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COMMITTEE REPORT
SENATE

3/23/82

FURTHER: None

Date: 4/22/82

Mr. President:

The Committee on RESOURCES has had SB 872

sanitation, sanitary practices, and quality assurance in the seafood processing industry

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

- do pass do not pass
- do pass with attached amendments(s) same title
- replace with CS for SB 872 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

[Signature]

[Signature]

[Signature]

MEMBERS HAVING
OTHER RECOMMENDATIONS:

CHAIRMAN



MAR 12 1982

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

March 11, 1982

The Honorable Bettye Fahrenkamp
Senator
Alaska State Legislature
Pouch V
Juneau, AK 99811

Dear Senator Fahrenkamp:

The recent embargoes and recalls of Alaska canned salmon in both foreign and domestic markets are expected to cause substantial economic loss to many Alaskan seafood processors. The high cost of the recall and an anticipated lowering in consumer demand and retail price, coupled with this summer's predicted record salmon runs, leave some seafood processors facing economic disaster. This will ripple through our fishermen, cannery workers, small businessmen, and Alaska communities, which are all dependent upon a healthy seafood processing industry for their survival.

Several weeks ago, I appointed a working group of representatives of my Cabinet, the seafood processing industry, fishermen and cannery workers, and the Alaska Seafood Marketing Institute. I am pleased to provide a copy of the working group's report and recommendations for action to offset any adverse effect of this incident. Of particular importance are actions which can be taken immediately by the Alaska Legislature:

Improved standards for operation and inspection of seafood processors to help preclude recurrence of an incident of this type. The Department of Environmental Conservation is developing proposals for improvements in its seafood sanitation provisions. This will require new legislation.

A substantial new marketing effort is needed to reverse the loss of consumer confidence in Alaska canned salmon. The Alaska Seafood Marketing Institute is developing a

The Honorable
Bettye Fahrenkamp

-2-

March 11, 1982

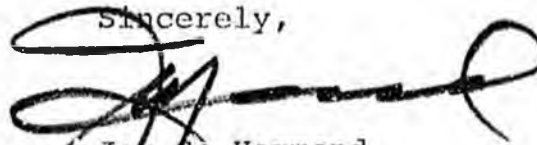
proposal for an international effort to convince markets and consumers that Alaska canned salmon is a healthful, safe source of high quality protein. The Institute will have a detailed proposal to present to me next week.

Research is needed to determine potential points and sources of contamination of canned salmon, to determine means of detecting can integrity failure, and plan processing changes that may be needed to help prevent can damage. Funding for the Department of Environmental Conservation to conduct this research would be appropriate. A detailed proposal will be forthcoming.

Amendments to the existing fishpack loan programs are needed so that the financial requirements of this summer's harvest are met, and the costs of the recall and embargoes can be borne by Alaskan processors. Many of these changes were in the original Senate Bill 140 introduced last year, which was substantially modified by the Legislature before it was finally passed. I also propose to convert this program from a direct loan to a loan guarantee program, to allow leveraging of additional funds from the private financial market. In addition, the repayment term needs to be extended from the existing one-year limitation. The Department of Law is working on these amendments, and they will be available shortly.

The working group is available to meet with the appropriate legislative committees to discuss these proposals in detail. I urge the Legislature to take rapid action to avert serious problems with the upcoming salmon season.

Sincerely,



Jay S. Hammond
Governor

cc: The Honorable Jalmar M. Kerttula
The Honorable Joe L. Hayes
The Honorable Richard W. Halford

Enclosure

MEMORANDUM

State of Alaska

TO: The Honorable Jay S. Hammond
Governor

DATE: March 10, 1982

FILE NO:

TELEPHONE NO:

FROM: Ernst W. Mueller
Commissioner
Department of Environmental
Conservation

SUBJECT: Report of Working
Group on the Canned
Salmon Botulism
Incident

Attached is a report of findings and recommendations of the canned salmon botulism incident working group you formed several weeks ago. The report discusses most of the options the State could reasonably consider in its efforts to help the seafood product industry in general, and the canned salmon industry in particular, through a period of substantial economic loss.

At this point in time, the extent of that loss cannot be predicted with any degree of certainty. However, based on the experience of similar botulism contamination of canned seafood in the past, we can expect a precipitous drop in retail sales, a lack of confidence in the product by both consumer and retail marketer, and a concomitant reduction in retail price. If this is coupled by substantial costs of product recall and inspection work, the economic impact on a processing firm may be disastrous.

Because of the nature of the working group, the statements and recommendations in this report are not to be understood as representing the position of any one member, or, necessarily, even a consensus. They are my general synthesis of the discussion points the group felt would be most valuable in assisting the Alaska Seafood Products Industry recover from the economic consequences of this incident. I would certainly expect that many of the members of the group would have additional suggestions of their own, or the organizations they represent.

The most important and immediate action that can happen now would be for the Legislature to take up measures to provide additional funds to the Alaska Seafood Marketing Institute, and to provide new funding flexibility for the fishpack loan program. There are currently pending several bills that could be used to handle both these issues. Other matters probably require introduction of new bills, or new funding. In particular, new legislation would be needed to expand the State's participation in plant operation control, to relax requirements for raw fish tax, to provide new avenues of financial assistance to the industry to help pay the costs of the recall, or to help finance corrective measures.

Of course, the group's primary mission was to address the short-term ramifications of this issue. The State should, however, also look at its long-range fishery management policies to determine

The Honorable Jay S. Hammond

2

March 10, 1982

if changes can be made that would preclude recurrence of this type of incident. A great many Alaskans are dependent upon the seafood products industry for their life-style and livelihood. Any substantial adverse impact on the economics of the fish processing industry may cause loss of income to more than 50,000 Alaskans. It is certainly in the State's overall best interests that further incidents of disease caused by contaminated fish products be prevented from both the public health and economic standpoints.

Members of the working group and I would be pleased to discuss this report with you at your convenience.

Enclosure

RECOMMENDATIONS ON MEASURES THE STATE MIGHT ADOPT
TO MITIGATE IMPACTS OF THE ALASKA CANNED SALMON EMERGENCY

Prepared By
Governor's Working Group
on the Canned Salmon Emergency
March 8, 1982

The Alaska fishing industry faces substantial costs and loss of revenues as a result of the recent death in Belgium of a man who contracted botulism upon consuming salmon from a 7-3/4 oz can processed in the Ketchikan NEFCo-Fidalgo plant in July 1980. Because the can was found to have apparently been contaminated by introduction of botulina spores through a hole which was caused by the processing equipment in Ketchikan, that plant's entire 1980 and 1981 7-3/4 oz packs were recalled in the United States and many other countries. Additionally, all Alaska canned salmon in several European countries was embargoed. At present, the industry is temporarily withdrawing all 7-3/4 oz cans which were processed through the same type of canning equipment and which were not also examined for defects by electronic means. These cans will be subsequently tested and those without defects returned to the market. Depending upon the results of this testing, there may be further recalls of individual processing plants production.

Regardless of the eventual outcome of the present situation, the Alaska salmon canning industry will suffer significant financial loss from two sources--(a) the direct cost of compliance with the recall, the temporary withdrawal and examination of cans and bringing their production runs into compliance, and (b) lost revenues from the likely lowering of consumer demand for canned salmon and a subsequent retail price drop. Traditionally, this time of year is one in which the industry has the positive cash flow needed to finance the summer's pack. This flow is now reversed for many processors because they must pay for the return of the suspect cans, their examination, and ultimate return to the market place.

Governor Hammond established an informal working group to address potential impacts of this situation on the Alaska seafood industry and the State in general, and also to formulate and examine strategies to assist the industry in overcoming the potential loss. The working group members are:

Commissioner Ernie Mueller, Chairman

Commissioner Ron Skoog

Commissioner Charles Webber

Roger Painter, Executive Director, United Fishermen of Alaska

Eric Eckholm, Executive Director, Alaska Seafood
Marketing Institute

Rick Lauber, Representative, Pacific Seafood Processors
Association

Mike Whitehead, Special Assistant to Governor Hammond

Larry Cotter, Business Manager, International Longshoreman's
& Warehousemen's Union

It must be understood that at this point in time, the exact consequences of this incident cannot be predicted. The number of actual recalls, the number of cans involved, and the cost to the industry will not be known for several months. To some extent, there will be a cause and effect relationship between these factors. The interest of the industry in preparing for the 1982 salmon harvest will not be able to be determined with any degree of accuracy until early May at the earliest. An individual firm's reaction will be dependent upon its own management decisions, economic situation, and how directly it is affected. However, as a practical matter, we can assume that the loss to the industry will be great, and that the loss will be translated into a loss to fishermen, cannery workers, communities, small businesses and the many, many others whose life-style and livelihood depend, at least in part, on Alaska's seafood industry. Thus, any strategy which is developed by the State must attack the situation in a direct and expeditious manner, and also provide means, over the long term, to prevent recurrence of this incident.

After review of the material available to it, the working group has made the following observations and recommendations:

MARKETING

I. The State is conducting a comprehensive analysis of the 1982 Alaska seafood market. This project will be able to estimate the market impacts of the canned salmon incident, and the contractor for this ongoing project has been requested to redirect the study where necessary:

- Lead agency: Commerce and Economic Development
- Additional funds needed: None
- Preliminary report: April 1
- Final report: May 15
- Further work needed: None

II. Detailed analysis of the market implications will be needed, and detailed market demand statistics and price information will be essential for at least the next two years. The Alaska Seafood Marketing Institute is negotiating a contract to provide these services:

- ° Lead agency: ASMI
- ° Additional funds needed: \$100,000 (estimate)
- ° Contract negotiated: March 30
- ° Reports prepared: To be determined
- ° Further work needed: Secure appropriation

III. A substantial effort in advertising and marketing will be required to reverse any erosion in sales of canned salmon and other fisheries products that will result from reduced consumer confidence. ASMI is developing a detailed proposal based on the work of the Tuna Institute after a tuna-related botulism incident occurred in the early 1960s. No funding exists for such a project, however, HB 453, now in the House Rules Committee would, if amended, be able to provide funding to the Alaska Seafood Marketing Institute for this special project.

- ° Lead agency: ASMI
- ° Additional funds needed: To be determined
- ° Proposal available: March 15
- ° Further work needed: Legislature needs to amend and pass House Bill 453

IV. Opportunity exists for possible large volume institutional purchase of canned salmon by the U. S. Government for use in Defense Department, Bureau of Prisons, and other institutional feeding programs. The State may be able to encourage these purchases through the Alaska Congressional Delegation.

- ° Lead agency: ASMI
- ° Status: Ongoing

V. The European nation embargo on Alaska canned salmon and action by other nations must be removed before the industry can become viable. Now that the U. S. Food and Drug Administration has made its final position known, foreign nations should be encouraged to adopt it, rather than a more harsh alternative. The Alaska Congressional Delegation, the U. S. Department of Commerce, and the State Department all need to be contacted by the State.

- ° Lead agency: Governor's Office
- ° Further work to be done: Contact Congressional Delegation and U. S. Government agencies
- ° Time: As soon as possible

FINANCING

I. The State's current fish pack loan program could help assist the industry in meeting its financial needs for the 1982 harvest. Additionally, the program does hold a substantial amount in notes from the 1981 pack to processors who will suffer economic loss as a result of this incident. Funds in the fish pack loan fund will lapse at the end of June 1982, and no funds will be available for the 1982 pack unless the Legislature takes action. In addition, eligibility requirements for these loans must be amended by the Legislature so that loans can be extended to all those in need. Extending payment period of these loans beyond the current one year statutory limit is extremely important to improving the ability of this program to offer real help to the industry. More funds would be available if the current appropriation were restructured into a loan guarantee program which would leverage additional funds through the private financial market. HB 669, currently in the House Finance Committee, could be amended and passed to meet these needs. Specific statutory language will be available from the Pacific Seafood Processors Association late in the week of March 8.

- Lead agency: Commerce and Economic Development and PSPA
- Industry position available: March 10
- Further work needed: Amend and pass HB 669.

II. Present mechanisms exist to provide funds through State-sponsored programs to assist the industry in meeting this crisis. The Alaska Renewable Resources Corporation, the Commercial Fisheries and Agriculture Bank and the Alaska Industrial Development Authority need to be contacted to determine programs and resources available. The Department of Commerce and Economic Development has scheduled a meeting for Tuesday, March 9, among these programs.

- Lead agency: Commerce and Economic Development
- Date of Meeting: March 9
- Availability of recommendations: March 10

III. The Legislature may want to consider special forms of tax relief for those suffering loss as a result of this incident. The most appropriate tax vehicle may well be the Raw Fish Tax. Consideration could be made of forgiveness or deferral of part or all of the 1981 Raw Fish Tax payments of those who suffer loss, as well as suspension or deferral of the 1982 tax payments. Industry representatives will likely make such a proposal to the Legislature.

- Lead agency: Pacific Seafood Processors Association
- Proposal prepared: March 10
- Further action: Legislation submitted by appropriate Committee

QUALITY ASSURANCE AND PRODUCT SAFETY

I. Research needs to be performed to determine the extent of microbial contamination of cannery environs, possible points of contamination of canned salmon, improved means of preventing contamination, and means of rapidly and effectively detecting can integrity failure. The Pacific Seafood Processors Association is developing a detailed proposal in this area. If this program is supported, funds should be appropriated to the Department of Environmental Conservation, who would then contract with a qualified scientific research establishment.

