

M E M O R A N D U M

TO: SSC

FROM: Jim H. Branson  
Executive Director

DATE: March 24, 1983

SUBJECT: Additional Contract-Related Materials

In addition to the two items on halibut limited entry requiring approval by the Council, there are several more actions required by the SSC alone:

- (a) Research Proposals for FY/1984: We've had several responses to our call for proposals for programmatic funding in FY/84. The University of Alaska has submitted two proposals on red and golden king crab (see attachments A and B to this supplement). These should be approved to go to agency review. A third proposal will be forthcoming. It concerns a photo-census of sea lion pups in the Gulf of Alaska. I expect that Don Calkins of ADF&G will submit a formal proposal in the next few weeks and I would like your permission to send it out for agency review. Recent correspondence on this item is included in attachment C. Another possible proposal may be a request to help support a study by IPHC on using fiberglass inserts in king crab pots to reduce the incidental catch of halibut. I'm not sure whether I'll have more information for this meeting than that found in attachment D.
- (b) Lowell Wakefield Fishery Symposium: The SSC has been requested to suggest species of fish that could be the subject of a symposium in the Lowell Wakefield series. See attachment E. The Council could be asked for partial support of such a symposium, probably out of FY/84 programmatic funds.
- (c) Incidental Salmon Catch Study - Contract 81-5: The SSC received a quarterly report in the March 11 mailing. No formal approval is necessary unless you have major questions concerning progress on the project.
- (d) Joint Venture Logbook Program: In December, the SSC reviewed the logbook format proposed for joint venture fishermen off Alaska. The logbook was to be delivered to fishermen by PMFC and then mailed back to PMFC at the end of the season. In December we heard that some programmatic funds might be available and that proposals were needed quickly. Given the

priority placed on funding for a domestic logbook program and the SSC and Council's backing for the logbook program, we solicited a proposal from Phil Rigby at ADF&G to provide a dockside interviewer in Kodiak and Dutch Harbor to meet the fishermen and ensure the accuracy of the logbook data. Phil came in with a proposal for \$30,000 and will provide more details on the interview format at this meeting. The SSC should review this proposed format. Attachment F contains correspondence relating to the logbook program.

- (e) Herring Scale Analysis Study: A second study that we submitted in the rush to get programmatic funds was a scale analysis for Bering Sea herring for \$59,930 by FRI. NMFS has notified us of tentative approval for this project, but they want more detail. The SSC should review this proposal and recommend changes if necessary. The proposal was sent to the SSC as Item 8 in the Council mailing of March 9.

J

FISHERIES RESEARCH INSTITUTE  
University of Washington  
WH-10  
Seattle, Washington 98195

TO: NORTH PACIFIC FISHERY MANAGEMENT  
COUNCIL

TYPE OF SUPPORT REQUESTED: Research Contract

TITLE OF PROJECT: Feasibility of Using Scale Analysis  
Methods to Identify Bering Sea  
Herring Stocks

PRINCIPAL INVESTIGATOR: Donald E. Rogers  
Research Professor

AMOUNT REQUESTED: \$ 59,930

DESIRED PERIOD: 1 April 1983 - 31 March 1984

DATE SUBMITTED: 3 February 1983

Title: Feasibility of Using Scale Analysis Methods to Identify  
Bering Sea Herring Stocks.

Relevant Fishery Management Plan: Bering-Chukchi Sea Herring

Objectives and Need

Objectives

1. To determine the degree of separability of major spawning stocks of herring in eastern Bering Sea, north Alaska Peninsula and Aleutian areas using scale pattern characters from two or more age classes of herring.

2. To examine stock composition of herring collected from domestic summer food and bait fishery and from offshore overwintering grounds if spawning stocks are determined to be separable.

Need

From previous Soviet and U.S. research, it is known that some Bering Sea spawning stocks make extensive migrations after the inshore spring spawning season and overwinter near the Pribilof Islands. In addition, preliminary scale pattern analyses by Fisheries Research Institute indicate that stocks from several spawning locations pass through the area of the domestic food and bait fishery for herring centered at Dutch Harbor. The exact spawning stocks involved and their relative abundance in specific offshore wintering grounds has not been determined.

Therefore, stock identification is an important research priority to determine stock composition in the summer fishery, on wintering grounds, and in the incidental catches of trawl fisheries. It is also important to determine if several stocks mingle in eastern Bering Sea coastal areas before moving to individual spawning grounds.

Of methods considered for herring stock separation, biochemical method (electrophoresis) has been applied but individual eastern Bering Sea stocks could not be clearly identified by that method. Pilot feasibility studies using scale analysis techniques, conducted by Alaska Department of Fish and Game and Fisheries Research Institute, indicate that the method may successfully be used to identify individual Bering Sea stocks or subgroups of stocks. Tagging, a third method, is the most expensive and could only be undertaken on a very limited feasibility scale with presently available funds.

#### Expected Benefits

This information is required for development of a management system to prevent overharvest of stocks subject to exploitation in more than one fishery and to allocate harvest levels among user groups. Information on the identity of herring stocks at specific locations and times will enable the design of management strategies to harvest individual stocks at appropriate levels.

#### Work To Be Performed

The primary analysis will be conducted on scale samples to be collected in 1983 by ADF&G from spawning grounds, by NMFS observers on foreign trawlers, or by NMFS research vessels. However, initially, scales collected in 1982 by NMFS observers and available from NWAFC will be used to establish whether samples of scales from trawl-caught herring are usable, or whether improved collection techniques are necessary. This will require the mounting, age reading and measurement of several hundred scales presently in scale envelopes. Simultaneously, a pilot

study will be conducted to determine the variability in growth characteristics of herring scales taken from different parts of the body, and particularly in the A, B and D preferred scale sampling zones. If results of this study indicate the need for modified scale collecting procedures, the recommendations will be conveyed to the responsible supervisors of scale collections as soon as possible.

Analyses will be conducted on scale samples collected by ADF&G from the following locations if available: Port Moller, Togiak, Goodnews Bay, Security Cove, Nelson Island, Cape Romanzof, Norton Sound, and Aleutian Islands. Samples will also be analyzed from the Dutch Harbor-based summer fishery sampled by ADF&G, from observer collections made available by NWAFC, and from other sampling effort if available. One FRI staff member will be responsible for coordinating with the other agencies on scale collection techniques, sample and data requirements, and transfer of samples to FRI for analysis. Length, weight, sex and maturity stage data will be required. Scale samples collected by ADF&G biologists will be mounted by them. Scale samples collected by NMFS observers will be mounted by FRI personnel.

Scales and associated data will be assembled at Fisheries Research Institute, where scales will be measured, digitized, and analyzed using the FRI scale analysis laboratory facilities. Scale characters from known spawning stocks ("standards") will be used to classify scale characters of individuals from the "unknown" samples to their stock of origin. Since more accurate results are obtained when sample size of standards is large, samples of 200 herring of the same cohort will be used where available.

Multivariate statistical analysis will be used to determine stock groupings based on similarity of scale characteristics for individual predominant age classes of herring, and results from two or more age classes will be compared. Results of these analyses will then be applied to identify stock components for samples obtained from the summer domestic food and bait fishery near Dutch Harbor and from the offshore grounds. The methods of classification and point estimation are described by Cook (1982a,b), Cook, et al. (1981), and summarized by Myers, et al. (1981). Walker and Schnepf (1982) describe a preliminary scale pattern study to estimate the origin of age 5 herring collected in 1982 in the Dutch Harbor summer food and bait fishery.

