

Agenda Item IX-3
August, 1979

MEMORANDUM

DATE: August 20, 1979

TO: Council Members, Scientific & Statistical Committee and
Advisory Panel

FROM: Jim H. Branson, ^{Mark} Executive Director

SUBJECT: A Funding Proposal by the Alaska Department of Fish & Game
to Perform Biometric Analyses of Southeast Alaska Troll
Salmon Fishery Data

COUNCIL ACTION

Approval for funding.

BACKGROUND INFORMATION

Early this spring we received an inquiry from the Alaska Department of Fish and Game about the desirability of the Council funding a biometrical analysis of troll salmon fisheries data. On May 15th we received the initial proposal which subsequently has undergone review by the Scientific & Statistical Committee and revision into Council contract form.

The basic objective of the contract is to derive quantitative estimates of recent chinook and coho salmon availability to the Southeastern Alaskan troll fishery by fishing area, time of year, area of origin and fish size. Secondary objectives deal with deriving methodology for standardizing troll effort, redesigning microwire tag recovery sampling program for Southeast Alaska, examining and describing recent trends in power and hand troll size, deliniating areas and periods within which undersized chinook salmon are encountered by trollers and investigating the practicality of estimating harvest rates for microwire tagged chinook and coho salmon.

The contract is planned for 13 months at a cost of \$53,528 to be matched by \$12,500 State of Alaska money and \$13,075 University of Washington money. A contract monitoring committee, Council involvement on the contractor's graduate committee, and very tightly controlled progress reports and evaluations have been incorporated into the contract.

Attachment:

Contract

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CONTRACT NO. 79-?

ANALYSIS OF SOUTHEASTERN ALASKA TROLL FISHERIES DATA

This contract, entered into between the North Pacific Fishery Management Council, herein called "the Council" and represented by the Executive Director executing this contract, and

The Alaska Department of Fish & Game
Subport Building
Juneau, AK 99801

hereinafter called "the Contractor" agrees as follows;

INTRODUCTION

With assistance from the North Pacific Fishery Management Council, the Alaska Department of Fish and Game proposes to perform biometric analyses of recent Southeastern Alaska troll fisheries data. The objectives of this research are to (a) provide baseline information on the distribution and abundance of chinook and coho salmon stocks harvested by the Southeastern Alaska troll fishery, (b) to document fleet performance, (c) to examine techniques of standardizing vessel effort and (d) to highlight significant area or time differences in these and other parameters of importance to troll fisheries management planning.

Hundreds of thousands of dollars have been spent to collect data on troll landings, micro-wire tag recoveries and troll logbook observations. Although this information has been keypunched and initial summaries performed, little effective use has been made of these data. In the past, the complexity of requisite statistical and mathematical methods, together with the sheer volume of data available have proved almost impenetrable barriers to practical analysis. The research here proposed is intended to clarify the limitations of the data, while determining the practicability of applying classic fisheries models in troll fisheries management planning.

ARTICLE I- STATEMENT OF WORK

A. Background

The North Pacific Fishery Management Council is responsible for continuing development of a fishery management plan for ocean salmon taken in the troll fishery in the Fishery Conservation Zone off Southeastern Alaska. To insure that conservation and management measures incorporated in the plan are both effective and equitable, it is essential that refined troll fisheries information be accessible to members of the plan's writing team. Unfortunately, although vast quantities of several different kinds of troll fisheries data are being collected, appropriate summaries and directed interpretations of these data bases are in general not available, known to be erroneous, or simply too voluminous to be immediately useful.