- ° Lead agency: ADEC with PSDA
- ° Additional funds needed: \$500,000 (estimate)
- ° Proposal available: March 8
- ° Additional work needed: Seek legislative appropriation

II. The Alaska Seafood Marketing Institute has developed a draft model Seafood Quality Assurance Program as part of its mandated effort to improve quality control in the Seafood Processing Industry. This voluntary program will be undergoing wide review in the next few months, and will be in place on a test basis in the 1982 season. The plan would then be updated and made final for the 1982 season. This program would eventually cover all major Alaska seafood, not just canned salmon. ASMI is also looking into means to encourage or enforce voluntary compliance with these guidelines.

- ° Lead agency: ASMI
- ° Draft available: Now
- ° Preliminary implementation: 1982 season
- ° Final implementation: 1983 season

II. The State needs to expand its current program of surveillance over seafood processing in order to help ensure that incidents such as this one do not occur in the future, and to help assure the consumer that we have taken positive steps to increase the safety of the product. As far as the canned salmon industry goes, the currently developed Canned Salmon Control Plan system could be used as a vehicle for strengthening State requirements. If the State required that such a plan be prepared and approved before each processor begins his annual operations, the State could enforce use of the plan through its current inspection and enforcement program.

- ° Lead agency: ADEC
- ° Funds required: To be determined
- ° Further work to be done: Draft and introduce new legislation

1982 SEASON

I. The impact of the canned salmon/botulism incident will likely be felt the greatest in the 1982 fishing season. At this point, it is not possible to predict the impact on raw fish prices, cannery operating schedules, product marketing and pricing, and many other factors. It is important to analyze, on an ongoing basis, the capacity for processing fresh, frozen and canned salmon, the intent of the processing industry in using this capacity, actual plant utilization, and any shift from canned salmon to other forms. The Department of Fish and Game conducted an analysis of plant capacity in December 1981, this is not expected to change significantly.

Because of the competitive nature of some of this information, it is not likely that the State will be able to ascertain precisely what the processing industry will do during the 1982 season. Information available will probably be largely limited to monitoring ongoing operations and noting any changes from past practices. The ability of the State to respond to under-utilized fish processing capacity is limited. However, it may be possible to encourage use of foreign fish processing vessels, or air freighting raw fish to other processing areas. The most effective way to keep abreast of this evolving aspect is to rely on periodic reports of the Department of Fish and Game as the season progresses.

- Lead agency: ADF&G
- Progress reports: As needed

II. In the event that there is significant under-utilization of canning capacity, some fish processors may want to fly fish to freezer plants, or fly them fresh to market. Currently, there is no legal obstruction to air freighting fish directly from the point of catch to a plant or market outside of Alaska. Transporting fish by air intra-state does, however, fall under the jurisdiction of the Alaska Transportation Commission. In the past, the seafood industry has alleged that insufficient certificated carriers were available to transport the quantities of fish required, and the ATC was too inflexible to allow non-certificated carriers or to issue emergency certification that would assure transport of fish to available processors. At this point, it appears that the ATC has sufficient authority to provide sufficient carriers, and merely needs to be convinced of the need. This should be the responsibility of the processing industry in concert with appropriate air carriers. However, the working group should keep informed of developments so that it can take action necessary to assure that harvested fish are not delayed in transporting to available processing facilities.

- Lead agency: ATC
- Status: Ongoing

III. In the event that active capacity is not sufficient to process the 1982 harvest, it may be appropriate for foreign-owned processing vessels to provide the additional capacity needed. However, there are legal problems associated with the State controlling foreign processing vessel use in Alaska's waters. There is legislation pending before Congress that would allow a governor of the affected state to control foreign processor entry. It is suggested that the State take action necessary to encourage the passage of this legislation.

- ° Lead agency: Office of the Governor and
Department of Fish and Game
- ° Status: Ongoing



botulism file *Salmon Leg.*

UNITED FISHERMEN OF ALASKA

MAR 2 1982

MAILING ADDRESS & OFFICE
197 SOUTH FRANKLIN ST
JUNEAU, ALASKA 99801
907 586-2820

Rodger Painter
Executive Director

March 2, 1982

TO: Governor Jay Hammond
Commissioner Ernst Mueller
Senate President Jay Kerttula
Representative Rick Halford

FROM: Rodger Painter *Rodger Painter*

RE: Potential reaction by State of Alaska to botulism incident in canned salmon.

- (1) Approve multimillion dollar emergency appropriation to the Alaska Seafood Marketing Institute based upon development of special marketing and public relations campaign. The plan should include at least the following programs:
 - (a) Public relations effort designed to restore the confidence of distributors and retailers in Alaska canned salmon products;
 - (b) Promotion designed to move the estimated 3 million cases of salmon now sitting in warehouses and stimulate demand for 1982 pack; and
 - (c) Special promotions for opening up new sales outlets for frozen and fresh salmon in the United States and overseas.
- (2) Restructure salmon marketing study underway in Alaska Department of Commerce and Economic Development to focus on impacts of botulism incident, embargo and recalls on foreign and domestic markets for canned salmon. The potential to redirect 1982 salmon production into fresh and frozen markets should be explored in depth.
- (3) Create a mandatory, state-approved inspection program designed to prevent defective cans of Alaska salmon from reaching the consumer. Safety assessments of all salmon canning equipment in Alaska should be undertaken.
- (4) Alaska Department of Environmental Conservation and the Alaska Seafood Marketing Institute should explore the advisability of a state-approved and monitored quality inspection program by inplant quality assurance personnel.
- (5) Alaska Department of Fish and Game should update its assessment of the projected processing capacity of domestic seafood companies for canned and frozen salmon in 1982.
- (6) The Office of International Fisheries and External Affairs should focus on ensuring Alaska's 1982 salmon resources can be fully utilized. The goal should be to fill shortfalls in the domestic processing industry's ability to handle the anticipated salmon runs. Care should be taken to ensure that the use of foreign bottomed vessels as supplemental processing capacity does not pose significant threat to the established world markets for Alaska salmon.
- (7) Congressional delegation should be asked to actively pursue potential purchases of surplus canned salmon by the federal government for use by Armed Forces and other institutions.
- (8) The State of Alaska should consider a special tax relief program giving canning companies credits on Alaska's raw fish and corporate income taxes for the 1982 and 1983 tax years. The companies could be given credits for

- capital improvements to come into compliance with new canned salmon safety inspection programs and the costs involved in recalls of salmon packs.
- (9) The State of Alaska should reappropriate the \$20 million remaining in the 1981 pack loan guarantee fund to the revolving pack loan program. Additional funds should be diverted into the non-subsidized revolving pack loan program. Amendments should be made to the revolving loan fund to allow companies to carry over 1981 pack loans at a subsidized interest rate.
 - (10) The State of Alaska should consider appropriations to fund special research programs to study prevention of future incidents involving botulism in canned salmon, including development of new designs for cans and canning equipment.
 - (11) The Alaska Seafood Marketing Institute should continue with its effort to fashion voluntary quality assurance programs. ASMI should be directed to study the concept of a quality assurance seal to which all ASMI promotional efforts would be tied and other options designed to ensure industry compliance with voluntary quality programs.

****PLEASE NOTE****

THE ORIGINAL FILE CONTAINS AN OVERSIZED DOCUMENT THAT IS UNSUITABLE FOR FILMING. PLEASE REFER TO THE ALASKA STATE ARCHIVES TO VIEW THE ORIGINAL.

NEWSPAPER

"THE NETWORK

(ALASKA SEAFOOD MARKETING INSTITUTE)

No. 3 (NO DATE)

Alaska State Legislature

BETTYE FAHRENKAMP, CHAIRMAN
VIC FISCHER, VICE-CHAIRMAN
BRAD BRADLEY
DICK ELIASON
DON GILMAN
BOB MULCAHY
ARLISS STURGULEWSKI



POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Senate

Committee on Resources

TO: Bettye Fahrenkamp
Chairman

DATE: 9/28/82

FROM: Resa King
A. A.

RE: Seafood Quality
Assurance Coordinating
Meeting

I attended the Alaska Seafood Marketing Institute (ASMI) quality assurance coordinating meeting on Friday September 24th. A report of activities was presented by the following:

ASMI Reported that their television, radio and print material is completed for the national and international marketing efforts. They believe they will have a good measure of the success of the program by March 1983. ASMI has developed quality guidelines for fishing, tendering and processing operations. ASMI is in the very draft stages of working on the premium seal. And they are working on an educational and training program which they are coordinating with other agencies.

Department of Environmental Conservation Commissioner Mueller reported that they are starting some cross training of inspection personnel in Dutch Harbor in order for them to be able to inspect for sanitation, waste disposal and water purity.

Dr. Honsinger and George Hart, Division of Seafood and Animal Industries, reported that they have eleven full time employees for the seafood component. The 1984 budget, to be submitted, will have additional personnel and funds for more people in the field, laboratory and clerical. The quality assurance program has been assigned to Dick Phiefer to coordinate. Dick has just returned from California where he was briefed on that state's program. The Division is developing a manual, standards and identifying priority research needs.

National Marine Fisheries Service They are working on improved handling, enriched atmosphere transportation, storage and changes in fish due to various holding processes. Their voluntary inspection service is conducted through a cooperative agreement with the Department of Environmental Conservation which implements the program. A task group has been formed to develop a national quality improvement plan. This group is looking at ways to improve U. S. seafood products from the sea to the consumer. The group should have a draft work plan by the spring of 1983.

National Food Processors Association NFPA is a technical and scientific support group to the industry. Their Seattle lab has approximately 30 employees and 95-98% of their lab work is conducted on salmon. They audit cans sent to them from the canneries and off grocery store shelves. Their member canneries pre-inspect the tin flats for defects; visually inspect process every 20 minutes; are now using double dud detectors (top and bottom); cans that are rejected have to be logged and the reasons cited, and; send weekly summaries to NFPA. NFPA and the FDA are also checking on can integrity.

Commerce and Economic Development, Office of Commercial Fisheries Development reported on projects dealing with: use of ionized ice for holding fish; marketing trial of boneless and skinless canned salmon; conducted a study that showed that the resistance in the United Kingdom to purchasing Alaskan salmon was not so much with the individual consumer but with the wholesalers and distributors.

University of Alaska John Doyle reported that they had received \$170,000 for salmon quality education but due to a typical inside the University budget problem, nothing has happened with the program to date. Due to the high turnover of personnel in the canneries, Pacific Pearl has done a 25 minute cassette TV film to train plant workers, the basic theme is: keep it cold, keep it clean and keep it moving.

Dr. Lee of the Fisheries Industry Technical Center (which has been moved from the cooperative extension service) reported that they have scheduled 58 workshops on 14 topics ranging from technical, scientific, electronics to net mending. They do need a research facility but that will not be a bond issue until 1985. They are working on a salmon handlers handbook which should be completed soon.

Alaska Fisheries Development Foundation Reported that most of their work has been on white fish and under-utilized species. Their quality concerns are due to the very fragile nature of these species. They are working on handling guidelines for sable fish and a manual for the production of salt cod.

Alaska Seafood Marketing Institute

SEAFOOD QUALITY ASSURANCE PROGRAM COORDINATION MEETING

Friday, September 24, 1982
Gastineau Suite, Baranof Hotel
Juneau, Alaska

PROPOSED AGENDA

- 10:00 INTRODUCTORY COMMENTS
- 10:15 ALASKA SEAFOOD MARKETING INSTITUTE
Organizational Structure
Legislative Mandate
Summary of FY 82 Q.A. Program Activities
Plans for FY 83
Discussion
- 10:45 ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION *Ernie Dr.*
Organization *C. inst. stud*
Authority -- S.B. 872
Summary of FY 82 Activities
Plans for FY 83
Discussion
- 11:15 NATIONAL MARINE FISHERIES SERVICE *Carl.*
PSPA
- 11:45 NATIONAL FOOD PROCESSORS ASSOCIATION *Hartley Kruger*
- 12:15 Buffet Luncheon, Gastineau Suite
- 1:15 ALASKA DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT
Dick Reynolds & Kay
- 1:45 UNIVERSITY OF ALASKA
John Doyle + Dr. Lee
- 2:15 ALASKA FISHERIES DEVELOPMENT FOUNDATION
Sharon
- 2:45 OPEN DISCUSSION

MEMORANDUM

TO: Conference Participants

DATE: September 13, 1982

FROM: Janet Fries, Q.A. Coordinator
Alaska Seafood Marketing Institute

RE: Quality Assurance Program
Coordination Meeting

This is to remind you that the Alaska Seafood Marketing Institute is holding a Quality Assurance Program Coordination Meeting on Friday, September 24, 1982, in the Gastineau Suite of the Baranof Hotel, in Juneau. The meeting will begin at 10 a.m., will include a luncheon, and will continue until approximately 3 p.m.

The purpose of this meeting is to facilitate coordination among the many quality assurance research, education, and regulatory programs currently being developed and conducted by state, federal and industry groups, which affect the Alaska seafood industry.

Representatives from each of following organizations have been invited to attend: Alaska Dept. of Commerce and Economic Development, Alaska Dept. of Environmental Conservation, Alaska Fisheries Development Foundation, National Food Processors Association, National Marine Fisheries Service, Pacific Seafood Processors Association and the University of Alaska.

Each representative has been requested to prepare a brief presentation and short written memorandum describing the current structure and the past, current, and anticipated future q.a. programs and activities of his/her organization. After each presentation, there will be time for questions and discussion. When all presentations have been completed, there will be time to discuss new ideas and plan for coordination of FY 83 programs and activities.

I look forward to seeing you there.