If 1983 samples can be obtained quickly from the collecting agencies, analyses can be completed in time for presentation of preliminary results at the December meetings of ADF&G board and NPFMC. A draft final report including tables of classification accuracies and sample data will be provided two months prior to the end of the contract period. It will include recommendations as to the applicability of the methods used and as to the desirability of continuing studies. It is anticipated that a second year of study will be needed to determine the year-to-year consistency of the method, incorporate improved sampling methods, and include additional samples as available.

Measurements and counts will be made using a microcomputer-based digitizing system developed by the Fisheries Research Institute in 1979 for INPFC-related research. Raw scale and biological data will be stored in computer-retrievable form on floppy discs and magnetic tape.

Budget Estimate--12 mos

Salaries and Benefits

Principal Investigator, 1 mo	\$ 3,533
Fishery Biologist II, 5 mos	10,645
Graduate research assistants, 8.5 mos	15,986
Hourly technical assistants	<u>3,100</u>

Subtotal \$ 33,264

Travel and Per Diem--to Bering Sea  
and to council meeting 3,600

Supplies and Services--scientific,  
office, computer time, report  
preparation, secretarial 4,900

Equipment--digitizing tablet, scale  
viewer lenses 3,900

Total Direct Costs \$ 45,664

Indirect costs (34% of direct costs except  
equipment) 14,200

Total \$ 59,864

Principal Investigator: Dr. Donald E. Rogers, Research Professor,  
Fisheries Research Institute, University of  
Washington. Phone: (206) 543-7628.

Date Submitted: 3 February 1983

References Cited

Cook, R.C. 1982a. Stock identification of sockeye salmon (Oncorhynchus  
nerka) with scale pattern recognition. Can. J. Fish. Aquat. Sci.  
39:611-617.

Cook, R.C. 1982b. A constrained mixing proportion estimator.  
(Submitted). 10 pp.

Myers, K.W., R.C. Cook, R.V. Walker, and C.K. Harris. 1981. The  
continent of origin of coho salmon in the Japanese landbased  
driftnet fishery area in 1979. (Document submitted to annual  
meeting of the International North Pacific Fisheries Commission,  
Vancouver, B.C., Canada, November 1981). 34 pp. Fish. Res. Inst.,  
Univ. Washington, Seattle.



Walker, R.V., and K.N. Schnepf. 1982. Scale pattern analysis to estimate the origin of herring in the Dutch Harbor fishery. Final Report to Alaska Department of Fish and Game. Fish. Res. Inst., Univ. Washington, Seattle, FRI-UW-8219. 21 pp.

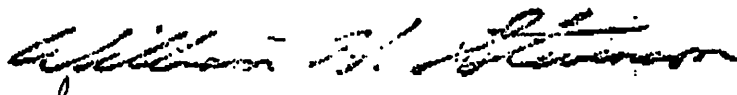
MAR 22 1983

Mr. James H. Branson  
Executive Director  
North Pacific Fishery Management Council  
P.O. Box 3136 DT  
Anchorage, Alaska 99510

Dear Jim,

Your request of February 4, 1983, to undertake a "Feasibility study to identify Bering Sea herring stocks", and "A joint venture trawl logbook program" is tentatively approved. Programmatic funds in the amount of \$89,930 have been set aside for these efforts. While these two proposals appear to be worthwhile ideas, we would appreciate receiving additional details on their specific objectives and how the work would be performed (expansion of the job description). Additionally, a more detailed description of the design of the Bering Sea herring experiment e.g., sampling sizes, and statistical methods of analysis, would also be useful in better understanding your proposal.

Sincerely yours,

  
for William G. Gordon  
Assistant Administrator  
for Fisheries

cc: F/MB - Hochman ✓  
F/MI - Stone, Finch  
F/AKR - McVey, Furumasa

NMFS:F/MB:HHochman:cdb:47444:3/17/83

FEASIBILITY OF USING SCALE ANALYSIS METHODS  
TO IDENTIFY BERING SEA HERRING STOCKS

The purpose of this research is to determine the origins (spawning stocks) of the Pacific herring that are caught in offshore fisheries in the Bering Sea and in late-summer fisheries around the Aleutian Islands. The first objective is to determine whether we can identify the major spawning stocks in Western Alaska from their scale pattern characters. If the spawning stocks can be identified, then our second objective will be to determine the contribution of these stocks to the offshore and Aleutian fisheries.

The basic assumption of scale pattern analysis is that fish from a given area grow in a characteristic manner which is reflected in patterns on the scales. The scale characters from the known spawning stocks ("standards") can then be used to classify the scale characters of individuals sampled from mixed-stock fisheries ("unknowns") and to estimate the contribution (mixing proportions) of the spawning stocks to these fisheries.

The variance of a mixing proportion estimate is inversely proportional to the sample size of the standards and the most precise estimates are obtained when fish are classified with large ( $n = 100-200$ ) sample sizes for each standard. There is little gain in precision from larger sample sizes; however, the fish in a sample must be from the same age class or there will be a loss in precision caused by annual variation in growth and maturity schedules. Since Pacific herring in the coastal and offshore fisheries commonly contain fish from six or more age classes with one or two age classes predominant, it is necessary to collect about

1,000 scales from each area to ensure that about 200 usable scales will be available for each of two age classes from all areas.

In those areas where herring are caught in subdistricts, the number of scales from each subdistrict will be proportional to the estimated biomass in the subdistricts to make up the total sample size of about 200 for the area (district).

Measurements on the scales will be made from the focus to each annulus. The scale measurement variables will be the distances between annuli, distances from focus to annuli, and several combinations of these measurements, e.g., the ratio of one year's growth to another year's growth and the proportion of scale growth in each year. We will then screen the 20-30 scale measurement variables from the standards to choose a set of variables that includes large H-statistics, large differences in sums of ranks for each pairwise comparison, and independence from other characters chosen.

The selected set of variables for each age class will then be analyzed by a polynomial discriminant function adapted to the leaving-one-out approach and a smoothing parameter will be estimated by a maximum likelihood method. Point estimates of the proportions of the standard stocks in the unknown stocks will be determined by a classification matrix correction procedure, and variance estimates and 90% confidence intervals on the corrected point estimates will be made.

M E M O R A N D U M

TO: Council, SSC, and AP Members  
FROM: § Jim H. Branson *CHB*  
Executive Director  
DATE: March 23, 1983  
SUBJECT: Status of Contracts and Proposed Projects

ACTION REQUIRED

- (a) *Fishermen's Perceptions of Halibut Limited Entry: Final approval of revised report.*
- (b) *Contract 82-4 - Halibut Limited Entry Study (Stokes): Approve draft final report for public distribution; extend contract to cover public presentations.*

BACKGROUND

Current Council contracts are listed below with contract information on the contractor, funding amount, percent expended to date, duration, objective, and status. Those contracts requiring Council action at this meeting are indicated with an asterisk.