Effective management of the Southeastern Alaska troll fishery is difficult. The fishery not only harvests local stocks, but also intercepts salmon ranging in origin from southern Oregon to the Gulf of Alaska. The troll fleet consists of about 950 power troll vessels, constrained by Alaska limited entry law, and a rapidly expanding number of hand trollers (about 2500 fished in 1978), unregulated by limited entry provisions. Because Southeastern Alaska chinook stocks are in generally poor condition, the employment of both sport and commercial time-area fishery closures has increased in recent years. Micro-wire tag recoveries from natural stock tagging experiments have convincingly demonstrated dangerously high exploitation rates on some local coho stocks as well, necessitating further time-area closures in inside waters. These closures of inside Southeastern Alaska waters will primarily restrict local sport and handtrolling effort. Consequently, it does seem prudent to anticipate increased fishing interest in the Fisheries Conservation Zone.

Within the next two years it is likely that the United States and Canada will agree to limit Pacific salmon interceptions. It is anticipated that this agreement will force the implementation of management by quota in most chinook and many coho salmon commercial troll fisheries in

Southeastern Alaska unless alternative measures to avoid increasing interceptions of Canadian salmon are discovered. Migration patterns and concentrations of Canadian chinook and coho salmon in Southeastern Alaska are currently only roughly defined.

The raw data required to resolve many of these present and future troll fishery management problems are presently being collected and are maintained on four separate machine-readable data bases:

1. Troll landing documents. The Department maintains data files containing a record for each commercial fishery landing in Alaska. These fish ticket records identify the fisherman, his vessel, and the number and total weight of fish delivered, by species and the statistical area from which the fish were taken. Because of the large number of vessels involved, the number of troll fish ticket records ranges from 35,000 to 50,000 annually. Computer-readable files are available from 1969.
2. Vessel registry files, including vessel size, net tonnage, gear type, and related information, are maintained by the Alaska Commercial Fisheries Entry Commission and are available from 1969.
3. Micro-wire tag recoveries. Each year since 1973 the Department has inspected samples of chinook and coho salmon delivered by Southeastern Alaska trollers for the presence of micro-wire tags, inserted at hatcheries before release. More recently, natural stocks of chinook and coho have also been tagged. The Department and the Pacific Marine Fisheries Commission cooperate in the maintenance of this important data base.
4. Troll logbook data. Early in 1976, the Alaska Trollers Association joined with the Department and several other agencies to implement a voluntary troll logbook program. In 1978, 114 trollers reported observations from more than 7,000 fishing days. Their observations included precise fishing location; numbers of coho, large and medium chinook taken; number of undersized chinook released; and

the number of hours fished. The 1976 and 1977 troll logbook data bases have been edited and summarized and are maintained by the Department. Entry and editing of the 1978 data will be completed by June, 1979.

Despite the increasingly urgent need for better Southeastern Alaska troll fishery information, none of these data bases have been intensively analyzed. The Department's Southeastern Regional staff includes neither a biometrician nor a computer programmer.

To begin to fill this information gap, the Department proposes to perform directed analyses of the troll fisheries data bases described above. Particular emphasis will be placed on the provision of dependable baseline information needed for troll fishery management planning. Important subsidiary goals are to highlight data deficiencies and to suggest improvements and economies in data collection system designs. Accomplishment of these goals will require extensive computer programming and system analysis as well as the application of biometrical and statistical techniques.

The Department is uniquely qualified to accomplish this work. Department personnel are directly involved in the collection and processing of troll fisheries data. Much of this information is confidential and Alaska statutes severely restrict disclosures to external agencies or individuals. However, it is simply not feasible to do the data processing within the State at this time. Computer facilities operated in Anchorage and Juneau by the State are utilized primarily for administrative and financial purposes. Neither facility offers timesharing and only rudimentary scientific and statistical software is available. Both facilities are currently undergoing an operating system conversion, and consequently computer availability and services are erratic. The University of Alaska Computer Network has only limited facilities for transmission of large volumes of data between Juneau and Fairbanks, where the central computer is located. In addition, the availability of magnetic disk storage is becoming increasingly restricted and the data would have to be stored on and processed using magnetic tapes. Costs are relatively high at the University of Alaska for this kind of data processing.