Alaska Seafood Marketing Institute
526 Main Street
Juneau, Alaska 99801
(907) 586-2902



ALASKA SEAFOOD MARKETING INSTITUTE

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NELS ANDERSON, JR., DILLINGHAM

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Preliminary Draft

**Recommended
Salmon Quality Guidelines
for
Fishing, Tendering
and Processing Operations**



June 1982
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"Promoting Alaska's Finest Resource"

June 1, 1982

MEMORANDUM

TO: SALMON FISHERMEN, TENDER OPERATORS AND PROCESSORS

FROM: Eric Eckholm, Executive Director
Alaska Seafood Marketing Institute

RE: RECOMMENDED STATEWIDE QUALITY ASSURANCE GUIDELINES
FOR PACIFIC SALMON

The draft recommended salmon quality guidelines in this booklet were developed by the ASMI Quality Committee and distributed to fishermen and processors throughout the state for public comment this spring. Several comments were received and many are included in the Appendix. However, in an effort to obtain a broader response, the public comment period has been extended to September 1, 1982.

ASMI urges all salmon fishermen, tender operators and processors to use these guidelines, to the extent possible, during the 1982 salmon season, write any comments on the guidelines directly in this booklet, and send any comments to the ASMI office in Juneau at the end of the season.

Voluntary compliance with these recommended guidelines would go a long way toward achieving one of the major goals of the ASMI quality program, which is to ensure a consistent, high quality image for all Alaska seafood products in world markets. However, a voluntary quality assurance program will only be successful with full industry cooperation.

This booklet has been widely distributed and additional copies are available upon request.

PRELIMINARY DRAFT
Alaska Seafood Marketing Institute

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Phase 1: Fishing and tendering vessels and operations, processing facilities and operations, quality evaluation criteria and general product specifications.

Preface

These draft guidelines for Pacific salmon represent the foundation upon which the Alaska Seafood Marketing Institute (ASMI) intends to build a comprehensive quality assurance program for all Alaska seafood products.

Consumer surveys show that the approximately one billion pounds of Alaska seafoods produced and distributed annually have a high quality reputation. ASMI believes that it is important to continue its efforts to maintain and improve the quality of Alaska seafood products whereby all members of the seafood industry will benefit from the economic advantage of a consistent, high quality product image in the world marketplace.

Because of the complexities of harvesting, processing, transporting and distributing seafoods from remote points along Alaska's 34,000 miles of coastline and extensive inland river system, there is a need for industry education to assure the quality of seafoods produced in all areas of the state. These guidelines are an important part of that educational effort.

The ASMI quality assurance program is designed to unite the efforts of the seafood industry and government agencies into an effective partnership. ASMI believes that this cooperative effort, involving fishermen, processors, brokers, transporters, and state and federal officials, will be helpful in assuring the consistent high quality of all Alaska seafood products sold in national and international markets.

Notice to Users

These recommended guidelines and specifications for Pacific salmon were developed by the Alaska Seafood Marketing Institute (ASMI) to assist in producing high quality salmon products. They are intended to be used by fishermen, tender operators and processors as general guidelines. They are not intended to replace the advice of trained and experienced technologists regarding the construction, operation and maintenance of unique vessels, facilities and equipment or regarding operating procedures in unique geographic areas. These guidelines and specifications are also designed to facilitate complete understandings in commercial transactions and may be used for reference by public service agencies. They should not in any way be construed as replacing existing state or federal regulations.

ASMI recommends that these draft guidelines be implemented by all members of the industry beginning with the 1982 season.

It is recognized that certain guidelines may not apply to all fishing, tendering and processing, operations, vessels and facilities, in all regions of the state, due to variations in vessel construction, facility design, tides, air or water temperature, intrinsic quality of the fish, or other factors. In such cases, alternative guidelines will be adopted in order to assure high quality salmon production throughout the industry, statewide.

Nothing contained in these guidelines and specifications is intended to be or shall be construed to create or form the basis for any liability on the part of ASMI, or its officers, employees or agents, for any injury or damage resulting from the failure of the person who engages in operations or activities subject to the provisions of, or guided by, these guidelines and specifications to comply with its provisions, or by reason or in consequence of any act or omission in connection with the implementation or enforcement of these guidelines and specifications on the part of ASMI by its officers, employees or agents.

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Contents

	<u>Page</u>
Preface	1
Notice to Users	2
Contents	3
Section I. SCOPE	4
Section II. DEFINITIONS	5
Section III. GENERAL INFORMATION ABOUT SALMON QUALITY	7
Section IV. FISHING VESSELS AND OPERATIONS	8
A. Vessel Specifications	8
B. Recommended Operating Procedures for Fishermen	10
C. Chilling and Chill Storage During Fishing Operations	12
D. Freezing and Frozen Storage Aboard Fishing Vessels	13
E. Fishing Vessel Sanitation	14
Section V. TENDERING VESSELS AND OPERATIONS	15
A. Vessel Specifications	15
B. Recommended Operating Procedures Aboard Tenders	17
C. Chilling and Chill Storage Aboard Tenders	19
D. Tendering Vessel Sanitation	20
Section VI. SHORE-BASED AND FLOATING PROCESSING FACILITIES AND OPERATIONS	21
A. Facility and Equipment Specifications	21
B. Recommended Operating Procedures for All Shore-Based and Floating Processors	24
C. Recommended Operating Procedures for Freezing Plants	27
D. Fish Quality Evaluation Criteria	28
E. Processing Facility Sanitation	29
Section VII. GENERAL PRODUCT SPECIFICATIONS	30
Recommended References	31
Appendix - Comments Received to Date on the Draft Recommended Salmon Quality Guidelines	32

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Section I. SCOPE

- 1.1 These guidelines and specifications apply to all five species of Pacific salmon (*Oncorhynchus* sp.) that are harvested, transported or processed in Alaska and which may be offered for sale in any number of styles, including, but not limited to:
- (a) round
 - (b) eviscerated, head-on
 - (c) eviscerated, head-off
 - (d) heads, fins and tail removed
 - (e) steaks or portions
 - (f) split sides, backbone removed
 - (g) fillet, skin-on
 - (h) fillet, skin-off
 - (i) canned
- 1.2 These guidelines and specifications do not apply to minced salmon by-products, such as eggs, oil, fish meal and minced flesh, at this time. Guidelines will be developed for these products in the future.

Section II. DEFINITIONS

Belly burn is a condition of deterioration of the lining of the belly cavity evidenced by discoloration and/or exposure of the rib bones.

Chilled sea water (CSW) is a type of refrigeration system, sometimes called a "slush ice" system, which uses a mixture of sea water and ice for chilling and holding chilled fish. If compressed air is bubbled through the mixture of sea water and ice for circulation, it is called a "champagne" system.

Contamination means direct or indirect transmission of objectionable matter to the fish.

Cold storage facility is any facility, whether a shore-based establishment or on a vessel, in which fish is kept cold by the use of ice or mechanical refrigeration. A cool room is any facility where fish is held at a temperature of 40°F or below. A cold storage room is any facility where fish is held at a temperature of 0°F or below.

Dry vessels are fishing or tendering vessels which are not using ice, chilled sea water (CSW) or refrigerated sea water (RSW) systems to chill the fish.

"Extrinsic" quality is a term which refers to the condition of a fish due to factors which affect the fish during and after it is harvested. Extrinsic quality defects are caused by improper catching, handling, processing and storage procedures.

Fish refers to Pacific salmon everywhere it is used in these guidelines.

Hatch combing is the raised portion on the deck of a vessel which surrounds the hatch and is designed to prevent runoff from the deck from entering the fish hold.

"Intrinsic" quality is a term which refers to the inherent physical characteristics of a fish before it is harvested, including, but not limited to, species, size, sex, physiological condition, and presence of parasites or disease.

Minimum specification is a description of a design, material or product which is currently attainable and within which all seafood vessels and facilities should be in compliance.

Natural water is fresh water or salt water from a natural source which may meet State of Alaska drinking water requirement, but has not been approved for such use.

Nonpotable water is water from any source which does not meet State of Alaska drinking water standards.

Potable water is water which meets all State of Alaska drinking water regulations.

Preferred specification is a description of a design, material or product which is not necessarily attainable at the present time for all existing vessels and facilities, but should be met or exceeded in the design of all new, or alterations to existing, vessels and facilities.

Prepare means to kill, eviscerate, dress, clean, cut or divide round fish.

Process means to can, cure, freeze, cook or otherwise preserve fish, at any temperature.

Processing facility is defined as any facility, whether shore-based or aboard a vessel, where fish is either prepared or processed for human consumption.

Refrigerated sea water (RSW) is a type of refrigeration system which uses sea water that is cooled by mechanical refrigeration for chilling and holding fish.

Sanitize means to treat surfaces so that the number of microorganisms is substantially reduced.

Unwholesome fish are those of such poor quality that they are unfit for human consumption, as defined by U.S. Food and Drug Administration regulations.

Section III. GENERAL INFORMATION ABOUT FISH QUALITY

Although there are many aspects that must be considered when defining what is meant by "high quality" fish products, there are two major ones that fishermen, tender operators and processors should be concerned with as producers:

- (a) the "intrinsic" quality of the fish before it is harvested, and
- (b) the "extrinsic" quality of the fish as it is delivered to the tender, processor and, finally, the consumer.

The first aspect, the "intrinsic" quality of the fish, is determined by the physical condition of the fish at the time it is harvested, including species, size, sex, stage of maturity and other physiological characteristics. These characteristics are inherent to a particular fish, and the method of handling that fish will not significantly alter these characteristics.

The second aspect, the "extrinsic" quality of the fish, is determined entirely by the methods employed in the harvesting, handling, processing and storing of that fish. Proper handling procedures will result in fish of high extrinsic quality; improper handling methods will result in loss of extrinsic quality. Fish which are handled so poorly that they become "unwholesome" are unfit for human consumption.

These guidelines outline proper procedures for harvesting, tendering, processing and storing Pacific salmon which, if followed carefully, will result in products of consistently high extrinsic quality which are more desirable to consumers. The product specifications address both intrinsic and extrinsic quality characteristics, however, they are in no way intended to rate the intrinsic quality characteristics of the fish as more or less desirable to consumers.

4. Section IV. FISHING VESSELS AND OPERATIONS

4.1 A. VESSEL SPECIFICATIONS

4.1.1 General Information

4.1.1.1 All fishing vessels and gear should be designed for rapid and efficient handling of fish and ease of cleaning and sanitation, and should be so constructed, operated and maintained as to minimize physical damage, contamination or deterioration of fish.

4.1.1.2 All vessel operators should have valid gear and vessel and crew licenses issued by the State of Alaska.

4.1.2 Minimum Specifications

4.1.2.1 All vessels should have a suitable fish hold for storing the catch, whether it be below deck or on-deck. Plastic totes with drainage capability are acceptable for use as fish holds.

4.1.2.2 Fish holds should have watertight bulkheads designed to protect the fish from contaminants such as bilge water, fuel and lubricants.

4.1.2.3 Fish holds on dry vessels should have removable floor boards or some other method of construction to facilitate drainage from the hold.

4.1.2.4 Fish holds should have the necessary pumps and sumps with the capability to pump the hold dry.

4.1.2.5 Fish holds should be adequately insulated to control heat transfer from engine, crew's quarters or heated pipes to fish.

4.1.2.6 Fuel and hydraulic lines running through fish holds should be enclosed to protect the fish in case of line failure.

4.1.2.7 Vessels should have hatch-combings of sufficient height to prevent the flow of contaminants from the deck to the fish holds.⁴

4.1.2.8 Vessels should be equipped with sufficient hatch covers or suitable covering material to eliminate the exposure of fish to sunlight or airborne contaminants.

4.1.2.9 All lights in fish handling areas should be shatterproof or have protective covering such that if they are broken, product contamination will not occur.

⁴This is a preferred specification for existing vessels 32 ft. and under, but should be included in any new vessel design.

4.1.3

Preferred Specifications

- 4.1.3.1 Vessels should meet all minimum specifications stated in Section 4.1.2, and in addition:
- 4.1.3.2 There should be no exposed ribs or untreated wood on surfaces in the fish hold or in fish handling areas on deck. The hold lining should be smooth and watertight. A plywood sheeted hold, caulked with nontoxic seam compound and coated with a suitable paint or covering is acceptable. A fully approved hold would be completely insulated, and would have an impermeable lining with rounded corners and no obtrusions. Holds should be conducive to easy and complete cleaning to prevent build-up of bacteria.
- 4.1.3.3 Vessels should have watertight hatch covers or covering designed to protect fish from salt or fresh water intrusion.
- 4.1.3.4 On vessels with refrigeration systems, the systems should be in good operational condition and capable of chilling a full load of fish to a range of 30° to 35°F (-1° to 2°C) within a reasonable amount of time.
- 4.1.3.5 RSW vessels should limit their loads to a maximum of 45 lbs. of fish per cubic foot of hold space.
- 4.1.3.6 On vessels with freezing systems, the systems should be in good operational condition and capable of reducing the core temperatures of a full load of fish to 0°F (-18°C), or lower, within a reasonable amount of time.
- 4.1.3.7 Tanked vessels and freezer vessels should be equipped with recording thermometers which accurately measure and record the temperature of the hold, freezers or cold storage area. Vessels which do not have tanked holds should be equipped with bi-metal thermometers which accurately measure the internal temperature of the fish.
- 4.1.3.8 Vessels with below-deck holds should be equipped with chutes or other techniques or devices to convey fish into holds, after removal from net, with a minimum of damage to the fish.