Current Council Contracts

81-5: Incidental Salmon Catch Study  
(FRI/UW, \$100,000, 64%, October 1, 1981 to September 30, 1983)

Objective: To determine the feasibility of using scale analysis to identify the stream or area of origin of chinook salmon caught incidentally in the foreign trawl fisheries off Alaska.

Status: A quarterly report for October - December 1982 has been received and distributed to the SSC for review.

82-2: Crab Observer Program  
(ADF&G, \$69,489, 45%, April, 1982 to October 31, 1983)

Objective: To gather in-season catch data on species and sex composition, size frequency, fecundity, and discards.

Status: This contract was recently extended to October 31, 1983 to allow remaining funds to be used for more observer time.

82-3: An Economic Profile of the Southeast Alaska Salmon Industry  
(UA, \$10,000, 70%, April 1, 1982 to March 31, 1983)

Objective: To provide current data on effort, costs and earnings in the Southeast Alaska salmon fisheries.

Status: This contract has been extended through May to allow additional time for completion of the final report and its review and approval.

\*82-4: Halibut Limited Entry Study  
(NW Res. Analysis, \$80,000, 70%, June 1, 1982 to February 28, 1983)

Objective: To fully evaluate a share-type halibut limited entry system for Alaska, from design of the system to analysis of its impact on income, prices, geographic distribution and product quality in the harvesting, processing, and marketing sectors; and to generally evaluate other types of limited entry systems.

Status: The Halibut Limited Entry Steering Group met in Seattle on February 24 to review Stokes' draft final report. The Steering Group recommended that the report be forwarded to the Council for review and approval at its March meeting. If the Council approves the report for public distribution, Stokes will need to give three informational presentations in Seattle, Kodiak, and Petersburg, possibly in April. This contract will need to be extended to cover those activities.

83-1: Social and Cultural Aspects of the Pacific Halibut Fishery  
(Langdon, \$26,500, 18%, January 1 to July 31, 1983)

Objective: To gather social, cultural, and demographic information descriptive of the contemporary Pacific halibut fishery important to management decisions.

Status: The contract was signed on January 3 and field work is now proceeding. There will be a meeting between the contractor and the Halibut Limited Entry Steering Group around mid-April.

\*Fishermen's Perceptions of Halibut Limited Entry

A revised final report was sent to the Council family as Item 18 in the March 7 mailing. The Council is requested to review and approve the report for public distribution.

Research Proposals for FY/1984

There have been several responses to our call for proposals for FY/1984 programmatic funding. These proposals have been given to the SSC for screening prior to agency review. The Council will make its formal recommendations in May.

Update on FY/1983 Programmatic Requests

In July the Council approved programmatic funding requests totalling \$751,300 as follows:

<u>Title</u>	<u>Amount</u>
Rapid Response	\$ 80,000
FMP Development ADF&G	60,000
Sablefish Symposium	4,000
Domestic Trawl Logbook Program	167,300
Bering Sea Herring Scale Analysis	60,000
High Seas Tagging of Salmon	60,000
Golden King Crag Study	20,000
Analysis of biology and management of herring and sablefish and economic analysis of fisheries in the Gulf of Alaska and Bering Sea	<u>300,000</u>
TOTAL	\$751,300

The only progress so far has been a priority submission for funding of the FMP Development for ADF&G for \$60,000 which has been approved by NMFS and should be finalized in 2-3 weeks. We plan on funding the sablefish symposium for \$4,000 out of administrative funds. Additionally, we've submitted and received tentative NMFS approval for two more projects: (1) Bering Sea Herring Scale Analysis for \$59,930, and (2) a joint venture trawl logbook program for \$30,000. Before giving the final go ahead on these two projects, NMFS wants additional details. The SSC will review both projects at this meeting.

## TECHNICAL PROPOSAL

TO: North Pacific Fishery Management Council  
P.O. Box 3136 DT  
Anchorage, Alaska 99510

FROM: Institute of Marine Science  
University of Alaska  
Fairbanks, Alaska 99701

TITLE: Handling-Induced Mortality in Pre-recruit and Female Red King Crabs

PRINCIPAL INVESTIGATORS:

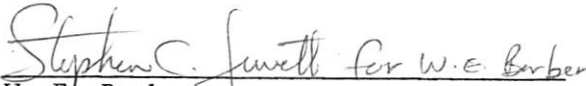
W. E. Barber Assistant Professor of Fisheries Science	S. C. Jewett Research Associate of Marine Science
S. J. Harbo Associate Professor of Biometrics Department of Wildlife and Fisheries	G. C. Powell Fisheries Biologist of Alaska Department of Fish & Game


NEW/CONTINUING: New

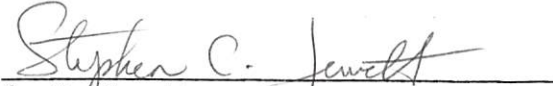
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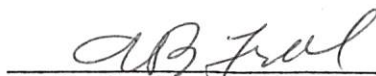
PROPOSED DURATION: FY 84

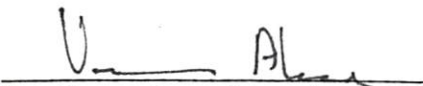
PROPOSED FUNDING: \$55,856

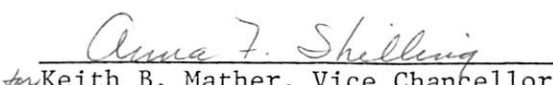
  
W. E. Barber  
Co-Principal Investigator  
(907) 474-7177

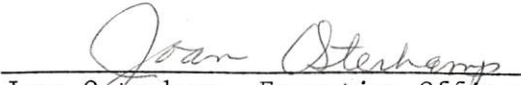
  
S. J. Harbo  
Co-Principal Investigator  
(907) 474-7671

  
S. C. Jewett  
Co-Principal Investigator  
(907) 474-7841

  
A. B. Frol, Director  
Administrative Services  
(907) 474-7340

  
V. Alexander, Director  
Institute of Marine Science  
(907) 474-7531

  
for Keith B. Mather, Vice Chancellor  
for Research and Advanced Study  
(907) 474-7314

  
Joan Osterkamp, Executive Officer  
Institute of Marine Science  
(907) 474-7824



TITLE: Handling-Induced Mortality in Pre-recruit and Female Red King Crabs

RELEVANT FMP: King Crab

OBJECTIVES AND NEED:

A number of hypotheses have been put forward as to the reason for the recent precipitous decline in the red king crab (*Paralithodes camtschatica*) fishery. Some of these hypotheses, other than over-exploitation, are: (1) a change in oceanic environmental conditions; (2) predation on the planktonic, juvenile and adult stages; (3) handling-induced mortality in pre-recruits and females; and (4) mortality caused by multiple catch and release of pre-recruits and females in the commercial fishery. Each of these hypotheses should be addressed if a full understanding of the fishery is to be achieved and if wise management decisions are to be made. However, hypotheses (1) and (2) will be difficult and time consuming to address. Of the two hypotheses which can be addressed in a short time frame, improper handling of pre-recruits and females caught in the fishery (hypothesis 3), and subsequently returned to the waters, is probably the most important factor influencing pre-recruit female mortality (Dr. J. Reeves, King Crab Biologist, NMFS, personal communication, 1982; Mr. A. Davis, Shellfish Biologist, ADF&G, personal communication, 1983). Therefore, the objective of this proposed research is to determine how handling influences mortality and survival in pre-recruit and female red king crab.