Mr. Fritz Funk, who recently completed the computer programming to produce printed and graphical summaries of 1977 troll logbook data, is a qualified biometrician as well. Mr. Funk has finished the required course work for a masters degree in fisheries biometrics at the University of Washington and will utilize portions of the biometrical analysis of the troll fishery for thesis material. His background in computer programming, biological science and fisheries biometrics are desirable. He is located at the University of Washington -- an advantage because of that institution's highly sophisticated computer system, with which Mr. Funk is familiar. Finally, because he would be a Department employee, data confidentiality problems would be avoided.

B. Objectives

The objective of this project is to derive quantitative estimates of recent chinook and coho salmon availability to the Southeastern Alaska troll fishery, by fishing area, time of year, area of origin, and fish size. Secondary objectives are to:

1. Compare and evaluate alternative methods of standardizing troll effort, identifying significant components and describing recent trends in those components, insofar as they can be determined from available data;
2. ^{through} Recommend improvements in the micro-wire tag recovery sampling design for Southeastern Alaska;
3. Examine and describe recent trends in power and hand troll fleet size, distribution and characteristics related to fishing power;

main interest
comparative evaluation
20/10 vs 20/20

4. Delineate areas and periods within which significantly higher numbers of undersized chinook salmon are encountered by trollers; and to

5. Investigate the practicality of estimating harvest rates for micro-wire tagged chinook and coho stocks, deriving estimates where feasible.

C. STATEMENT OF WORK

In order to accomplish project objectives careful planning and coordination will be required. At a minimum, this coordination will include:

by Nov 1 *Material*
budget

1. Preparation of a detailed research plan, to be reviewed by members of the technical group, Mr. Funk's graduate committee and the Scientific and Statistical Committee of the North Pacific Fishery Management Council. This review process may take several months. In the interim Mr. Funk will complete preliminary data management housekeeping tasks which will be required regardless of research plan modification.

joint

2. Regular monthly progress reports will be sent to the Extended Jurisdiction Section. Requests for specialized advice, information or assistance will be referred to the appropriate members of the technical group.

3. Three quarterly interim progress reports will be due 90, 180 and 270 days after the award date.

4. Mr. Funk will periodically travel to Southeast Alaska to confer with Department staff and others familiar with troll fishery data idiosyncracies, management of the troll fishery, chinook and coho salmon biology and behavior. This will also provide opportunities to resolve other problems which may arise.

The following data will be copied to magnetic tape for processing at the University of Washington Academic Computer Center:

1. 1976, 1977, and 1978 troll fish ticket records.
2. 1970 through 1978 troll vessel license registry.
3. 1976, 1977, and 1978 troll logbook data.
4. 1976, 1977, and 1978 Southeastern Alaska micro-wire tag recoveries.

A limited read-only password security system will be established to insure the confidentiality of the unsummarized fish ticket and vessel license information. Raw data will not be stored on public disk devices. A private disk pack with sufficient capacity to store all the individual records will be leased from the University of Washington Academic Computer Center. Several graphics terminals and hard copy plotters are available at the Academic Computer Center. A keyboard terminal will be purchased for timesharing use. At the completion of the project the terminal will be made available for other Council related data processing activities.

An outline of the work to be accomplished is presented below.

I. Data Base and software preparation

- A. Merge, edit and preprocess 1976-1978 troll fish ticket data.
- B. Merge and preprocess 1976-1978 troll logbook data.
- C. Assemble, convert, and create required map-plotting software.
- D. Generate polygonal approximation for plotting troll statistical areas.
- E. Merge, edit and preprocess 1976-1978 micro-wire tag recovery data.
- F. Other required data and software adaptation.

II. Troll effort standardization

- A. Review of classical fisheries effort standardization techniques.
- B. Logbook data

Methods will be investigated including factorial and nested analyses of covariance of chinook and coho catch and number of released chinook by vessel, time period, statistical area, and hours fished, for 1976, 1977 and 1978; logarithmic or other transformations applied, if appropriate.