4.2 B. RECOMMENDED OPERATING PROCEDURES FOR FISHERMEN*

4.2.1 General Guidelines for all Gear Types

- 4.2.1.1 Fish should be handled carefully at all times. This includes, but is not limited to:
Remove fish gently from gear.
Do not handle fish or remove from nets by the tail.
Do not throw, kick or step on fish.
Protect fish from damage in shaft alley or any other part of the vessel.
- 4.2.1.2 No pughs, forks, picks, hooks or pumps which damage the edible part of the fish should be used.
- 4.2.1.3 Fish should be protected from heat, sunlight, air-drying and inclement weather.
- 4.2.1.4 Fish should be protected from bilge water, gas, diesel oil, hydraulic oil, grease and other contaminants.
- 4.2.1.5 On vessels with below-deck holds, chutes or other techniques or devices should be used to convey fish into the hold in order to reduce handling and prevent damage often caused by throwing fish into the hold.
- 4.2.1.6 Fish held in bulk on vessels without tanked holds should be shelved at 90 cm (35 in.) intervals.
- 4.2.1.7 On tanked vessels, fish holds should be divided, as necessary, to prevent damage to fish due to the vessel's motion.
- 4.2.1.8 No pets should be permitted on vessels used for catching or transporting fish.
- 4.2.1.9 Live fish should be stunned in the water or as soon as they are brought on board.**
- 4.2.1.10 Feeding cohos and kings should be eviscerated and washed as soon as they are brought on board.
- 4.2.1.11 Round and eviscerated fish should not be intermingled in the hold area. A separate bin or on-deck totes should be used to store eviscerated fish on vessels carrying both round and eviscerated fish.

*Fishermen should also refer to recommended Fish Quality Evaluation Procedures aboard tenders on page 18.

**This is not feasible for seining operations.

- 4.2.1.12 Fish should be delivered to tenders or processing facilities as rapidly as possible. All fish should be chilled within twelve (12) hours from the time of capture.
- 4.2.1.13 Pumps and brailers used for unloading fish should be operated in a manner that minimizes physical damage to fish. The recommended maximum load per brailer is 200 fish or 800 lbs.
- 4.2.1.14 The holds, bin boards and decks should be thoroughly cleaned and sanitized in accordance with the Fishing Vessel Sanitation Procedures described in Section 4.5 of these Guidelines. The vessel should be cleaned after every delivery.

4.2.2 Additional Guidelines for Drift Gill Net Operations

- 4.2.2.1 Drift gill net sets should not be longer than two (2) hours.
- 4.2.2.2 Drift gill nets should not be wound onto reel until all fish have been picked from net.

4.2.3 Additional Guidelines for Set Gill Net Operations

- 4.2.3.1 Set gill net sets should not be longer than six (6) hours.
- 4.2.3.2 Set gill nets should not be dragged on the beach until all fish have been picked from net.
- 4.2.3.3 Burlap used to protect fish from exposure to sun and air should be washed in salt water after every use and should be replaced often.
- 4.2.3.4 Fish should be protected from fecal contamination by pets and other animals.
- 4.2.3.5 Fish should be thoroughly washed in salt or fresh water as soon as possible after catching and should be stored in clean containers until delivery to a tender or processor.

4.3 C. CHILLING AND CHILL STORAGE DURING FISHING OPERATIONS

4.3.1 General Guidelines for Round Fish

- 4.3.1.1 All fishermen should use ice or some other method of chilling the fish. Whatever method is used, fish should be chilled as soon as possible after catching.
- 4.3.1.2 If ice is used, the fish should be stored in a sufficient amount of finely divided ice to reduce and hold the temperature of the fish to a range of 32° to 35°F (0° to 2°C).
- 4.3.1.3 If a chilled (CSW) or refrigerated (RSW) sea water system is used, the fish should be maintained at 30° to 35°F (-1° to 2°C). All tanks should be prechilled to 30° to 32°F (-1° to 0°C) before loading fish.
- 4.3.1.4 All ice used for chilling fish should be made with clean water from an approved source and should not be contaminated during manufacturing, transportation or storage.
- 4.3.1.5 All sea water used in CSW and RSW systems should be as clean as potable water. It should be obtained from open waters, away from populated areas or fresh streams.
- 4.3.1.6 The internal temperatures of iced fish and/or the temperature of the hold on vessels with CSW or RSW systems should be monitored and logged at regular intervals, preferably every six (6) hours. Bi-metal thermometers should be used to measure the internal temperature of the fish. The thermometer should be carefully inserted in the anal vent of the fish until the reading stabilizes, or approximately one minute.

4.3.2 Additional Guidelines for Dressed (Eviscerated) Fish

- 4.3.2.1 Dressed fish should be iced in plastic tubs with drainage capability, boxes or small removable bins as soon as possible after evisceration.
- 4.3.2.2 Neither CSW nor RSW systems should be used for holding eviscerated fish.

4.4

D. FREEZING AND FROZEN STORAGE ABOARD
FISHING VESSELS

- 4.4.1 The core temperatures of several average size fish should be measured with a thermocouple at regular intervals during a trial run of a full load of fish, to determine the actual capacity of the freezers during operation at sea.
- 4.4.2 Fish should not be removed from freezers until the core temperature has been reduced:
(a) preferably, to 0°F (-18°C), or
(b) at least, to 5°F (-15°C) or lower.
- 4.4.3 The core temperatures of fish in storage should remain at 0°F (-18°C) or lower.
- 4.4.4 Fish should be frozen and held at a constant temperature with a minimum of fluctuation.
- 4.4.5 The temperature of freezers and storage areas should be monitored at regular intervals, preferably every six (6) hours.
- 4.4.6 Fish should be glazed as soon as possible after freezing to prevent dehydration and oxidation.

4.5

E. FISHING VESSEL SANITATION

4.5.1

General Informatio.

4.5.1.1 Fish stored in an insanitary fishing vessel hold will be contaminated with bacteria and will have a greatly reduced storage life. Fish slime and blood make excellent food for bacteria and should be removed as soon as possible after fish have been unloaded from the vessel.

4.5.1.2 All RSW systems should be designed with a cleaning loop to permit proper cleaning and sanitizing of the sea water piping and the heat exchangers.

4.5.2

Cleaning and Sanitation Procedures

4.5.2.1 The following steps should be followed when cleaning and sanitizing a fishing vessel:

- (a) Flush all fish contact surfaces with clean fresh water or clean sea water.
- (b) Scrub all fish contact surfaces with a brush, using a solution of detergent in warm water.
- (c) Rinse with cold fresh water or sea water.
- (d) Sanitize with a solution containing chlorine or iodine.
- (e) After 5 to 10 minutes, rinse off the sanitizing solution.

4.5.2.2 Wooden boats should not be steam cleaned. Fatty and proteinaceous materials (fish slime and gurry) can be forced into the wood, making the job of thorough cleaning almost impossible.

4.5.2.3 As soon as possible after fish have been removed from an RSW system, the sea water piping and the heat exchangers should be cleaned, sanitized and rinsed, using a caustic solution as the cleaner and an iodine as the sanitizer.

4.5.3

Detergents and Sanitizers

4.5.3.1 The cleaner used should be one suited to removal of fish gurry. Alkaline detergents are best for removal of fat and protein materials (fish slime and gurry). Most common household detergents are mixtures of alkaline phosphates and a wetting agent and are suitable for use on a fishing vessel.

4.5.3.2 A sanitizing agent containing either chlorine or iodine should be used to kill bacteria left after the vessels have been cleaned. Ordinary liquid chlorine bleach (5% hypochlorite) is suitable. It is very important that it be diluted in the ratio of one-half cup to 5 gallons of water. An iodine sanitizer can also be used; it is less corrosive to metal parts of the vessel, but costs about twice as much. Under no circumstances should sanitizers containing phenols (such as lysol and pinesol) be used in a fish hold or on fish handling surfaces.

5. Section V. TENDERING VESSELS AND OPERATIONS

5.1 A. VESSEL SPECIFICATIONS

5.1.1 General Information

5.1.1.1 All tendering vessels should be designed for rapid and efficient handling of fish and ease of cleaning and sanitation, and should be so constructed, operated and maintained as to minimize physical damage, contamination or deterioration of fish.

5.1.1.2 All tender operators should have valid vessel and crew licenses issued by the State of Alaska.

5.1.2 Minimum Specifications

5.1.2.1 All vessels should have a suitable fish hold for storing the catch, whether it be below deck or on-deck. Plastic totes with drainage capability are acceptable for use as fish holds.

5.1.2.2 Fish holds should have watertight bulkheads designed to protect the fish from contaminants such as bilge water, fuel and lubricants.

5.1.2.3 Fish holds on dry vessels should have removable floor boards or some other method of construction to facilitate drainage from the hold.

5.1.2.4 Fish holds should have the necessary pumps and sumps with the capability to pump the hold dry.

5.1.2.5 Fish holds should be adequately insulated to control heat transfer to fish from engine, crew's quarters or heated pipes.

5.1.2.6 Fuel and hydraulic lines running through fish holds should be enclosed to protect the fish in case of line failure.

5.1.2.7 Vessels should have hatch-combings of sufficient height to prevent the flow of contaminants from the deck to the fish holds.

5.1.2.8 Vessels should be equipped with sufficient hatch covers or suitable covering material to eliminate the exposure of fish to sunlight or airborne contaminants.

5.1.2.9 All lights in fish handling areas should be shatterproof or have protective covering such that if they are broken, product contamination will not occur.

5.1.3

Preferred Specifications

- 5.1.3.1 Vessels should meet all minimum specifications stated in Section 5.1.2, and in addition:
- 5.1.3.2 There should be no exposed ribs or untreated wood on surfaces in the fish hold or in fish handling areas on deck. The hold lining should be smooth and watertight. A plywood sheeted hold, caulked with nontoxic seam compound and coated with a suitable paint or covering is acceptable. A fully approved hold would be completely insulated and would have an impermeable lining with rounded corners and no obtrusions. Holds should be conducive to easy and complete cleaning to prevent build-up of bacteria.
- 5.1.3.3 Vessels should have watertight hatch covers or covering designed to protect fish from salt water or fresh water intrusion.
- 5.1.3.4 On vessels with refrigeration systems, the systems should be in good operational condition and capable of chilling full loads of fish to a range of 30° to 35°F (-1° to 2°C) within a reasonable amount of time. Circulation systems should be adequate to ensure even temperatures throughout the hold.
- 5.1.3.5 Tanked vessels should be equipped with recording thermometers which accurately measure and record the temperature of the hold. Vessels which do not have tanked holds should be equipped with bi-metal thermometers which accurately measure the internal temperature of the fish.
- 5.1.3.6 Vessels with below-deck holds should be equipped with chutes or other techniques or devices designed to convey fish into holds, after removal from net, with a minimum of damage to the fish.

5.2 B. RECOMMENDED OPERATING PROCEDURES ABOARD TENDERS

5.2.1 General Guidelines

- 5.2.1.1 Fish should be handled carefully at all times. This includes, but is not limited to:
Do not handle fish by the tail.
Do not throw, kick or step on fish.
Protect fish from damage in shaft alley or any other part of the vessel.
- 5.2.1.2 No pugs, forks, picks, hooks or pumps which damage the fish should be used.
- 5.2.1.3 Fish should be protected from heat, sunlight, air-drying and inclement weather.
- 5.2.1.4 Fish should be protected from bilge water, gas, diesel oil, hydraulic oil, grease and other contaminants.
- 5.2.1.5 On vessels with below-deck holds, chutes or other techniques or devices should be used to convey fish into the hold in order to reduce handling and prevent damage often caused by throwing fish into the hold.
- 5.2.1.6 Fish held in bulk on vessels without tanked holds should be shelved at 90 cm (35 in.) intervals.
- 5.2.1.7 On tanked vessels, fish holds should be divided, as necessary, to prevent damage to fish due to the vessel's motion.
- 5.2.1.8 No pets should be permitted on vessels used for transporting fish.
- 5.2.1.9 Round and eviscerated fish should not be intermingled in a hold area. A separate bin or on-deck totes should be used to store eviscerated fish on vessels carrying both round and eviscerated fish.
- 5.2.1.10 Fish should be delivered to processing facilities as rapidly as possible. All fish should be chilled within twelve (12) hours from the time of capture.
- 5.2.1.11 Pumps and brallers used for unloading fish should be operated in a manner that minimizes physical damage to fish. The recommended maximum load per braller is 200 fish or 800 lbs.
- 5.2.1.12 The holds, bin boards and decks should be thoroughly cleaned and sanitized in accordance with the Tendering Vessel Sanitation Procedures described in Section 5.5 of these Guidelines. The vessel should be cleaned after every delivery.

5.2.2

Fish Quality Evaluation Procedures

- 5.2.2.1 Both the intrinsic and extrinsic quality of all fish should be evaluated "as received," whenever fish is transferred
- (a) from a fishing vessel or set net site to a tender or other vehicle used for transporting fish, or
 - (b) from a tender to another tender or motor vehicle used for transporting fish.
- 5.2.2.2 A written evaluation of fish quality should be made, and the record of the evaluation should be delivered to appropriate personnel at the processing facility. The written evaluation should include, but need not be limited to
- (a) correct species identification,
 - (b) external appearance of eyes, gills, scales, skin and general condition of the entire load,
 - (c) odor,
 - (d) internal fish temperature, and
 - (e) sexual maturity.
- If fish quality appears questionable, evaluation should include internal appearance of viscera, kidney and belly walls.
- 5.2.2.3 Any known deterioration of quality caused by refrigeration system failure, adverse weather conditions, contamination by bilge water, fuel, lubricants, phenols (lysol) or other contaminants, or any other adverse conditions, should be included in the written evaluation.
- 5.2.2.4 The date and time of the catch on each vessel should be determined by examining fish, logs and checking date and time of last delivery, before fish are transferred to the tender and fish tickets are issued. The catch date and time should be noted on the written evaluation.
- 5.2.2.5 Fish suspected of being unwholesome or contaminated should be segregated from all other fish on the tender and should be identified in the written evaluation. High quality fish should not be mixed with fish of questionable quality.
- 5.2.2.6 Fish found during evaluation to be unwholesome or contaminated by bilge water, fuel, lubricants, phenols or other contaminants should not be accepted by tenders or processing facilities.
- 5.2.2.7 Fish exhibiting visible signs of wounds, seal bites, bruising, belly burn or other signs of intrinsic or extrinsic loss of quality should be segregated.