A final report will be prepared describing the research and mortality associated with different types of handling under experimental conditions.

EXPECTED BENEFITS:

Two objectives of the FMP are to maintain the resource base and minimize the socio-economic impacts. Recent declines in the resource base and fishery has precipitated severe problems in the industry. If significant mortalities are

occurring because of improper handling during sorting of catches, changing handling techniques can be recommended to industry in order to minimize this mortality factor.

WORK TO BE PERFORMED:

The proposed research is a field experiment. King crab will be collected with standard commercial fishing gear during October in the Kodiak area. Shell condition at this time will approximate that which occurs during the commercial harvest (September). Upon capture 180 pre-recruit male and 180 female crabs of approximately 10 cm to 15 cm (4"-6") carapace length will be sorted as carefully as possible and placed in live tanks for transportation to an area in the Near Island Basin (or a similar area) where they will be held in six 2.4 m X 2.4 m (8' X 8') holding pens. At this site, both males and females will be divided into three treatment groups of equal numbers. One group, the control, will be handled with caution. Another group will be dropped on their dorsal surface on the boat's deck, from a height of 1.2 m to 1.8 m (4 to 6 ft). The third group will be dropped on the deck as previously described and have one leg broken or removed. After subjecting the crabs to the various treatment levels, equal numbers of male and female crabs (10 per each sex for each of 3 treatments, 60 crabs per pen) will be placed in each of 6 holding pens. The crabs will be fed, as warranted, and examined for mortalities for approximately two months by Powell and/or Jewett.

URGENCY AND DURATION:

This project should be initiated as soon as possible. If significant mortality results from "improper" handling techniques, then appropriate mitigation measures would be suggested. The project can be executed in one fiscal year and no further funding requirements are anticipated.

MILESTONES:

	1984/1985						
	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Field Work	_____						
Data Analysis				_____			
Report Preparation						_____	
Final Report							_____

If further studies relative to this research is warranted, proposers of this project could carry out the research.

MANPOWER ALLOCATION:

FIELD WORK

Barber	2 wks
Jewett	3.5 wks
Powell	3 wks

DATA ANALYSIS

Harbo	1.5 wks
Barber	0.5 wks
Jewett	0.5 wks

REPORT PREPARATION

Barber	1.5 wks
Jewett	4 wks
Harbo	0.5 wks
Powell	1 wk

BUDGET ESTIMATE:

SALARY

Barber, W. E., 1 mo	\$4,661
Harbo, S. J., 2 wks	2,758
Jewett, S. C., 2 mo	6,341
Powell, G. C., 1 mo	<u>0<sup>1</sup></u>

Total Salary \$13,760

Salary Increment, 10% 1,376

BENEFITS

Annual, Sick, Holiday	\$2,591
Staff Benefits	<u>3,960</u>

Total Benefits 6,551

TRAVEL

5 Round Trip Fairbanks/Kodiak	\$1,850
Per diem, 30 days	<u>2,550</u>

Total Travel 4,400

SERVICES

Boat charter	\$6,000
Typing, 30 hrs	840
Drafting, 20 hrs	760
Data Processing, 25 hrs	750
Communications	<u>300</u>

Total Services 8,650

SUPPLIES

Crab food (herrings)	500
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EQUIPMENT

Holding pens	<u>3,000</u>
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Total Direct Costs \$38,237

Indirect Costs (50% modified total direct costs) 17,619

TOTAL REQUESTED \$55,856

<sup>1</sup> Mr. Powell's salary will be covered by ADF&G.

DATE AND ORIGINATORS OF PROPOSAL:

Proposal date 14 March 1983

Dr. Willard E. Barber  
Institute of Marine Science  
University of Alaska  
Fairbanks, Alaska 99701  
(907) 474-7671

Dr. Barber will mainly be involved in the setting up of the field experiments with the treatment groups, and in the preparation of the final report.

Dr. Samuel J. Harbo  
Department of Wildlife and Fisheries  
University of Alaska  
Fairbanks, Alaska 99701  
(907) 474-7671

Dr. Harbo will coordinate all data analysis. His experience as a statistician/biometritian for the Department of Wildlife and Fisheries greatly strenghtens the design of this project and the interpretation of the results.

Mr. Stephen C. Jewett  
Institute of Marine Science  
University of Alaska  
Fairbanks, Alaska 99701  
(907) 474-7841

Mr. Jewett will mainly be involved in the field work and preparation of the final report. His experience as a crab biologist and a SCUBA diver is valuable in conducting this research.

Mr. Guy C. Powell  
Box 686  
Alaska Department of Fish & Game  
Kodiak, Alaska 99615  
(907) 486-4791

Mr. Powell will mainly be involved in the field work of coordinating all diving activities. His 20+ years of experience as a SCUBA diver and king crab biologist will greatly aid in carrying out this research.

## TECHNICAL PROPOSAL

TO: North Pacific Fisheries Management Council  
P.O. Box 3136 DT  
Anchorage, Alaska 99510

FROM: Institute of Marine Science  
University of Alaska  
Fairbanks, Alaska 99701

TITLE: Growth and Size at Maturity of Golden (Brown) King Crab,  
*Lithodes aequispina*

## PRINCIPAL INVESTIGATORS:

S. C. Jewett  
Research Associate of  
Marine Science

H. M. Feder  
Professor of Marine Science

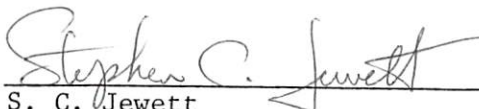
T. M. Koeneman  
Fisheries Biologist of  
Alaska Department of Fish & Game

NEW/CONTINUING: New

PROPOSED STARTING DATE: Winter 1984

PROPOSED DURATION: FY 84 & 85

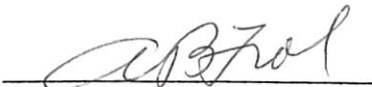
PROPOSED FUNDING: \$66,534



S. C. Jewett  
Co-Principal Investigator  
(907) 474-7841



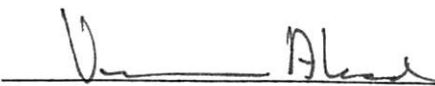
H. M. Feder  
Co-Principal Investigator  
(907) 474-7841



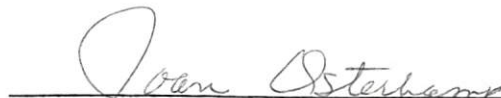
A. B. Froel, Director  
Administrative Services  
(907) 474-7340



K. B. Mather, Vice Chancellor  
for Research and Advanced Study  
(907) 474-7314



V. Alexander, Director  
Institute of Marine Science  
(907) 474-7531



J. Osterkamp, Executive Officer  
Institute of Marine Science  
(907) 474-7824

TITLE: Growth and Size at Maturity of Golden (Brown) King Crab,  
*Lithodes aequispina*

RELEVANT FISHERY MANAGEMENT PLAN: King crab

OBJECTIVES AND NEED:

Recent declines in red king crab (*Paralithodes camtschatica*) stocks have created greater interest and subsequent exploitation of stocks of golden king crab. Stocks are currently fished in southeastern Alaska and along the Aleutian Islands at depths of 200-400 meters, somewhat deeper than the depths at which red king crabs are fished. The landings in southeastern Alaska this winter (1983) approximate 272,160 kg (600,000 lbs). The objectives of this study are to examine the growth and size at maturity for golden king crabs. Since this crab is a deep-water species, its growth is presumably slower than that of red king crabs. Growth information is necessary in order to address recruitment to exploitable size. The commercial fishery for golden king crabs currently uses 178 mm carapace width as the minimum legal size, which is based on the same criteria as for red king crabs. However, the length-width relationships are different for the two species, reflecting dissimilar growth patterns (Jewett, 1983). Size at maturity for golden king crabs is not known. Harvesting golden king crabs using the red king crab legal size, and not knowing the size at maturity for golden king crabs, presents the danger of either harvesting them prior to maturity or under-harvesting if they are taken at a size well beyond maturity.

