trustees and the Executive Director on information needs of the various fisheries resource user groups. The committee will play a major role in the development of the center's institutional goals and objectives and in the review of the center's progress toward the attainment of those goals and objectives. The committee will prepare for the Board of Trustees periodic reports on the need for new information on fisheries. The committee would actively encourage cooperative programs within the center between user groups and scientific personnel.

Membership on the committee will be by appointment by the Board of Trustees. Membership will be from the principal fisheries user groups and the public at large. Balance should be maintained between these groups.

Staffing and Facilities

In considering the staffing requirements for the center the Study Group determined the following:

1. It is unlikely that any additional fisheries research effort will be provided by the federal government.

2. It would be physically impossible to fulfill all of the state's fisheries research needs.
3. To be most effective a critical level of staff must be provided.
4. If a single company or individual had exclusive rights to Alaska's fisheries resources, it would likely spend as much as \$100 to \$200 million on research and development.

The Study Group recommends that the center be staffed, when fully developed, with approximately 40 professionals. The Study Group feels that this level of staffing will make major contributions toward providing information upon which effective fisheries management programs can be developed and executed.

The Study Group recommends that facilities be developed to support the center's activities including sufficient space to allow cooperative programs. The facility should contain approximately 70,000 square feet.

Based upon the contractor's analysis, the Study Group estimates the following capital and operating costs for the center:

Cost

Capital Costs

Facilities (70,000 sq. ft.)	\$21,000,000.00
Equipment	
Data Processing	200,000.00
Library Collections	300,000.00
Audio-Visual and Copy	100,000.00
Office	<u>110,000.00</u>
Total Capital Costs	\$21,710,000.00

Annual Operating Costs

Management/Technical Services	2,019,000.00
Professional Staff and Programs	<u>12,700,000.00</u>
Total Operational Costs	\$14,719,000.00

Funding for the center and its activities must be by line item within the University of Alaska's budget. Principal funding for all center activities should be provided by appropriation from the state. Funding of the center should be considered independent of the other program requirements of the university. Existing management and research programs should not be reduced to fund this program.

The Study Group recommends that the following criteria be considered by the University of Alaska in recommending the location for the Fisheries Research Center. The criteria are ranked in order of importance.

Location

1. Accessibility, proximity, and relationship to the major state, federal, and educational agencies and institutions with resource management and research responsibilities.
2. Proximity to existing research and support facilities.
3. Communication and transportation linkages, both domestic and international.
4. The attributes of the location that would aid in attracting highly qualified professionals.
5. The capability to host statewide, national, and international meetings.

LEGISLATIVE CHANGES

After evaluating House Bill 313, the Study Group has included a modified version in the appendix of this report. This modified version would implement the recommendations in this report.

IMPLEMENTATION

The Study Group recommends that the Fisheries Research Center be immediately established. Acquisition of staff and facilities should be undertaken in a phased manner to be completed within eight years.

The university should undertake the following activities during the center's first year:

1. Appointment of Board of Trustees
2. Appointment of advisory committees
3. Appointment of Executive Director and initial support staff
4. Phase planning for facilities acquisition
5. Planning for research programs and staff acquisitions
6. Development of cooperative arrangements
7. Initiation of conferences and workshops and information services

It is estimated that the first year of activities will cost \$525,000.

During the second year the center should establish research activities using existing state, federal and university facilities. The state must plan on funding these research activities at a level of approximately \$2 million. The state should plan on increasing program funding by \$2 million annually until full funding is reached.

APPENDIX
RECOMMENDED SUBSTITUTE
FOR HB 313

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