5.3

C. CHILLING AND CHILL STORAGE
ABOARD TENDERS

5.3.1

General Guidelines for Round Fish

5.3.1.1

All tender operators should use ice or some other method of chilling the fish. Whatever method is used, fish should be chilled as soon as possible after loading on the tender.

5.3.1.2

If ice is used, the fish should be stored in a sufficient amount of finely divided ice to reduce and hold the temperature of the fish to a range of 32° to 35°F (0° to 2°C) within a reasonable amount of time.

5.3.1.3

If a chilled (CSW) or refrigerated (RSW) sea water system is used, the fish should be maintained at 30° to 35°F (-1° to 2°C). All tanks should be prechilled to 30° to 32°F (-1° to 0°C) before receiving fish.

5.3.1.4

All ice used for chilling fish should be made from clean water from an approved source and should not be contaminated during manufacturing, transportation or storage.

5.3.1.5

All sea water used in CSW and RSW systems should be as clean as potable water. It should be obtained from open waters, away from populated areas or fresh streams.

5.3.1.6

The internal temperatures of iced fish and/or the temperature of the hold on vessels with CSW or RSW systems should be monitored and logged at regular intervals, preferably every six (6) hours. Bi-metal thermometers should be used to measure the internal temperature of the fish. The thermometer should be carefully inserted in the anal vent of the fish until the reading stabilizes, or approximately one minute.

5.3.1.7

RSW tenders should limit their loads to a maximum of 45 lbs. of fish per cubic foot of hold space.

5.3.2

Additional Guidelines for Dressed (Eviscerated) Fish

5.3.2.1

Dressed fish should be stored in ice in impermeable tubs with drainage capability, boxes or small removable bins on the tender.

5.3.2.2

Neither CSW nor RSW systems should be used for holding eviscerated fish.

5.5

D. TENDERING VESSEL SANITATION

5.5.1

General Information

5.5.1.1 Fish stored in an insanitary tendering vessel hold will be contaminated with bacteria and will have a greatly reduced storage life. Fish slime and blood make excellent food for bacteria and should be removed as soon as possible after fish have been unloaded from the vessel.

5.5.1.2 All RSW systems should be designed with a cleaning loop to permit proper cleaning and sanitizing of the sea water piping and the heat exchangers.

5.5.2

Cleaning and Sanitation Procedures

5.5.2.1 The following steps should be followed when cleaning and sanitizing a tendering vessel:

- (a) Flush all fish contact surfaces with clean fresh water or clean sea water.
- (b) Scrub all fish contact surfaces with a brush, using a solution of detergent in warm water.
- (c) Rinse with cold fresh water or sea water.
- (d) Sanitize with a solution containing chlorine or iodine.
- (e) After 5 to 10 minutes, rinse off the sanitizing solution.

5.5.2.2 Wooden boats should not be steam cleaned. Fatty and proteinaceous materials can be forced into the wood, making the job of thorough cleaning almost impossible.

5.5.2.3 As soon as possible after fish have been removed from an RSW system, the sea water piping and the heat exchangers should be cleaned, sanitized and rinsed, using a caustic solution as the cleaner and an iodine as the sanitizer.

5.5.3

Detergents and Sanitizers

5.5.3.1 The cleaner used should be one suited to removal of fish gurry. Alkaline detergents are best for removal of fat and protein materials (fish slime and gurry). Most common household detergents are mixtures of alkaline phosphates and a wetting agent and are suitable for use on a fishing vessel.

5.5.3.2 A sanitizing agent containing either chlorine or iodine should be used to kill bacteria left after the vessel has been cleaned. Ordinary liquid chlorine bleach (5% hypochlorite) is suitable. It is very important that it be diluted in the ratio of one-half cup to 5 gallons of water. An iodine sanitizer can also be used. It is less corrosive to metal parts of the vessel, but costs about twice as much. Under no circumstances should sanitizers containing phenols (such as Ipsol and pinesol) be used in a fish hold or on fish handling surfaces.

Section VI. SHORE-BASED AND FLOATING PROCESSING FACILITIES AND OPERATIONS

6.1 A. FACILITY AND EQUIPMENT SPECIFICATIONS

6.1.1 General Information

- 6.1.1.1 All vessels, vehicles and equipment used in the transportation, unloading or processing of fish should be so constructed, operated and maintained as to minimize physical damage, contamination or deterioration of the fish.
- 6.1.1.2 No fish processing facility may operate in Alaska without a valid annual certificate and permit as required by the State of Alaska.
- 6.1.1.3 Many aspects of fish processing operations, including facility requirements, equipment and utensils, plumbing, sanitary facilities, water supply and ice, thermal processing and waste disposal are regulated by the Alaska Department of Environmental Conservation and the U.S. Food and Drug Administration.* The specifications and procedures outlined in this section are intended to be complementary to applicable state and federal regulations and should not in any way be construed as replacing or conflicting with such regulations.
- 6.1.1.4 All aspects of salmon canning in Alaska must meet the requirements of the current Canned Salmon Control Plan, a voluntary cooperative agreement between the canned salmon industry, the National Food Processors Association and the U.S. Food and Drug Administration.

6.1.2 General Specifications

- 6.1.2.1 The facility should be large enough to accommodate processing operations without interfering with proper sanitary practices. Floors, walls and ceilings should be constructed of materials that can be kept clean, sanitary and in good repair.
- 6.1.2.2 Each room should have sufficient natural or artificial lighting for the purpose for which it is to be used. Lighting should be adequate in all areas to permit visibility for cleaning and sanitary inspection operations.
- 6.1.2.3 All lights should be shatterproof or have protective covering such that if they are broken, product contamination will not occur.
- 6.1.2.4 Ventilation should be sufficient to prevent mold growth, objectionable odors or accumulation of excessive condensates.

*See citation in the Recommended References section of these Guidelines.

- 6.1.2.5 Toilets should be totally enclosed, well-lighted and ventilated to the outside. They should be adequately screened and equipped with self-closing doors. Facilities should be adequate, operational and in compliance with city and state codes.
- 6.1.2.6 Adequate handwashing facilities should be provided with soap, running water of suitable temperature and drying facilities. Directions should be posted which instruct employees to wash hands thoroughly before re-entering the processing area. Where practicable, portable hand dips containing a sanitizing solution should be used.
- 6.1.2.7 Equipment which comes in contact with butchered fish should be constructed of smooth, nontoxic, corrosion-resistant metal or other nonabsorbent material or should be covered by another material which is equally sanitary and does not contaminate the fish.
- 6.1.2.8 Where applicable, any grounds surrounding the plant that are under the control of the operator should be free from conditions incompatible with sanitary food manufacturing, processing, packing or holding operations. This may include but is not limited to litter, refuse, tall weeds or inadequately drained areas that could contribute to contamination of food products by providing a place for insects, rodents or microorganisms to generate.
- 6.1.2.9 All outside conveyors and flumes for transporting round fish should be protected so as to prevent fecal contamination by birds and other animals.
- 6.1.2.10 Outside holding bins and outside conveyors used to transport butchered fish should be protected so as to prevent fecal or other contamination by birds, insects and other animals or contamination by dust and dirt.
- 6.1.2.11 Cloth should not be used at water outlets or on sliming tables.

6.1.3 Water Supply Specifications

- 6.1.3.1 The natural water supply intake should be located with the intent of avoiding pollution from shore facilities, marine vessels or processing residuals.
- 6.1.3.2 There should be no cross-connections between potable and nonpotable water.

Example 1: A cross-connection can occur when the end of a potable water hose is placed below the surface level in a wash tank full of water.

Example 2: A cross-connection occurs when a potable water service pipe is directly connected to prime a non-potable water pump.

- 6.1.3.3 Natural water which comes in contact with the fish being processed should be effectively sanitized unless the water source is currently approved by a federal, state or local agency.
- 6.1.3.4 Natural water may be used for unloading, fluming or refrigerated holding of round fish (a) if it has been effectively sanitized, (b) if it has been approved by a federal, state or local agency, or (c) if the fish are rinsed with effectively sanitized water before they enter the facility.
- 6.1.3.5 Ice should be made from clean water from an approved source. It should be manufactured, handled, stored and used in a sanitary manner. It should not be reused.

6.2 B. RECOMMENDED OPERATING PROCEDURES FOR ALL SHORE-BASED AND FLOATING PROCESSORS

6.2.1 Employee Education

- 6.2.1.1 All processing workers should be instructed as to the need to handle fish with care at all times. This includes, but is not limited to:
- (a) handle fish gently,
 - (b) do not handle by the tail,
 - (c) do not throw, step on or in any way abuse the fish, and
 - (d) do not handle fish carelessly.

6.2.2 Unloading the Fish

- 6.2.2.1 All pumps, including the suction end, tubing and discharge end, should be designed and operated so as to avoid physical damage to the fish. All pumps should be cleaned and sanitized daily.
- 6.2.2.2 The recommended maximum load per brailer or tote is 200 fish or 800 lbs.
- 6.2.2.3 Elevator buckets and drive mechanisms should be designed and operated so as to avoid physical damage to the fish. They should be cleaned and sanitized after every delivery.
- 6.2.2.4 Discharge after transport by flumes and conveyor belts or handling on sorting tables should not result in fish being dropped more than 18 inches. This equipment should be cleaned and sanitized at least once a day.
- 6.2.2.5 Wagons, totes and bins should be designed and operated to facilitate drainage, and should be cleaned and sanitized at least once per day.

6.2.3 Fish Quality Evaluation Procedures - As Received at Processing Facility

- 6.2.3.1 Both the intrinsic and extrinsic quality of all fish should be evaluated as the fish is received at the processing plant.
- 6.2.3.2 Fish should be evaluated by experienced personnel who are familiar with regulatory agency requirements and company grade specifications.
- 6.2.3.3 Fish should be evaluated according to each company's individual grade standards using the general criteria stated in Paragraph 6.4.1.

- 6.2.3.4 Any fish which are unwholesome (i.e., do not meet minimum standards for human consumption as established by the U.S. Food and Drug Administration) should be discarded.
- 6.2.3.5 Fish of differing quality should be separated, identified and clearly labeled during all phases of processing operations.

6.2.4 General Guidelines for All Processing Operations

- 6.2.4.1 All fish should be kept iced and/or refrigerated before and during processing operations. If ice is used, the fish should be stored in a sufficient amount of finely divided ice to reduce and hold the temperature of the fish to a range of 32° to 35°F (0° to 2°C). If a chilled (CSW) or refrigerated (RSW) sea water system is used, the fish should be maintained at 30° to 35°F (-1° to 2°C). All tanks should be prechilled to 30° to 32°F (-1° to 0°C) before loading fish.
- 6.2.4.2 Raw salmon should be stored no higher than 35 inches (90 cm) deep in clean, well-maintained containers before and during processing operations.
- 6.2.4.3 Any salmon that accidentally fall on the floor should be picked up immediately by the head and nape and rinsed with potable water before further processing.
- 6.2.4.4 Only authorized persons should be allowed in processing areas.
- 6.2.4.5 Effective measures should be taken to exclude pests and pets from the processing areas and to protect against the contamination of fish in or on the premises by all animals, including but not limited to dogs, cats, birds, rodents and insects.
- 6.2.4.6 Cutting boards used at butchering or slining tables which are made of wood or other porous material should be sanitized daily and replaced or reconditioned annually (or more often if necessary) to remove gouged, splintered or otherwise worn surfaces.
- 6.2.4.7 All utensils and surfaces which come in contact with fish should be cleaned as frequently as is necessary to prevent contamination of the fish. Surfaces of equipment used in processing operations which do not come in contact with fish should be cleaned as frequently as necessary to minimize accumulation of dust, dirt, food particles and other debris.
- 6.2.4.8 Fresh fish should be washed, preferably with a low pressure water spray containing 1 ppm chlorine, externally, prior to evisceration, and internally, after evisceration.
- 6.2.4.9 Each facility should have a written cleaning program which includes the use of appropriate detergents and bactericides. The program should provide for intermediate clean up, sanitizing of equipment at the end of each processing day, and a washdown of

equipment each day prior to processing. Plant personnel should be familiarized with these procedures. Refer to Section 6.5 for a complete description of processing facility sanitation procedures.

6.2.5 Fish Quality Evaluation Procedures - During Processing Operations

- 6.2.5.1 Both the intrinsic and extrinsic quality of the fish should be evaluated on a routine basis during processing operations.
- 6.2.5.2 Fish should be evaluated by experienced personnel who are familiar with regulatory agency requirements and company grade specifications.
- 6.2.5.3 Fish should be evaluated according to each company's individual grade standards, using the criteria stated in Paragraph 6.4.2.1.
- 6.2.5.4 Any fish which are unwholesome (i.e., do not meet minimum standards for human consumption) should be discarded.
- 6.2.5.5 Fish of differing quality should be separated, identified and clearly labeled during all phases of processing operations.
- 6.2.5.6 Any unwholesome portions or defects should be removed at the time of the evaluation.

C. RECOMMENDED OPERATING PROCEDURES
FOR FREEZING PLANTS

6.3.1

Freezing Operations

- 6.3.1.1 Fish should be clean, correctly identified, gently laid straight on clean freezer trays or racks, and promptly sharp frozen.
- 6.3.1.2 Fish should not be removed from freezers until the core temperature has been reduced to 5°F (-15°C) or lower.
- 6.3.1.3 Fish should be gently removed from freezer trays or racks and immediately glazed or shrink-wrapped and/or packaged to prevent dehydration and oxidation.