EXPECTED BENEFITS:

This research would benefit ADF&G golden king crab management by providing growth data and size at maturity which, in part, is the basis for Optimum Yield and Acceptable Biological Catch management strategies. This research is not scheduled to be undertaken by ADF&G due to budgetary constraints.



WORK TO BE PERFORMED:

This project includes field research to be conducted in southeastern Alaska. A commercial king crab vessel will be chartered for six days in late fall or early spring, and with the use of ADF&G fine-meshed king crab pots, golden king crabs will be caught, tagged and released. The tagging period is dependent upon the ADF&G management strategy of defining the 1984 golden king crab fishing season; tagging will occur subsequent to the closure of that fishing season. The fishing season is expected to be February or March. The location of the tagging operation will be in the vicinity of Gambier Bay, an embayment of Fredrick Sound. Commercial quantities of golden king crab, in addition to a wide range of crab sizes of both sexes, can be found in this region. Tagging will be accomplished with the permanent, numbered, isthmus spaghetti tag, which has been used successfully by ADF&G to obtain growth data on red king crab (Gray, 1965; Powell, 1967). One thousand (1000) juvenile and adult crabs of both sexes will be tagged. All crabs will be wet-weighted and measured (mm) using three measurements: 1) carapace length, 2) carapace width and 3) chela height. Maturity of females will be determined by the presence of eggs or egg remnants on the plepods. Maturity of males will be determined from the size of the chela relative to the size of the carapace using the method discussed in Somerton (1980). The released crabs will be at liberty for at least eight months, until the recovery operation begins with a charter vessel prior to the next fishing season. Tagged crabs are also expected to be recovered by the fishing fleet and subsequently returned to ADF&G under the auspices of a tag-recovery reward program (\$5.00 per tagged crab). This reward program has been used successfully in previous ADF&G crab-tagging ventures (G. C. Powell, personal communication, 1983). The charter vessel used

in the tag recovery operation will use fine-meshed pots in an effort to recapture smaller crabs. Furthermore, in order to maximize spatial coverage, the charter vessel may fish waters that the commercial fleet typically do not fish. The time the tagged crabs are at large should encompass the supposed molting period of spring 1984. Little is known about the molting period for this species. Spring is the anticipated molting period for adults; however, evidence of asynchronous molting exists (Jewett, 1983; Somerton, personal observation).

Tag recovery is expected to be high in the area chosen. Exploitation of red king crabs, as evidenced by tagging results in the Gambier Bay region, has been high in recent years, (e.g. in 1981, 92 recoveries from 166 tagged crab [55%] and in 1980 46 of 91 [51%] were recovered). Since this region is one that is heavily exploited for golden king crabs, as well as red king crabs (fished at different depths), we are assuming a relatively high exploitation and subsequent tag recovery can be expected for golden king crabs. A recovery of only 5-10% (50-100 crabs) (assuming molting has occurred) should yield sufficient information to address growth. Recaptured crabs will be measured similarly as in the tagging operation. Growth will be addressed by examining the relationship of premolt and postmolt sizes according to the methodology of McCaughran and Powell (1977). Some premolt and postmolt data exists within ADF&G; this data will be analyzed with data collected on this project.

URGENCY AND DURATION:

The basic biological information to be addressed in this proposal is necessary for determination of the Acceptable Biological Catch and Optimum Yield required

by ADF&G. Implementation of the results of this study into the king crab management plan should proceed as soon as possible. This research could be postponed until regular agency budgeting can handle the funding. However, in view of the recent increased levels of exploitation, the basic biological questions asked in this proposal should be addressed immediately so that appropriate steps can be taken in managing this species before the repercussion of perhaps unwise management appears. This research will be conducted in FY 84 and FY 85. The data from the tag recovery operation will not be available until after the golden king crab fishing season of the winter of 1985 (see Milestones). Again, tagging will be conducted in the winter of 1984, subsequent to the fishing season, and recovery will be conducted in the winter of 1985, during and subsequent to the fishing season. The duration of the tagged crabs are at liberty (10-12 months) should encompass the molting period.

REFERENCES:

- Gray, G. W., Jr. 1965. Tags for marking king crabs. Prog. Fish. Culturist. 27:221-227.
- Jewett, S. C. 1983. Survey of the golden crab *Lithodes aequispina* in Alice Arm, British Columbia. Final Report to Amax of Canada Limited. 59p.
- McCaughran, D. A. and G. C. Powell. 1977. Growth model for Alaska king crab (*Paralithodes camtschatica*) J. Fish. Res. Bd. Canada 34:989-995.
- Powell, G. C. 1967. Growth of king crabs in the vicinity of Kodiak Island, Alaska. Alaska Department of Fish and Game, Inform. Leaf. No. 92, 106 p.
- Somerton, D. A. 1980. A computer technique for estimating the size of sexual maturity in crabs. Can. J. Fish. Aquat. Sci. 37:1488-1494.

MILESTONES:

	<u>FY 84</u>												<u>FY 85</u>											
	<u>1983</u>				<u>1984</u>								<u>1985</u>											
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Tagging																								
Molting																								
Recovery																								
Data Analysis																								
Report Preparation																								
Final Report																								

MAN-POWER ALLOCATION:

FIELD WORK

Jewett	2 wks
Koeneman	2 wks
Somerton	1 wk

DATA ANALYSIS

Feder	1 wk
Jewett	2 wks
Koeneman	1 wk
Somerton	2 wks

REPORT PREPARATION

Feder	3 wks
Jewett	4 wks
Koeneman	1 wk
Somerton	1 wk

BUDGET ESTIMATE:

SALARY

Jewett, S. C., 2 mo	\$6,341	
Feder, H. M., 1 mo	6,338	
Koenemen, T. M., 1 mo	0 <sup>1</sup>	
Salary Increment, 10%	<u>1,268</u>	
Total Salary		\$13,947

BENEFITS

Annual, Sick, Holiday	2,400	
Staff Benefits	<u>3,674</u>	
Total Benefits		6,074

TRAVEL

2 Round trips Fairbanks/Petersburg	1,150	
1 Round trip Corvallis, OR/Petersburg	685	
Per diem, 20 days	<u>1,700</u>	
Total Travel		3,535

SERVICES

Dr. David A. Somerton, Subcontractor	2,500	
Boat charter, 12 days @ \$1200	14,400	
Typing, 30 hrs	840	
Drafting, 20 hrs	760	
Data processing, 40 hrs	1,200	
Communications	300	
Tag-recovery reward	<u>500</u>	
Total Services		20,500

SUPPLIES

Spaghetti tags (1,000 tags)		300
Total Direct Costs		<u>44,356</u>
Indirect Costs (50% modified total direct costs)		<u>22,178</u>
TOTAL		<u>\$66,534</u>

<sup>1</sup> Mr. Koenemen's salary will be covered by ADF&G.