- C. Fish ticket data

Methods will be investigated including factorial and nested analyses of covariance of chinook and coho catch, by vessel, time period, statistical area and vessel characteristics, for 1976, 1977, and 1978; logarithmic or other transformation applied, if appropriate.

- D. Comparison of standardization techniques and interpretation of differences.

III. Descriptive statistics

- A. Frequency distributions of troll vessel characteristics, 1970-1978.
- B. Map plots and tables of hand and troll troll effort, 1976-1978.
- C. Standardization catch per unit effort by species, and year (1976-1978).
 - 1. Plots versus time.
 - 2. Tables by statistical area and year.
 - 3. Map plots by time period.

- D. Average chinook weight, by time period and statistical area.
- E. Distribution of micro-wire tag recoveries, by time period, statistical area and are of origin.

IV. Other topics

- A. Implied distribution of undersize chinook, by time period and area, 1976-1978.
- B. Micro-wire tag recovery sample design.
- C. Apparent fish ticket data inconsistencies.
- D. Harvest rates for micro-wire tagged stocks.

Computer graphics, in particular map plots, will be heavily utilized to concisely display the multitude of descriptive statistical information. Three dimensional graphics as well as map plotting software are readily available on the UW computer system.

DIRECTION

Adminstrative, clerical, and logistical support and direction will be provided by the Extended Jurisdiction Section of the Commercial Fisheries Division. Members of an informal technical resource group will individually offer information and advice, and periodically review project progress. This technical group will include representatives of the Department, Council, National Marine Fisheries Service, Pacific Marine Fisheries Commission and the Alaska Trollers Association and will serve as a contract monitoring committee to formally review the interim progress reports, important monthly progress reports and the final report.

ARTICLE II - PROJECT SCHEDULE AND DELIVERABLES

Events Schedule

0 days (Nov. 1, 1979)	Contract award
90 days ()	First progress report
180 days ()	Second progress report
270 days ()	Third progress report
330 days ()	Draft final report
390 days ()	Final report due

Deliverables

Products should be delivered to project officer, Executive Director, North Pacific Fishery Management Council. The products will be professional quality and reproducible. The original must be one of three copies submitted. Style and format should conform to CBE Style Manual, 3rd edition, unless the project officer, Executive Director, NPFMC specifies otherwise. Further guidance or changes will be provided within three months after the start of the contract. Copies of all raw data and papers generated by the Contractor shall be presented to the project officer, Executive Director, upon completion of the contract.

The following format will be used in preparing the PHASE I report and the final report:

- Title Page
- Preface
- Executive Summary
- Table of Contents
- List of Figures
- List of Tables
- List of Abbreviations and Symbols
- Acknowledgements
- Introduction
- Methods
- Results
- Conclusions
- Recommendations
- Abstract
- Key Words
- References

The Executive Director, NPFMC, may allow combinations of sections or their omissions, or other changes if requested by the Contractor.

An explanatory management letter of no more than two pages must accompany each voucher. The letter must indicate the allocation of all charges by task and explain all the charges on the voucher. In addition, the letter shall contain statements about the adequacy of funds remaining to complete each task. Three copies are to be delivered to the Executive Director.

Quarterly progress reports shall be due on the dates previously mentioned and shall review the technical accomplishments of the quarter, inventory and include all data collected during the quarter, indicate the extent of data synthesis and analysis accomplished during the quarter and present any preliminary tentative conclusions.

Final reports shall be camera-ready copy, single spaced, typed on one side of the page on good quality white paper measuring 8-1/2 x 11 inches.

ARTICLE III - COSTS AND TERMS OF PAYMENT

The Council agrees to pay and the Contractor agrees to accept as full payment for all services agreed to above, the sum of \$53,528.

ARTICLE IV - PERIOD OF CONTRACT

Work on this contract shall commence on November 1, 1979 and shall be completed by January 1, 1980 unless extended by written mutual agreement.