6.3.2

Glazing Operations

- 6.3.2.1 Glaze water should be pre-chilled.
- 6.3.2.2 The fish should be completely submerged in glaze water.
- 6.3.2.3 Glaze water may contain approved additives and should be changed frequently to prevent microbial build-up.
- 6.3.2.4 The glaze should be renewed as necessary during cold storage at the facility.

6.3.3

Cold Storage Operations

- 6.3.3.1 Frozen fish should be stored at 0°F or lower, with minimal temperature fluctuations.
- 6.3.3.2 Sufficient space should be provided in cold storage rooms to allow adequate circulation of cool air above, below and around all containers.
- 6.3.3.3 While in control of the processor, owner or bonded warehouse, frozen fish glaze and/or packaging should be checked periodically and replaced as necessary.

6.4

D. FISH QUALITY EVALUATION CRITERIA

6.4.1

Quality Evaluation Criteria for Fresh Fish

6.4.1.1

All fresh fish should exhibit the following characteristics prior to and during processing operations:

- (a) Eyes should be bright, clear and normal in appearance.
- (b) Gills should be normal in appearance and should smell sea-fresh (practically odorless).
- (c) Skin should be shiny and wrinkles should not remain when fish is bent slightly.
- (d) Skin color should be characteristic of fresh fish that is typical of the species, stage of sexual maturity, district from which it was taken, and time of the year it was caught.
- (e) Viscera and eggs should be bright and firm and should smell sea-fresh (practically odorless).
- (f) Belly cavity should have no breaks due to tissue breakdown by enzymatic action.
- (g) Flesh should be resilient when subjected to finger pressure.
- (h) Flesh color should be characteristic of a fresh fish that is typical of the species, district from which it was taken and time of year it was caught.
- (i) Physical shape should be characteristic of the species at its stage of sexual maturity.
- (j) Scale adherence should be reasonably uniform and nearly complete.^a
- (k) Odor should be characteristic of fresh fish. There should be no odor indicating decomposition or contamination.

6.4.2

Quality Evaluation Criteria for Frozen Fish

(To be developed in 1983)

^aFish with substantial scale loss should be carefully examined, as this may be an indication of poor handling practices.

6.5

E. PROCESSING FACILITY SANITATION

6.5.1

General Information

6.5.1.1 A suitable periodic cleaning schedule should be established for each plant which will conform, where applicable, with state and federal regulations.

6.5.2

Detergents and Sanitizers*

6.5.2.1 A standard approved detergent should be used to clean fish contact surfaces.

6.5.2.2 A chlorinated alkaline detergent should be used where needed to clean away protein material (fish slime and blood) from fish contact surfaces.

6.5.2.3 Either gaseous chlorine or a hypochlorite compound can be used as a sanitizing agent (see Reference No. 9 for more details on the use of these forms of chlorine).

6.5.2.4 Under no circumstances should sanitizers containing phenols (such as lysol and pinesol) be used in a fish hold or on fish handling surfaces.

*All processors should use USDA approved detergents and sanitizers as listed in USDA Food Safety and Quality Service Miscellaneous Publication #1373, List of Chemical Compounds Authorized For Use Under USDA Inspection and Grading Programs.

Section VII. GENERAL PRODUCT SPECIFICATIONS

7.1 General Information

7.1.1 Any of the five species of Pacific salmon (Oncorhynchus sp.) harvested in Alaska may be offered for sale in any number of styles, including, but not limited to:

- (a) round
- (b) eviscerated, head-on
- (c) eviscerated, head-off
- (d) heads, fins and tail removed
- (e) steaks or portions
- (f) split sides, backbone removed
- (g) fillet, skin-on
- (h) fillet, skin-off
- (i) canned

7.1.2 Variations in method of processing, style of product and physiology or physical characteristics of the fish are all acceptable if identified and agreed upon by the Seller and the Buyer.

7.2 Nomenclature

(To be developed in 1983)

7.3 Product Specifications

(To be developed in 1983)

7.4 Defects Tables

(To be developed in 1983)

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Recommended References

State and Federal Regulations

1. Title 21 - Food and Drugs, Part 110, Current Good Manufacturing Practice (Sanitation) In the Manufacturing, Processing, Packing or Holding Human Food. U.S. Food and Drug Administration, effective May 26, 1969, recodified March 15, 1977.
2. Alaska Fish Inspection Regulations, State of Alaska, Department of Natural Resources, Division of Agriculture (1979).

General References

1. Net Caught Salmon - Handle with Care (John P. Doyle), Alaska Seas and Coasts, Volume 6, Number 3 (June 1978).
2. Chilled and Refrigerated Sea Water - Easier and Faster Cooling of Fish (Donald E. Kramer), Alaska Seas and Coasts, Volume 8, Number 4 (October-November 1980).
3. Onboard Freezing Systems: Some Options for the Small Vessel (Edward Kolbe), Oregon State University, Extension Marine Advisory Program, Publication SG 67 (July 1969).
4. Draft Code of Practice for Frozen Fish, 11R7, International Institute for Refrigeration (1969).
5. Operating Instructions for RSW Systems on B.C. Salmon Packers (S.W. Roach), Fisheries Research Board of Canada, Vancouver Laboratory (1973).
6. Recommended International Code of Practice for Fresh Fish, FAO/WHO Codex Alimentarius Commission (1976).
7. Code of Practice for Frozen Fish, CX/FFP 77/15 (FAO Fish. Circ. C145, Rev. 1).
8. Recommended International Standard for Canned Pacific Salmon, FAO/WHO Codex Alimentarius Commission (1969).
9. Fishplant Sanitation and Cleaning Procedures (John P. Doyle), University of Alaska, Marine Advisory Bulletin No. 1 (1970).
10. Cleaning and Sanitizing Agents for Seafood Processing Plants (Jong S. Lee), Oregon State University, Extension Marine Advisory Program, Publication SG 21 (1973).

APPENDIX
COMMENTS RECEIVED TO DATE ON THE DRAFT
RECOMMENDED SALMON QUALITY GUIDELINES

GENERAL COMMENTS

Industry comments received on the guidelines to date have been, in general, very supportive of ASMI's efforts to establish a statewide industry-lead quality assurance program for salmon. Individual responses have varied from those who feel the guidelines have established too high a standard that would be difficult for the industry to meet, to those who feel that the guidelines are not strict enough and that a mandatory program, perhaps with variable time allowances for certain regions and/or gear types to meet the guidelines, is the only way to accomplish the goals of the program. In addition to the specific comments that follow, many suggestions were made regarding the broader scope of implementing a statewide quality assurance program. While these comments are too numerous to list in this booklet, they have been recorded and are being considered by ASMI in future program development. More comments of a general nature are welcome in the extended comment period, which is open until September 1, 1982.

SPECIFIC COMMENTS

Notice to Users

Paragraph one - Delete the word "unique" in line 6 and line 7.

Section I. SCOPE

1.1 Should include smoked salmon.

Section II. DEFINITIONS

Belly burn - "lining of the belly cavity" should be changed to "belly wall."

Cold storage facility - (a) Insert "(-18°C)" after 0°F. (b) Note: Canadian definition is -15°F.

"Intrinsic" quality - Should read "is a term which refers to the inherent physical characteristics of a fish before and after is it harvested."

Natural water - Should read "is fresh water or salt water from a natural source which may meet State of Alaska bacteriological requirements for drinking water."

Unwholesome - Should read "as defined by U.S. Food and Drug Administration and Alaska Department of Environmental Conservation regulations."

Section III. GENERAL INFORMATION ABOUT FISH QUALITY

Paragraph two - This paragraph may be misleading in that it implies that handling and processing techniques need not be altered to take into consideration the intrinsic quality of the particular fish being processed. On the contrary, the intrinsic quality should be a major factor in determining how a fish is handled.

Paragraph three - Should read "the 'intrinsic' quality of fish of a given species," to avoid the potential confusion as stated for paragraph two, above.

4. Section IV. FISHING VESSELS AND OPERATIONS

4.1.1.1 Should read "should be constructed, operated and maintained as to minimize physical damage or deterioration and eliminate contamination of fish."

4.1.1.2 Should be deleted as it is irrelevant to quality assurance guidelines.

4.1.2.1 (a) Should read "Plastic totes with drainage capability where practical are acceptable".
(b) Might be difficult for skiff fisheries.

4.1.2.2 (a) Specific identification of contaminants should be deleted as unnecessary. At a minimum, "bilge water" should not be specified as a contaminant without further definition.
(b) Should read "Fish holds should have watertight bulkheads designed to eliminate contamination of the fish from bilge water, fuel, lubricants or other contaminants."

4.1.3.2 Sentence three should read "A wooden hold, caulked with nontoxic seam compound and coated with a suitable covering is acceptable" and should be moved to the Minimum Specifications section.

4.1.3.3 (a) Hatch covers are not feasible on many vessels 32' and under.
(b) Should be stated more clearly.

- 4.1.3.4 (a) Should read "to a range of 30° to 32°F (-1.1° to 0°C)," as storage of fish in the 32° to 35°F range will cause spoilage and excessive salt uptake.
(b) Should give an example of a "reasonable amount of time".
- 4.1.3.7 (a) The recommendation that vessels be able to "record" hold temperatures is unnecessary so long as it can be accurately measured. The recommendation that dry gillnet and purse seine vessels be equipped with a thermometer to measure fish temperatures is unnecessary.
(b) Type and cost of thermometer should be specified.
- 4.1.3.8 This guideline is too broadly stated and ignores the necessity of brailing fish into the hold of seine boats.
- 4.2.1.1 It is very difficult not to handle fish by the tail in high volume operations.
- 4.2.1.2 Delete "the edible part of".
- 4.2.1.4 (a) Should read "Fish must be protected", as this is an FDA regulation.
(b) Bilge water should not be classified as a contaminant.
- 4.2.1.5 See comment on 4.1.3.8.
- 4.2.1.6 This guideline ignores the existence of the Alaska purse seine fishery and is completely impractical and unnecessary.
- 4.2.1.9 (a) Not feasible for many high volume gillnet operations.
(b) Should apply to kings in all types of operations.
- 4.2.1.10 Not practical in many net fisheries.
- 4.2.1.12 (a) Should be restated to clarify.
(b) Not practical in most net fisheries in Alaska.
(c) Difficult for dry seiners in southeastern Alaska due to 15 hour openings.
(d) Difficult with existing vessels, facilities and ice making capacity.
(e) Twelve hours is too long a period for fish to be left unchilled. This should be reduced to two or four hours and made a mandatory requirement.
- 4.2.1.13 (a) Should read "200 fish or 800 lbs., whichever is less".
(b) Should not be recommended due to different drailer designs.
- 4.2.1.14 Would be difficult to comply at some remote buying stations.
- 4.2.2.2 Language should be clarified.
- 4.2.3.1 Should be amended to allow for bad weather in skiff fisheries, which would make picking nets dangerous.

- 4.2.3.3 (a) Burlap should be washed and sanitized.
(b) Should be deleted due to existing FDA regulations.
- 4.2.3.4 Should read "Fish must be protected" or deleted, as this is mandated by federal regulation.
- 4.2.3.5 Should not apply to fish picked while tide is in.
- 4.3.1.1 (a) Not practical in some fisheries at this time due to vessel design, lack of sufficient ice making capacity and distance of fishing grounds from ice supply.
(b) Not necessary with delivery times under six hours.
- 4.3.1.3 See comment on 4.1.3.4 (a).
- 4.3.1.4 Should read "All ice used for chilling fish must be made with potable water from an approved source".
- 4.3.1.5 Impractical; one could infer a guideline that each vessel carry testing equipment.
- 4.3.1.6 There is no reason to monitor and log the internal temperature of iced fish, and while water temperature in CSW and RSW systems should be monitored, logging should not be recommended. The type of thermometer should not be specified.
- 4.3.2.2 Should read "RWS systems should not be used for holding eviscerated fish. CSW systems are okay, provided fresh water or diluted sea water is used".
- 4.4.1 The manner of measuring core temperatures should not be specified.
- 4.5.3.2 Should include the statement "sanitizing agents should be used consistent with package labeling directions."

5. Section V. TENDERING VESSELS AND OPERATIONS

- 5.1.1.1 See comment on 4.1.1.1.
- 5.1.1.2 See comment on 4.1.1.2.
- 5.1.2.2 See comments on 4.1.2.2.
- 5.1.3.2 (a) See comments on 4.1.3.2.
(b) The term "fully equipped" should be deleted as it is unnecessary language and implies the existence of a body to issue approval. Full insulation may not always be necessary.
- 5.1.3.4 See comments on 4.1.3.4.

- 5.1.3.5 Unnecessary to record hold temperatures on tenders. Not useful to require "bi-metal" thermometer on dry tenders.
- 5.1.3.6 Too broadly stated and recommends unnecessary practices for handling fish in bulk from net fisheries.
- 5.2.1.4 See comments on 4.2.1.4.
- 5.2.1.5 See comments on 4.1.3.8.
- 5.2.1.6 (a) See comment on 4.2.1.6.
(b) Would be difficult for existing Bristol Bay tender fleet.
- 5.2.1.10 (a) Should read "Fish should be delivered to processing facilities as rapidly as possible. All fish should be chilled immediately after accepting fish onto the tender."
(b) The question of waiting lines at the tenders should be addressed here.
- 5.2.2 Entire section should be rewritten to take into account the practical aspect of handling fish in bulk in Alaska's net fisheries.
- 5.2.2.1 (a) A short checklist would be valuable if of a size that would fit in a card file.
(b) What should be done if a tender has six different grades?
- 5.2.2.2 (c) Checklists should be developed.
(d) A system should be developed for uniform implementation which specifies the number of fish to be checked in each lot and the method of evaluation.
- 5.2.2.4 Fairly accurate time estimates can be made and serve as a good indicator of quality.
- 5.3 (a) Entire section should be rewritten to take into account the extensive use of dry tenders in Alaska's net fisheries.
(b) The use of dry tenders should be eliminated in Alaska's salmon fisheries, as adequate CSW and RSW vessels are available for such use during salmon season.
- 5.3.1.2 Give an example of "reasonable amount of time."
- 5.3.1.3 See comment on 4.1.3.4.
- 5.3.1.4 See comment on 4.3.1.4.
- 5.3.2.2 See comment on 4.3.2.2.