DATE AND ORIGINATORS OF PROPOSAL:

Proposal date - 14 March 1983

Mr. Stephen C. Jewett  
Institute of Marine Science  
University of Alaska  
Fairbanks, AK 99701  
(907) 474-7841

Mr. Jewett will coordinate and participate in the tag and recovery operations. His previous experience in crab tagging includes working on red king crabs with Guy C. Powell of ADF&G, and golden king crabs in Alice Arm, British Columbia. Mr. Jewett's involvement in the data analysis will be under the direction of Dr. David Somerton. Mr. Jewett and Dr. Somerton will coordinate the data analysis through the Institute of Marine Science Data Processing Group. The preparation of a final report will be coordinated by Mr. Jewett and Dr. Howard Feder.

Dr. Howard M. Feder  
Institute of Marine Science  
University of Alaska  
Fairbanks, AK 99701  
(907) 474-7841

Dr. Feder will mainly be involved in the report preparation. His experience as an invertebrate zoologist in Alaska will be especially helpful in interpreting and presenting our findings.

Mr. Tim Koeneman  
P.O. Box 667  
Alaska Department of Fish & Game  
Petersburg, AK 99833  
(907) 772-3801

Mr. Koeneman is ADF&G's crab biologist for southeastern Alaska. His awareness of the need for this research is first hand. Mr. Koeneman will be mainly involved in the tagging and recovery operation, although lesser involvement will be given in data analysis and report preparation. Mr. Koeneman will coordinate the tag-recovery reward program. He has also previously conducted red king crab tagging.

Dr. David A. Somerton  
Department of Wildlife & Fisheries  
104 Nash Hall  
Oregon State University  
Corvallis, Oregon 97331-3803

Dr. Somerton has almost exclusively been involved in Alaskan crab research during the past seven years. His most recent work has involved blue king crab and deep sea king crab. All of Dr. Somerton's crab research are strengthened by rigorous statistics, which he performs. Dr. Somerton's main involvement will be in analyzing the data and applying computer techniques, which he has successfully used on other crab species.

# North Pacific Fishery Management Council

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

605 West 4th Avenue  
Anchorage, Alaska 99510



Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

Telephone: (907) 274-4563  
FTS 271-4064

March 15, 1983

Mr. John Burns  
Alaska Dept. of Fish and Game  
1300 College Road  
Fairbanks, Alaska 99701

Dear John:

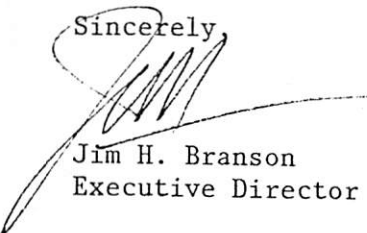
I am enclosing a copy of a letter I just received from Bill Aron in response to your proposal for an aerial survey of the sea lion pupping grounds in the Central Gulf of Alaska.

The SSC will be reviewing proposals for programmatic funding at their next meeting. Do you think it's worthwhile bringing this to their attention, and if so, can you get an estimate of costs and a rough research proposal in time for that meeting?

There may be some immediate money available, but we'll have to go after it at once if it's to do any good this year.

Best regards.

Sincerely,



Jim H. Branson  
Executive Director

Enclosure



MAR 10 1983



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Northwest and Alaska Fisheries Center  
2725 Montlake Boulevard East  
Seattle, Washington 98112

MAR -7 1983

Handwritten notes and a grid on a document, possibly a calendar or tracking sheet, with some numbers and lines.

Mr. Jim H. Branson  
Executive Director  
North Pacific Fishery  
Management Council  
P.O. Box 3136 DT  
Anchorage, AK 99510

Dear Jim:

Thank you for your February 18, 1983, letter regarding a photo-census of sea lion pups on rookeries in the Gulf of Alaska and the accompanying letter to you from John Burns proposing the study. I agree with you that the proposal merits serious consideration, but limited programmatic funds prohibit our participation in it.

Researchers at the National Marine Mammal Laboratory (NMML) intend to conduct aerial surveys of northern sea lion haul-out sites in and around Shelikof Strait during late March or early April this year. These surveys will estimate the size of the sea lion population in and around the area of the pollock joint venture and assess the possible effect of the incidental catch of sea lions on the adjacent population. Don Calkins of the Alaska Department of Fish and Game will participate in the surveys.

The surveys planned at the NMML differ from those suggested by John Burns in that the NMML surveys will be prior to the sea lion pupping season (which peaks in mid-June) and will cover less area. The surveys suggested by John will be in late June to early July, and, although they are needed to assess the overall status of sea lions in the Gulf of Alaska, would occur after the termination of the Shelikof Strait pollock joint venture. Since funds are limited, NMML researchers chose to conduct the earlier surveys. They also agree with John that the pup counts would be desirable



but are unable to offer any funds. Considering the importance of the issue, the Council may wish to fund the photo-census suggested by John. In our view, Don Calkins, ADF&G, is best qualified to conduct the surveys.

Sincerely yours,



William Aron  
Center Director

cc: F/M411 - R. Brumsted  
F/AKR - J. Brooks  
F/NWC3 - M. Tillman, T. Loughlin

mm Cores

# North Pacific Fishery Management Council

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



Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

605 West 4th Avenue  
Anchorage, Alaska 99510

Telephone: (907) 274-4563  
FTS 271-4064

February 9, 1983

Dr. William Aron  
Northwest & Alaska Fisheries Center  
2725 Montlake Blvd. East  
Seattle, Washington 98112

Dear Bill,

I'm enclosing a letter from John Burns in which he suggests a photo-census of sea lion pups on rookeries in the Gulf of Alaska. This is an outgrowth of my discussions with John about the incidental catch of sea lions in the spring joint venture fisheries in Shelikof Strait. Rich Marasco has all of the correspondence on this subject and is also a party to the discussions. He's working with Russ Nelson to analyze some of our observer data from that fishery for past years.

John's proposal merits serious consideration in my opinion, particularly since they do have good pre-joint venture baseline data. Rather than start it through the regular Council mill for programmatic funding, I'd appreciate it if you would discuss it with your researchers to see if it fits in with any of their plans for 1984. I know that the Marine Mammal Division has been discussing and, as I understand it, is actively working on the Shelikof Strait sea lion catch this season.

I'd appreciate your thoughts.

Sincerely,

A handwritten signature in dark ink, appearing to be 'JMB', with a long horizontal flourish extending to the right.