ARTICLE V - CONTRACT MONITOR

Mrs. Judy A. Willoughby is designated contract monitor. The contract monitor is responsible for the administration of this contract for the Council. Mrs. Willoughby is located at the Council's headquarters office, 333 W. Fourth Avenue, Suite 32, P. O. Box 3136DT, Anchorage, Alaska 99510, telephone 907-274-4563.

ARTICLE VI - PAYMENTS

Provisional payments for services under this contract will be made on the basis of quarterly billing with an accompanying detailed invoice, the total not to exceed \$53,528. An explanatory management letter of no more than two pages must accompany each voucher.

ARTICLE VII - GENERAL PROVISIONS

1. TERMINATION

- a) The performance of work under this contract may be terminated by the Council whenever the Executive Director determines that such termination is in the best interest of the Council.
- b) Any such termination shall be effected by delivering to the Contractor a Notice of Termination specifying the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective.

2. NONDISCRIMINATION CLAUSE

The Contractor shall comply with federal Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR, Part 60).

3. FEDERAL ACCESS TO RECORDS

The Contractor will provide the Council, the National Marine Fisheries Service, the Comptroller General of the United States, or any of their duly authorized representatives, access to any books, documents, papers, and records of the Contractor involving transactions relating to this contract for a period of three years after final payment.

4. PROTESTS, CONTRACT DISPUTES, AND APPEALS

- a) Authority of the Executive Director. The Executive Director is authorized to settle, compromise, pay or otherwise adjust any claim by or against, or any controversy with, a contractor or bidder relating to a contract entered into by the Council, including a claim or controversy initiated after award of a contract, based on breach of contract, mistake, misrepresentation or other cause for contract modification or rescission. In the event a settlement or compromise involves or could involve adjustments and/or payments aggregating \$10,000 or more, then the Executive Director shall prepare written justification and obtain approval in advance, from the full Council and its legal advisor. When a claim cannot be resolved by mutual agreement, the Executive Director shall promptly issue a decision in writing. A copy of that decision shall be mailed or otherwise furnished to the contractor and shall state the reasons for the action taken on the claim, and shall inform the contractor of his right to administrative relief as provided in this section. The decision of the Executive Director is final and shall be conclusive unless fraudulent, or the contractor appeals to the Council. If the Executive Director does not issue a written decision within one hundred and twenty (120) days after receipt of a claim, or within such longer period as might be established by the parties to the contract in writing, then the contractor may proceed as if an adverse decision has been received.
- b) Appeal to the Council. The Council has jurisdiction over each controversy arising under, or in connection with, the interpretation, performance, or payment of a contract of the Council provided that:
- 1) the contractor has not instituted action over such controversy in court, and

- 2) the contractor has mailed notice to the Council of his election to appeal within 90 days of his receipt of the decision from the Executive Director, or at the contractor's election, within a reasonable time after the Executive Director fails or refuses to issue a decision.

5. CONTRACT MODIFICATIONS

A contract modification is considered to be any written alteration of contract provisions, i.e., work statement, specification, period of performance, time and rate of delivery, quantity, price, cost, fee, or other provisions of an existing contract whether accomplished in accordance with a contract provision or by mutual actions of the parties to the contract.

- a) Approval Authority. Only the Executive Director has the authority to approve a contract modification.
- b) Processing Contract Modifications. The Contract Monitor is responsible for monitoring the contract and recommending changes in existing contracts. In such capacity, he will generally be responsible for initiating the necessary documents involving technical changes. In preparing the documents, he shall review the statement of work and the applicable specifications and then delineate the proposed changes thereto. The Contract Monitor should also evaluate whether these proposed changes are within the general scope of the contract or are considered new procurement and set forth the rationale supporting his position. If the Contract Monitor believes the changes to be in the general scope, the proposed changes, recommendations, and rationale are forwarded to the Executive Director for concurrence.

6. SUBCONTRACTING

Except as provided in the Schedule or in the Contractor's proposal incorporated in this contract, the Contractor shall not subcontract any part of the work under this contract without specific written approval of the Contract Monitor. This clause does not apply to the purchase of supplies, materials, equipment, or incidental support services.