6. Section VI. SHORE-BASED AND FLOATING PROCESSING FACILITIES AND OPERATIONS
- 6.1.1.1 See comment on 4.1.1.1.
- 6.1.1.2 See comment on 4.1.1.2.
- 6.1.2 Several items in this section are already mandated by federal and/or state regulations and should be distinguished from the voluntary guidelines by specific language (e.g., "must" should be used instead of "should").
- 6.1.2.11 Should be clarified.
- 6.2.2.2 See comments on 4.2.1.13.
- 6.2.3.4 Should read "must" be discarded.
- 6.2.3.5 Labeling of fish of different quality is impractical when handling fish in bulk.
- 6.2.4 (a) This section should be rewritten to take into account the handling of fish in bulk.
(b) This section should specify a maximum time for processing operations.
- 6.2.4.1 See comment on 4.1.3.4 (a).
- 6.2.4.6 Should specify nonporous surfaces only.
- 6.2.5 This section should be rewritten to take into account the handling of fish in bulk.
- 6.2.5.4 Should read "must be discarded in a sanitary manner."
- 6.3.3.1 Should be expanded to include cold storage transportation operations.
- 6.4.1.1 Subparagraph (f) should read "Belly wall".
7. Section VII. GENERAL PRODUCT SPECIFICATIONS
- 7.1.1 Should include smoked salmon.

Recommended References

Should include the Canned Salmon Control Plan.

DRAFT WORKPLAN FOR THE DEVELOPMENT OF AN
ADEC SEAFOOD INDUSTRY QUALITY ASSURANCE PROGRAM

August 20, 1982 DRAFT

A. BACKGROUND

Senate Bill 872 (chapter 57 SLA 1982) is part of the State of Alaska response to the botulism problem and recalls experienced by the canned salmon industry.

A. Program Effects of SB 872:

1. Expands seafood inspection responsibilities of the Department of Environmental Conservation, Division of Seafood and Animal Industries.
2. Provides research funds for seafood product surveillance.
3. Provides for "inspectional" and "premium quality" seals on Alaskan seafood products.
4. Requires the Commissioner of Environmental Conservation to provide to the legislature by January 30, 1983 a proposal for implementing and financing an inspection program to ensure the use of the "premium quality seal" on Alaskan produced seafoods.

B. Legal Authority:

The legal authority under which the seafood inspection program operates is found in Alaska Statutes (AS) 03.05.010 - 03.05.090.

Within these statutes, SB 872 amended AS 03.05.010(c), added section 03.05.025, 03.05.026 and 03.05.045 and amended 03.05.090.

This present workplan sets out a 4 month program for developing the quality assurance program proposal to be submitted to the Legislature by January 30, 1983.

B. OBJECTIVES

1. Development of a document outlining a quality assurance program for the Alaska seafood processing industry. This document will be presented to the Legislature by January 30, 1983 in fulfillment of Senate Bill 872 (chapter 57 SLA 1982).
2. Development of the necessary technical criteria and guidance for implementation of a quality assurance program. To include:
 - (a) Draft Quality Control Manual — FOR INDUSTRY
 - (b) Draft Facility and Operation Inspection Guidelines and Procedures — FOR DEC INSPECTIONS
 - (c) Draft Product Standards and Specifications — FOR "SEALS"
 - (d) Identification of Priority Research Needs — FOR DEC

*3/1/83
Canada
Mick...*

3. Identification of programmatic needs to fully implement a quality assurance program, to include:
 - (a) Funding and management requirements
 - (b) Logistical requirements
 - (c) Annual work programs
 - (d) Recommendations for changes to regulations and statutes

C. TASKS AND PRODUCTS

1. Evaluate Existing Quality Assurance Regulatory Programs and Alternatives

Purpose: The Alaska quality assurance program will benefit in its development from the previous experience of other states, agencies and industries.

Meetings will be scheduled with other states, agencies and industries to review existing regulatory and quality control programs. The attributes of each program and possible areas of mutual cooperation and assistance with an Alaska quality assurance program will be considered. Appropriate agencies in the State of Washington, Oregon, and California, as well as the Province of British Columbia will be contacted. The National Marine Fisheries Service and the U. S. Food and Drug Administration will also provide information on their quality assurance efforts.

Products: A brief report describing existing quality assurance programs and identifying possible links with an Alaskan quality assurance program.

Responsibility: Division of Seafood and Animal Industries
(Honsinger, Hart, Peifer)

Completion Date: September 30, 1982

2. Develop Recommendations for Major Elements of a DEC Quality Assurance Regulatory Program

Purpose: (a) Assure consideration of Alaskan specific conditions in the development of the Alaska quality assurance program in (3) below.

(b) Obtain preliminary departmental approval of major policy recommendations for input to draft program document

Review available current reports on the quality of Alaskan seafood. Recent publications by National Food Processors Association, Alaska Seafood Marketing Institute, and the Office of Commercial Fisheries Development (Norgaard, Inc.) are examples of reports which are available. Using this information, and the findings of task (1) above, propose the major points of an Alaskan regulatory quality

assurance program. Obtain preliminary approval of these recommendations from the Commissioner and the Director of Seafood and Animal Industries.

Products: A brief summary of major elements recommended for inclusion in the Alaska quality assurance program. Aspects such as facility inspection, product quality, and premium quality designation will be considered.

Responsibility: Division of Seafood and Animal Industries (Hart, Peifer)

Completion Date: Draft recommendations to Director - October 8, 1983
Director and Commissioner preliminary approval or response - October 15, 1983

3. Prepare Draft Quality Assurance Program Document

Purpose: (a) Provide for a unified Alaskan quality assurance program for approval by the legislature as mandated by S. B. 872 (chapter 57 SLA 1982).

(b) Provide the department with a plan for implementing the quality assurance program.

This task represents the major effort of the work plan program. The products of tasks (1) and (2) above and staff knowledge of existing Division of Seafood and Animal Industries programs will be utilized to:

(a) Develop a DEC Quality Assurance Program
and

(b) Identify the Necessary Programmatic Developments for Implementation of the Quality Assurance Program.

The elements to be considered under each of these subtasks are identified in Appendix A, Tentative Outline for Final Draft Program Document, Sections IV and V.

Products: Draft of Program Document. The Draft will include sections I, II, III, IV, and V identified in Appendix A.

Responsibility: (3a) Division of Seafood and Animal Industries (Hart, Peifer)
(3b) Division of Seafood and Animal Industries (Honsinger, Hart, Peifer)

Completion Date: For both tasks - November 10, 1983

4. Develop Draft Technical Documents Required For Implementation Of Quality Assurance Program

Purpose: Provide industry and agency personnel with distinct technical criteria and guidance to be utilized in the implementation of a quality assurance program.

The following subtasks provide the draft technical documents and recommendations to be included in Section VI of the Final Draft (see Appendix A). Review within and approval by the department for each subtask draft product is to be completed by the completion date indicated for each product. Technical documents will be finalized sometime during 1983, according to a schedule to be developed in the annual work program developed in task (3b) above.

(a) Develop Draft Quality Control Manual

The manual will present model quality control plans, technical criteria for critical point evaluations, and quality control inspection procedures for use by industry. Available guidelines and procedures, as well as those identified through task (1) above, will be considered in completion of this subtask.

(b) Develop Draft Facility and Operations Inspection Guidelines and Procedures

Guidelines will specify procedures and acceptable levels for regulatory inspection and evaluation of industry quality control programs. Available guidelines and procedures, as well as those identified through task (1) above, will be considered in completion of this subtask.

(c) Develop Draft Product Standards and Specifications

For key Alaskan species, canning, smoking, vacuum packaging, freezing, and fresh product standards and specifications will be proposed. Existing information and guideline efforts of the Alaska Seafood Marketing Institute, the National Marine Fisheries Service, and other sources will be used for updated reference. Appropriate agencies and organizations will be consulted in the development of these standards.

(d) Identify Priority Research Needs

This subtask will result in the allocation of contractual monies in accordance with AS 03.05.045.

Products: (a) Draft Quality Control Manual
(b) Draft Facility and Operations Inspection Guidelines and Procedures
(c) Draft Product Standards and Specifications
(d) Summary of Priority Research Needs

Responsibility: for subtasks (a), (b), (c) - Division of Seafood and Animal Industries (Peifer)

for subtask (d) - Division of Seafood and Animal Industries (Hart)

Completion Date: (4a) November 1, 1982
(4b) November 15, 1982
(4c) November 30, 1982
(4d) October 10, 1982

5. Review of Draft Quality Assurance Program Document

Purpose: Obtain comments on the draft program document prior to presentation to the legislature.

The Draft program document (Sections I, II, III, IV, and V) as identified in Appendix A will be provided to appropriate agencies and organizations for scheduled review and comment, and the final draft will be prepared.

Products: Final Draft Quality Assurance Program Document

Responsibility: Division of Seafood and Animal Industries (Hart, Peifer)

Completion Date: Review of Draft begins - November 10, 1982
Review completed - December 10, 1982
Final Draft Complete - December 31, 1982

D. SCHEDULE

(See attached time line)

E. BUDGET

Funds and staff time necessary for completion of this short-term project will be borrowed from programs which are currently underway. The majority of the work will be coordinated and conducted by Dr. Honsinger, George Hart, and Dick Peifer of the Division of Seafood and Animal Industries. Staff of the DEC Seafood Inspection Program will be utilized as their schedules allow. The Division of Environmental Quality Management will provide review and comment on products as appropriate.

Completion Date: Review of Draft begins - November 10, 1982
Review completed - December 10, 1982
Final Draft Complete - December 31, 1982

D. SCHEDULE

(See attached time line)

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WORKPLAN TIMELINE

<u>TASK</u>	<u>MONTH</u>			
	SEP 82	OCT 82	NOV 82	DEC 82
1. Evaluate Existing Quality Assurance Programs and Alternatives	_____o			
2. Develop Recommendations for Major Elements of a DEC Quality Assurance Regulatory Program	_____o			
3. Prepare Draft Quality Assurance Program Document				
(a) Program Description	_____			<input type="checkbox"/>
(b) Implementation Plan	_____			
4. Develop Draft Technical Documents				
(a) Quality Control Manual	_____			<input type="checkbox"/>
(b) Inspection Guidelines and Procedures	_____			<input type="checkbox"/>
(c) Product Standards and Specifications	_____			<input type="checkbox"/>
(d) Summary of Priority Research Needs	_____o			
5. Review and Preparation of Final Draft Document	_____			<input checked="" type="checkbox"/>

Products

- o Report
- Draft Document
- Final Draft Document

APPENDIX A
TENTATIVE OUTLINE FOR ADEC SEAFOOD INDUSTRY QUALITY ASSURANCE PROGRAM
FINAL DRAFT PROGRAM DOCUMENT

- I. Executive Summary
- II. Introduction
- III. Summary of Quality Assurance Programs which exist in other states and agencies and recommendations for an Alaska Quality Assurance Program. (Section III is developed through completion of work-plan tasks (1) and (2).
- IV. Quality Assurance Program Description
 - Program Level 1 - Proposed Alterations to Existing DEC Facility Inspection Program
 - Program Level 2 - Bilateral Quality Assurance Program
 - (a) Operator Quality Control Plan and requirements.
 - (b) DEC Quality Assurance Verification
 - in-plant inspection
 - product inspection
 - statistical analysis
 - Program Level 3 - Premium Quality Program Requirements
(Section IV is developed through completion of workplan task 3a)
- V. Program Implementation
 - Management Structure and Staffing Requirements
 - Personnel Training
 - Logistical Requirements (office space, travel, laboratory, and data management support)
 - Proposed Budget (FY 84 increment)
 - Program Implementation Schedule
 - Annual Work Program
 - Provisions for Program Evaluation
 - Recommendations for Changes in Regulations and Statutes
(Section V is developed through completion of workplan task 3b)

VI. Program Technical Components

- Draft Quality Control Manual
- Draft Facility and Operation Inspection Guidelines and Procedures
- Draft Product Standards and Specifications
- Summary of Priority Research Needs for Product Surveillance

(Section VI is developed through completion of workplan task 4, depending on length, these components may be included as appendices to the Final Draft)

VII. Bibliography



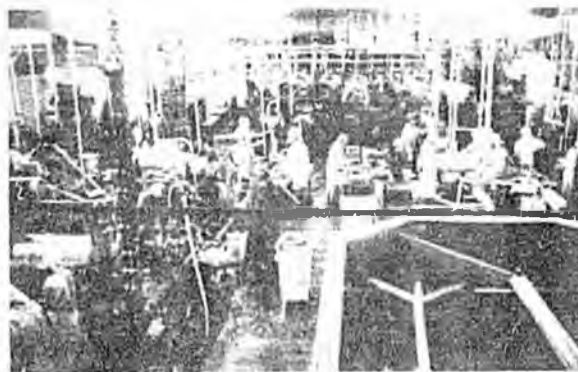
Fish Preservation and the Final Product

"The main object of fish canning is to yield a product that may be stored for a considerable time, at the end of which it will still be interesting and safe to eat." This is the objective of one form of fish preservation. Over the centuries other methods used have varied greatly. Drying over open fires is one of the oldest methods of preservation; salting of fish, while limited to coastal areas where salt was available, took place as far back as in Bronze Age civilizations.² In some cases, the preservation of fish caused other environmental problems. In 1558, Master Anthony Jenkinson wrote concerning his trip to Astrakhan (now a city in the U.S.S.R.): "they hang up their fish in their streets and houses to dry for their provision, which causeth such abundance of flies to increase there, as the like was never scene in any land, to their great plague."³ Nowadays, perhaps to avoid the above situation, much preservation is done by canning.