Jim H. Branson  
Executive Director

Enclosure  
cc Rich Marasco  
John Burns

STATE OF ALASKA

BILL SHEFFIELD, GOVERNOR

DEPARTMENT OF FISH AND GAME

1300 COLLEGE ROAD  
FAIRBANKS, ALASKA 99701

FEB 7 1983

February 4, 1983

Jim H. Branson  
Executive Director  
North Pacific Fishery  
Management Council  
P.O. Box 3136 DT  
Anchorage, AK 99510

ACTION	ROUTE TO	INITIAL
	Exec. Dir.	3
	Deputy Dir.	Y
	Admin. Off.	
	Exec. Sec.	
	Staff Assn. 1	
	Staff Assn. 2	
	Staff Assn. 3	
	Customer	
	Spec. Bkfr.	
	Gen./Typist	

Dear Jim:

This relates to programmatic research proposals, a subject covered in your memo of 20 January. I suggest that the Council consider some sort of research which would provide updated information about the status (in 1984) of sea lions in the Gulf of Alaska.

In thinking about the matter, it seems to me that the fastest and most cost effective way of assessing status and change (if any) in sea lions would be to undertake a rigorous photo-census of pups on rookeries in the Gulf. The number of pups, in toto, are an indication of population size and their numerical occurrence on the different rookeries may indicate population shifts (geographic) or changes in population size. The last complete assessment of pup production in the Gulf was 1978-79. Those data are a good pre-joint ventures base.

The sea lion issue will remain one of bio-political importance and the Council would be well advised to stay on top of it.

It is inappropriate for me to recommend a proposer in view of the obvious potential for what may be construed as either a conflict of interest or unfair advocacy.

Sincerely,

*John J. Burns*

John J. Burns  
Marine Mammals Coordinator  
Division of Game  
(907) 452-1531

cc: Povolney

FEB 28 1983

AGENDA E-1  
MARCH 1983  
SSC Supplement  
DOI Attachment D

RS:  
NS  
G. AK.  
GILBERT  
EDGE ISLAND, WA.  
HUNTER  
WA. ONT.  
D MC LEOD  
PRINCE RUPERT, B.C.  
BERT W. SCHONING  
CORVALLIS, OR.  
PETER C. WALLIN  
PRINCE RUPERT, B.C.

# INTERNATIONAL PACIFIC HALIBUT COMMISSION

P.O. BOX 5009  
UNIVERSITY STATION  
SEATTLE, WA 98105

ESTABLISHED BY A CONVENTION BETWEEN CANADA  
AND THE UNITED STATES OF AMERICA

23 February 1983

INITIAL	ROUTE TO	TELEPHONE
J	Exec. Dir.	(206) 634-1838
	Deputy Dir.	
	Admin. Off.	
	Exec. Sec.	
	Staff Asst. 1	
	Staff Asst. 2	
	Staff Asst. 3	
	Economist	
	Sec./Bkkr.	
	Sec./Typist	

Mr. Clem Tillion, Chairman  
North Pacific Fishery Management Council  
P.O. Box 3136DT  
Anchorage, Alaska 99510

Dear Mr. *Clem* Tillion:

The International Pacific Halibut Commission has recently concluded its 59th annual meeting and would like to highlight for the Council several issues of common concern which arose during the meeting.

The Commission has recommended to the governments of Canada and the U.S. a set of regulatory proposals for the 1983 halibut fishery. Those proposals contain regulations pertaining to the North Pacific Halibut Act of 1982. The Commission believes the recommendations for the Bering Sea fishery will enable the Council to carry out its mandate to provide the opportunity for the rural coastal villages to develop a halibut fishery.

The staff presented estimates of the incidental catch of halibut by foreign and domestic vessels fishing in U.S. waters for other species. This loss to the directed setline fishery is roughly 20 million pounds annually. The Commission wishes to compliment the Council on previous actions to reduce the incidental catch but urges the Council to continue to develop methods for further reduction of this large loss to the fishing industry.

The Commission was informed about a new fiberglass insert for king crab pots which was designed to increase the retention of crabs entering the pots. The staff believes this modification will reduce the incidental catch of halibut as well. We have contacted the Alaska Department of Fish and Game to investigate the feasibility of testing this modification in conjunction with the ADF&G annual crab survey. Would the Council also be interested in cooperating with the Commission on testing this pot modification? At a later time we hope to be in a position to make a specific proposal for joint participation.

We wish to thank the Council for its support and cooperation and extend a special thanks to you and Jim Branson for your help at the annual meeting.

Sincerely yours,

*Bob*  
Robert W. McVey  
Chairman



# North Pacific Fishery Management Council

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



Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

605 West 4th Avenue  
Anchorage, Alaska 99510  
February 28, 1983

Telephone: (907) 274-4563  
FTS 271-4064

Robert W. McVey, Chairman  
International Pacific Halibut Commission  
P.O. Box 5009 University Station  
Seattle, Washington 98105

Dear Bob:

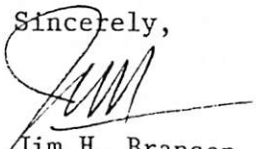
I will include your letter to Clem (re: the 59th IPHC meeting and other matters) in the next Council mailing and ask the SSC to consider the proposal for fiberglass inserts in king crab pots.

The Council is continuing its efforts to reduce the incidental catch of halibut by other forms of gear. We are starting the amendment process for the Gulf groundfish fishery along the same lines we used for the Bering Sea amendment. It's apparent that, if the set line fishery is to attain any substantial increases in catch, it will have to be done by reducing the incidental catch in the trawl and other fisheries. Overall, the catch is probably currently near a sustainable OY. The Council, of course, remains aware of this problem and is as concerned about it as the Commission and the industry. I think we all recognize that the real problem will come when the groundfish fishery is all, or predominantly, U.S. I hope we will have a viable solution when that problem does arise.

I'm still uncomfortable about putting too much effort or emphasis on modifying crab pots until we have a substantive data base on the incidental catch by crab pots. It's apparent from the sketchy data available that the catch varies by area and by time. In order to make any substantial changes in crab gear or fishing methods we're going to need a solid base from which to argue.

My thanks to the Commission for allowing me to attend and participate. The work of the Council and the Commission must be closely coordinated if we are to resolve the many problems involved in the halibut fishery and its relationship to other fisheries managed by the Council and the continued dialogue at both Council and Commission meetings between representatives of both groups has served that purpose well. I'm glad the Fishermen's Conference Board was able to work out some common ground to resolve the Council's mandate to provide an opportunity for the rural coastal villages of Western Alaska to develop a halibut fishery. I'm always much more comfortable with solutions brought to us as a concensus by the fishing industry.

Sincerely,

  
Jim H. Branson  
Executive Director

37D/X



University of Alaska  
Statewide System of Higher Education

AGENDA E-1  
MARCH 1983  
SSC Supplement  
Attachment E

MAR 14 1983

ALASKA SEA GRANT COLLEGE PROGRAM

3 Bunnell, 303 Tanana  
Fairbanks, Alaska 99701

March 9, 1983

ACTION	ROUTE TO	INITIAL
	Exec. Dir.	J
	Deputy Dir.	
	Admin. Off.	
	Exec. Sec.	
	Staff Asst. 1	
	Staff Asst. 2	
	Staff Asst. 3	
	Economist	
	Sec./Dkk.	
	Sec./Typist	

Mr. Jim H. Branson  
Executive Director  
North Pacific Fishery Management Council  
P.O. Box 3136DT  
Anchorage, Alaska 99510

Dear Jim:

Thank you for your letter of March 1 regarding a symposium on king crab which had initially been suggested by a university researcher.