7. RIGHTS IN DATA

- a) The term "Subject Data" as used herein includes writings, sound recordings, pictorial reproductions, drawings, or other graphical representations, and works of any similar nature (whether or not copyrighted) which are furnished by the Contractor under this contract. The term does not include information incidental to contract administration.
- b) All "Subject Data" first produced in the performance of this contract shall be the sole property of the Council. The Contractor shall not publish or reproduce such data in whole or in part, or in any manner or form, nor authorize others to so do, without the written consent of the Contract Monitor until such time as the Council may have released such data to the public.
- c) The Contractor agrees to grant and does hereby grant to the Council and to its officers, agents, and employees acting within the scope of their official duties, a royalty-free, nonexclusive, and irrevocable license throughout the world (1) to publish, translate, reproduce, deliver, perform, use, and dispose of, in any manner, any and all subject data not first produced or composed in the performance of this contract, but which is incorporated in the work furnished under this contract; and (2) to authorize others so to do.

- d) The Contractor shall indemnify and save and hold harmless the Council, its officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, (1) for violation of proprietary rights, copyrights or right of privacy, arising out of the publication, translation, reproduction, delivery, performance, use, or disposition of any subject data furnished under this contract, or (2) based upon any libelous or other unlawful matter contained in such data.
- e) Paragraphs (c) and (d) above are not applicable to material furnished to the Contractor by the Council and incorporated in the subject data furnished under the contract; however, such incorporated material shall be identified by the Contractor at the time of furnishing such data.
- f) The Contractor shall not affix any restrictive markings upon any subject data.

8. KEY PERSONNEL

- a) It has been determined that the individual(s) named in the schedule of this contract are necessary for the successful performance of this contract. No diversion or replacement of these individual(s) shall be made by the Contractor without the written consent of the Contract Monitor: Provided, that the Contract Monitor may ratify in writing such diversion or replacement and such ratification shall constitute the consent of the Contract Monitor required by this clause.
- b) The Contractor agrees that whenever for any reason, one or more of these individual(s) are unavailable for performance under this contract, the Contractor agrees to replace such individual(s) with an individual(s) of substantially equal abilities and qualifications. In this connection, the

Contractor shall submit to the Contract Monitor, in duplicate, a resume giving the full name, title, date, and place of birth, qualifications, experience, and salary history, for all successor or new personnel prior to assignment of such personnel to perform work under the contract, so that the Contract Monitor may decide whether or not such successor meets the qualifications of the personnel to be diverted or replaced, or in the case of new personnel, whether or not they are qualified to perform work assigned, and advise the Contractor accordingly.

9. RIGHTS TO INVENTION

Rights to inventions generated under this contract are subject to the regulations issued by the Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

10. CONFLICT OF INTEREST

It shall be improper for any Council employee or Council member to participate directly or indirectly and realize financial gain in any matter pertaining to this contract.

11. DISCLOSURE OF BENEFITS RECEIVED FROM CONTRACTS

Any Council employee or Council member who has or obtains any benefit from this contract, shall report such benefit to the full Council.

12. GRATUITIES AND KICKBACKS ILLEGAL

- a) Gratuities. It is improper for any person to offer, give or agree to give to any employee or Council member or for any employee or Council member to solicit, demand, accept or agree to accept from another person, anything of pecuniary value for or because of:
- 1) an official action taken or to be taken, or which could be taken; or
 - 2) a legal duty violated or to be violated, or which could be violated by such employee or former employee.
- b) Kickbacks. It is improper for payment, gratuity, or benefit to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

13. COVENANT RELATING TO CONTINGENT FEES

- a) Representation of Contractor. Every person, before being awarded a contract with this Council, shall represent that he has not retained a person to solicit or secure the contract with this Council upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting for bona fide employees or bona fide established commercial, selling agencies maintained by the person so representing for the purpose of securing business or an attorney rendering professional legal services, employed, consistent with applicable canons of ethics.
- b) Intentional Violation Unlawful. The intentional violation of the representation specified in Subsection (1) above is cause for termination of a contract.

14. RESTRICTION ON EMPLOYMENT OF PRESENT COUNCIL EMPLOYEES

No Council employee may be employed by the Contractor while the work under this contract is being performed.

ARTICLE VIII- BUDGET

The biometrical analysis of Southeastern Alaska troll fishery data is estimated to cost \$79,103. Together with \$12,500 contributed by the Department, \$53,528 is requested from the Council to fund this project. The contribution by the Department is largely personnel services for technical and advisory support. It is anticipated that consulting, project review and other assistance by biometrical, programming and biological research personnel will total 3 3/4 man-months.

BUDGET SUMMARY

Computer	<u>Requested Funds</u>	<u>State Funds</u>	UW <u>Matching Funds</u>
Personal Services	\$ 26,000	\$ 11,000	
Travel	3,000	750	
Contractual Services	16,917	750	\$ 13,075
Commodities	450	0	
Equipment	<u>2,295</u>		
Subtotal	\$ 48,662		
Overhead (10%)	<u>4,866</u>	<u> </u>	<u> </u>
Total	53,528	12,500	13,075
Total project cost	\$ 79,103		

BUDGET

Requested Funds

Personal services

Biometrician I @ \$2167/month including benefits (Seattle) \$26,000

Travel

Six trips between Seattle and Southeast Alaska to confer with fisheries biologists and biometrical staff, 2-4 days each: one trip to Anchorage for final report to SSC. *U.P.F.M.C.* \$ 3,000

Contractual services

I. Computer services contract to UW NORFISH

A. Computer processing time

220,000 system resource units @ \$.05/unit \$11,000

B. Other computer costs

1. Private disk pack rental @ \$50/month \$ 700

2. Public disk storage space - 2 million characters for one year @ \$.03125/1000 characters/month \$ 750

3. Hard copy graphics time - 25 hrs. @ \$25/hr. \$ 625

Total computer costs qualifying for matching funds \$13,075

C. UW Cost Center - accounting & clerical services \$ 700

D. Administrative overhead @ 56% of direct salaries \$ 392

Total computer services contract \$14,167

II. Duplication and communications

A. Duplication of final report, graphics and printer summaries \$ 2,000

B. Telephone communications 750

Total contractual services \$16,917

Commodities

I. Miscellaneous office and graphics supplies \$ 200

II. Ten 2,400 ft. magnetic tape reels @ \$25/reel \$ 250

Total commodities \$ 4

Equipment

Lear 31 Keyboard terminal \$ 1,395

Anderson Jacobsen 1200 Baud modem \$ 900

Subtotal \$48,662

Administrative overhead @ 10% \$ 4,866

Total \$53,528

State Funds

Personal services

Senior Biometrician
Clerk Typist
Systems Analyst/Programmer
Regional and Area Fishery Biologists
E.J. Supervisor

Total 3 3/4 man months @ 2925/month \$11,000

Travel

One trip each from Juneau to Sitka, Anchorage
and Seattle ? \$ 750

Contractual Services

Data Processing time \$500
Telephone \$250
Total \$ 750

Commodities

None

Equipment

None

Total \$12,500

The parties hereto executed this contract amendment as of the day and year of the last signature date indicated below:

ALASKA DEPARTMENT OF FISH AND GAME

By: _____

Title: _____

Date: _____

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

By: _____

Title: _____

Date: _____

Contract Proposal for Troll Fisheries Data Analysis

The Committee reviewed a proposal from the Alaska Department of Fish and Game to analyze data on the troll fishery for coho and chinook stocks in and off Southeast Alaska. We felt the proposal has merit but that the objectives and deliverables need further review and possibly some tightening up. We recommended a subcommittee composed of Dr. Burgner, Don Rosenberg and Jim Balsiger meet with the contract in mid-September to accomplish this.