We've discussed your suggestion for a conference on limited entry and concur that the time is right for such a conference. We have made a few inquiries and learned that FAO in Rome is into the first year of a two-year series of workshops on limited entry. When we hear more about this we can better determine what our course of action should be.

On the other hand, in keeping with the type of symposia we have assigned to the Lowell Wakefield series, we would appreciate having the SSC recommend species of fishes on which the biological and management information produced by the symposia would be most useful.

We have no problems with holding two meetings in the series in the same year, one being biological and the other on limited entry.

I look forward to an early response from the SSC and will keep you informed of information gained on the FAO project.

Yours truly,

*Brenda*  
Brenda R. Melteff  
Coordinator

BRM:ajt

# North Pacific Fishery Management Council

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



Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

605 West 4th Avenue  
Anchorage, Alaska 99510

Telephone: (907) 274-4563  
FTS 271-4064

March 1, 1983

Brenda R. Melteff, Coordinator  
Alaska Sea Grant College Program  
3 Bunnell, 303 Tanana  
Fairbanks, Alaska 99701

Dear Brenda:

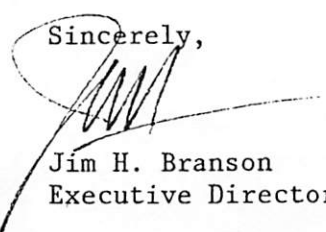
We've reviewed the request in your letter of February 22 for Council co-sponsorship of an international symposium on king crab. At first blush, we really can't see much advantage in such a symposium. By no means do I intend to disparage the symposiums you have so ably coordinated. By and large, I think they have been very productive and we've received full value for the money we've put into them. My comments apply only to the subject matter of the one you propose; i.e., king crab.

Since king crab are strictly a Pacific resource, now pretty much divided between the United States and the Soviet Union, there are not nearly as many actors as there are in, for instance, Tanner crab and rockfish. The people involved with king crab research and management are generally in almost constant touch with each other already. That includes the scientists of Japan and The United States and, to a lesser extent, those of the Soviet Union and The United States. While INPFC activity in king crab is declining, and in fact may be over, less formal contact will probably suffice for the foreseeable future.

Certainly we should have a Lowell Wakefield fishery symposia next spring, but I think we should cast about for a more appropriate subject (although king crab is quite appropriate for a "Lowell Wakefield" symposium, at least historically). I hate to mention it, but limited entry seems to be quite a popular subject nowadays. It's been five years since any formal symposium has been held on the subject.

My mind's not completely made up. If Don wants this run through the SSC review procedure, I'll be glad to do it.

Sincerely,



Jim H. Branson  
Executive Director

37D/Z



# North Pacific Fishery Management Council

AGENDA E-1  
MARCH 1983  
SSC Supplement  
Attachment F

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



Mailing Address: P.O. Box 3136DT  
Anchorage, Alaska 99510

Telephone: (907) 274-4563  
FTS 271-4064

605 West 4th Avenue  
Anchorage, Alaska 99510

February 17, 1983

Mr. Phil Rigby  
Alaska Department of Fish and Game  
P.O. Box 3-200  
Juneau, Alaska 99802

Dear Phil:

We forwarded your proposal for \$30,000 to interview joint venture fishermen to NMFS on February 4, 1983. The budget narrative (see attached) submitted with the request now needs to be expanded into a more detailed proposal for an eventual sole source contract with Alaska Department of Fish and Game.

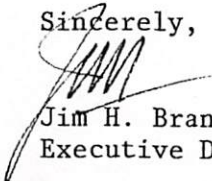
In particular, we are interested in the form and substance of the interview which will serve several main purposes:

- 1) to verify logbook data, enter missing data, correct illegible entries;
- 2) to collect qualitative trip information that could be footnoted to the data report;
- 3) to personalize logbook program to encourage its support; and
- 4) to determine what problems fishermen have with the logbooks and how to improve on them for 1984.

To ensure that these points and any others you feel are necessary are covered in each interview, perhaps there should be a standard format used by each interviewer, maybe even going so far as to have an interview sheet filled out. The sheet could have a set of questions with space provided for comments, plus the fisherman's name and vessel, date, port, and interviewer's name. It could be stapled to the logbook page sent to PacFIN.

Please think about this and submit an expanded proposal and draft interview format for the Council's review in late March. Also be aware that although the \$30,000 has been requested, there is no guarantee on the funding. It will probably take another two months before we know if we have the money. Let's hope we're successful.

Sincerely,

  
Jim H. Branson  
Executive Director

Enclosure

37D/O

North Pacific Fishery Management Council  
Programmatic Budget Narrative  
FY 1983

Joint Venture Trawl Logbook Program

I. Objective and Need

The North Pacific Fishery Management Council has developed and must maintain fishery management plans for the groundfish fisheries in the Gulf of Alaska and the Bering Sea/Aleutian Island areas. Although groundfish research has been conducted historically in these areas, very little information is available on the developing domestic groundfish fishery. Much of the growth in the domestic fishery has come about through joint ventures with foreign processors from South Korea, West Germany, Japan, the USSR and Poland. Joint ventures increased from a groundfish catch of 1,507 mt in 1979, to 33,425 mt in 1980, to 95,501 mt in 1981, to 179,503 mt in 1982. Joint venture requests for 1983 total 335,960 mt using over 50 U.S. trawlers. This explosive growth needs to be monitored through collection of catch and effort data which can be used to measure changes in relative fish stock abundance and thus provide needed management information. These critical data will be collected using fishermen's logbooks which will also provide the fishermen with a standardized record of their own groundfish catches.

These logbooks have been developed by groundfish scientists and industry representatives along the Pacific Coast and will be distributed to the joint venture fleet. At various times during the year, the fishermen will submit by mail or hand carry the completed logbooks to the Pacific Marine Fisheries Commission's Pacific Fisheries Information Network representative at the National Marine Fisheries Service's Northwest and Alaska Fisheries Center in Seattle. The logbook information will be processed and integrated with best-blend data gathered from observers on the foreign processors. The logbook program is completely voluntary. An important step in this program is verification of the data entered in the logbook. This project will accomplish that step through dockside interviews with vessel skippers.

II. Statement of Work

Dockside interviewers will be provided in Kodiak and Unalaska/Akutan to review the logs submitted and edit them with the assistance of the skipper to guarantee accurate submissions. The interviewer will also note skippers'

comments on the fishery and on the logbook format. These notes can be communicated in a monthly or quarterly letter or report. This project will basically support year-round coverage for six man-months of biologist time, plus expenses.

### III. Possible Contractor

Alaska Department of Fish and Game has the expertise and facilities to efficiently perform this project.

### IV. Project Duration and Budget

One year; \$30,000 requested as itemized below:

	<u>Item</u>	<u>Cost</u>
Personnel	Fisheries Biologist I, salary plus benefits (6 mm)	\$19,500
Travel	Kodiak/Dutch Harbor (3), Dutch Harbor/Akutan (6)	4,400
Contractual	Communications, copying, mail, etc.	1,200
Commodities	Rm. and Board @ \$25/day x 180, sampling materials \$400	4,900
	TOTAL	<u>\$30,000</u>