Fish canning is not a mysterious process; it consists of several steps. The larger fish are first gutted and cleaned, then washed and descaled. Blood must be removed along with surface slime. Some types of fish are then placed in a brine. In salmon canning processing in Alaska, salt tablets are placed in the cans with the filleted fish, and the brine forms as water or oil is added and the process continues. Following packing in cans, a process called "exhausting" takes place. The object, according to G.H.O. Burgess, *Fish Handling*, is to produce a partial vacuum or headspace at the top of the can. This space remains after the can is heat processed. During the heat processing, the pressure increases inside the can, water evaporates to steam, and solid and liquid contents expand. The partial vacuum accomplishes two ends: first, it helps reduce the positive pressure which built during the heating process; second, the vacuum causes the ends of the can to collapse inward, making it easier to detect cans which are damaged. The ends of such damaged cans will be swollen — called "swellers" in the processing industry.

The next process step is the heating phase. Cans are bulk-loaded into retorts — machines which are similar to autoclaves used to sterilize surgical instruments. Retorts are large industrial pressure cookers, and cans generally are maintained at 240°F for 60 minutes. Cans are usually pressure cooled

(continued on page 3)



1. This photo represents an aerial view of a canning plant. It shows the holding tank for fish, the cutting tables, the packing operation, and the retorts (pressure cookers) at the far end.



2. This photo is a detailed shot of the packing operation. The people on the line are packing fish into cans.

3. In this photo, the packed cans are being loaded into the retorts at the right.



4. After being removed from the retorts, the cans are cooled. They are then packed together and loaded into the overhead machine. From here, they are bundle-covered with a heavy sheet of plastic which is heat sealed. They are then shipped South for storage and sale.

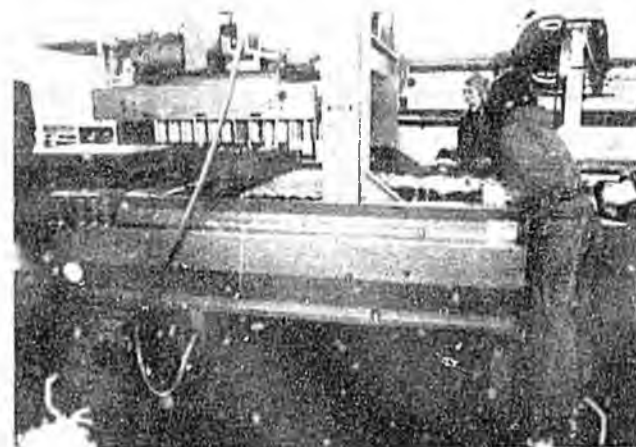


Photo credits — Carl Ohts, United Fishermen of Alaska

Seasonal Drilling Restrictions on the Beaufort Sea

In 1979, drilling leases were issued for the area within three miles of the shore on the Beaufort Sea. Basically, the leases stipulate that drilling activity take place only between November 1 and March 31 each year. The winter drilling season was specified in order to allow drilling during solid ice conditions only. This restriction allowed time for study of such environmental concerns as the bowhead whale's migratory patterns, effects of drilling on marine and bird habitats and the special problems of oil spill cleanup in broken ice conditions. Many of these leases are now expiring and the seasonal restriction dates are being re-evaluated.

Early this year, the Department of Natural Resources hosted several public meetings and workshops to give concerned groups an opportunity to present their views. Oil industry officials request a lengthened season. The National Marine Fisheries Service and the North Slope Borough are concerned about disturbances to sensitive habitat areas during biologically active seasons. DEC is concerned that oil spills are difficult to clean up during the season of deteriorating and broken ice.

The 1980 legislature made DEC responsible for the review and approval of oil spill contingency plans for many operations, including oil and gas drilling. To date, contingency plans have been approved only for the solid ice conditions.

Litter and Recycling Second Annual Report

The litter and recycling program's second annual report to the Legislature has been completed and distributed. It boasts of several substantial accomplishments. More materials were cleaned up and recycled, and public awareness measurably increased.

DEC estimates that about 25 communities held cleanups in 1980, collecting about 275 tons of refuse. In 1981, 60 communities cleaned up over 722 tons. Distribution of large yellow garbage bags also increased from 57,800 in 1980 to over 101,000 in 1981.

Recycling efforts show similar growth. More than 50 recycling efforts were identified in Alaska in 1981, a substantial increase over the 28 counted in 1980. In Fairbanks, newspaper recycling jumped 51% over 1980 figures. Juneau's aluminum rate increased by 18%. Statewide, DEC estimates that over 30,000 tons of recyclables were recovered in 1981.

The litter and recycling program expanded its visibility in 1981, both in print and broadcast media.

In early spring, a lively radio jingle with an anti-litter message was distributed, followed by the fall with animated television public service announcements. These broad-

In a report to the Commissioner of DNR, DEC examined the current technology available for oil spill response in broken ice. The report points out that several serious problems make cleanup more difficult. Unstable ice does not allow heavy clean-up equipment to be taken to the site, and moving water and ice flows tend to spread spilled oil and damage containment barriers. The report concludes that oil cleanup on broken ice is difficult, expensive and labor intensive.

Several solutions to the drilling season issue have been proposed, ranging from no restrictions at all to maintenance of the current season. Some compromise solutions contain provisions for addition of time as conditions permit or allowing certain drilling activities for which the probability of a spill is very small.

In a memo to the Commissioner of DNR, DEC Commissioner Ernie Mueller suggests adopting a lengthened drilling season of November 1 through May 14. Mueller also suggests lessees be allowed to spud and set surface casing throughout the year, and to continue drilling to a depth below surface casing only to a predetermined threshold depth above deep oil bearing formations. This safety zone limit could be estimated based on drilling records of existing rigs. Winter drilling in frontier areas would supply the information for new rigs in the same geologic formation. This compromise would allow for increased activity with the least chance of environmental damage due to oil spills or blowouts.

All totaled, DEC estimates that on behalf of the litter and recycling program, over 300 media contacts were made in 1981, reaching nearly one-third of the state's population.

The program's second annual report also contains a plan for youth litter patrol and recycling corps, a report on litter law enforcement, and the program goals for 1983. Copies of the report are available from DEC.

Are You Interested?

PUBLIC HEARINGS, MEETINGS, and WORKSHOPS are held periodically by DEC to hear any concerns and answer any questions you may have about department programs and decisions.

HEARINGS are legally required meetings and usually occur shortly before the deadline for public comment on a proposed action or decision. Public MEETINGS and WORKSHOPS are either informational in nature or are held in the early stages of a decision-making process.

If you have been grumbling, praising, or are just plain in the dark about what is going on in DEC, here is your chance! Come and talk.

Everyone Hates Paperwork — New Master Permit Applications

There is nothing more contrary to the image of the independent Alaska gold miner than to see one digging through reams of paperwork and driving all over town to regulatory agencies for necessary permits. A typical mining operation in Alaska may require up to six permits from state agencies and three from the federal government. As a result of this burden, many mining operations have operated without all the necessary authorizations and some measures for environmental conservation may have been ignored. To correct this situation, DEC has worked with other state agencies to develop "master permits" such as the Annual Placer Mining Application. This single form revised for the 1982 mining season, is being used by six state agencies — the Alaska Departments of Environmental Conservation, Fish and Game, Revenue, and the Department of Natural Resources' Division of Minerals and Energy Management (DMEEM) and Division of Parks — and three federal agencies — the Environmental Protection Agency, Bureau of Land Management, and the U.S. Forest Service — and replaces the nine separate permits formerly necessary. All nine agencies can review this master application simultaneously. In most cases, decisions will be finalized within 90 days.

Master applications for other types of operations are also in the works. One is for developments on or near shorelands and wetlands. Since nearly all industry in Alaska falls into this category, most will be affected. Currently, wetlands development requires a consistency determination from Alaska Coastal Management, a tidelands permit and lease from DNR, a habitat protection permit from Fish and Game and a water quality certification from DEC. All of these permits are being reviewed and may be consolidated this year.

In addition, another mining master application — for hard rock mining — is currently in the works. DEC is working with DMEEM to gather technical data needs. The form is expected to be ready for the 1983 season.

Development of master applications is an area where regulatory agencies can apply management and administrative expertise to contribute to the state's regulatory reform program. The resulting efficiencies improve an agency's performance in meeting its obligation to protect the public health and the environment.

Alaska Water Resources Board
Spring Meeting, April 14-16, 1982
Courtroom A

Court Building, Juneau
The Wetlands Task Force will meet the last week of April, 1982. For details call your local DEC office.

208 Projects Update

DEC staff members working on 208 projects have produced some interesting items over the past few months. The contractor working with DEC on the sledge disposal study has submitted the next task associated with the project. Stearns, Conrad and Schmidt Consulting Engineers, Inc. identified seven study areas and gave them a priority ranking of 1 to 7 based on estimated annual sludge generation, population, and current assessment of potential problems. As the next step of the study, they will take these seven priority areas, develop a matrix format, and then perform an analysis which will yield two best sludge disposal alternatives for communities which have a primary or secondary wastewater treatment system. For communities without a system, one preferred wastewater treatment method will be selected. The contractors will also investigate the economics of the systems.

The first Forest Practices training seminar has been scheduled. It will be held in Klawock April 25th through the 30th. For further information, contact the Public Information Office at DEC in Juneau.

R and M Consultants have completed the draft report on the placer mining demonstration pond project. This report may be requested from the Public Information Office.

The next meeting of note is that of the Water Resources Board. It is scheduled April 14, 15, and 16th in Juneau. Meetings will be held in Courtroom A of the State Court Building across from the Capitol Building.

Fish Preservation (continued)

in the retorts, then air cooled for several weeks prior to labelling. This cooling period allows the liquid in the cans to permeate the flesh and the contents to mature. Cans are then packed, shipped, and ultimately sold.

The photo story accompanying this article shows the operation of one plant only, and it is not necessarily representative of processes used in other plants in Alaska. The plant shown is owned by Bumblebee Seafoods and is located in South Naknak. The photographs show the cannery portion of the plant.

G.H.O. Burgess, et al, Editors, *Fish Handling & Processing* (Edinburgh, 1965), p. 195.

Charles L. Cutting, *Fish Savings*, (New York, 1956), p. 17.

Cutting, pp. 48-9.

Botulism Is...Botulism Causes...Botulinum Grows...

"The marketing task will be formidable, partly because news of the poisoning scare has circulated internationally, and also because botulism — a virus produced by botulinus bacteria — is so deadly." "A puncture lets in air that can allow botulism organisms to grow." Both these quotes came from newspapers published in Alaska; both contain misinformation.

First, a virus is a virus, and bacteria are bacteria. Virus are submicroscopic agents that are regarded as either the simplest microorganisms, or extremely complex molecules. Bacteria are microscopic single-celled plants. Virus are not produced by bacteria. Second, botulism organisms grow only in the absence of oxygen, a gas, found in air.

Unfortunately, botulin is a word which has been seen frequently in papers across the state over the past few weeks. There have been misconceptions communicated along with valid information. For those with a technical background in biological sciences, words such as "anaerobic, gram positive, protein neurotoxin, macromolecules, heat-labile, and *Clostridium botulinum*" combine to tell a story. For the rest of us, by far the majority, the words used above can be confusing, misleading, and even dangerous as we try to understand an incident or process which may affect us.

It is critically important that men and women engaged in canning understand bacterial spoilage processes and how to avoid such contamination. There are two main types of bacterial action which may affect food canned at home or in food processing plants. The first is caused by bacteria which reproduce only in oxygen-free surroundings (anaerobic). This type of bacteria produces gasses such as hydrogen or carbon dioxide and a toxin that is one of the most potent poisons known. The second type of bacterial contamination, while still hazardous, is more easily discovered because a foul smell is associated with it. A third type of spoilage, mold, is easily seen.

Of the three processes listed above, botulism is most dangerous because it is least readily detected. While there may be a smell of decaying meat, there is not always an odor, and there is no distinguishing taste.

Botulinum bacteria are very prevalent in soil, and two of at least four types are important. Type A is less of a problem because it is found in virgin soil or newly reclaimed forest areas. Type B is found in cultivated soils, and is most commonly the problem.

Botulinum will grow only in an anaerobic environment meaning that the immediate surroundings must contain no oxygen. There are two stages of development, a vegetative and a spore stage. The growth occurs as the spores grow and change into the vegetative cells to produce the toxin. The bacteria feeds upon sugar or protein material and is most commonly found in preserved string beans, corn, spinach, olives, beets, asparagus, seafood, pork products, and beef.

According to the *Merck Manual*, the first signs of botulinum poisoning are visual disturbances such as blurred vision. The next symptom may be difficulty in swallowing and speaking. Muscles of the arms and legs become weak. Cause of death generally is respiratory failure. One problem of diagnosing botulism is that symptoms don't appear immediately and often imitate those of stroke or heart attack. The amount of poison ingested has a lot to do with recovery rates.

In home canning, there are two ways to avoid botulinum poisoning. The first is to be sure foods are sterilized adequately in the canning process. In a wet heat process, such as that used in a pressure cooker, pint jars must be maintained at 240°F, 10 pounds pressure, for 110 minutes to kill the spores. If using tin cans, they must be exhausted first by putting the lids on loosely and steaming in the pressure cooker for 10 minutes at 212°F and 0 pounds pressure. They should then be removed, sealed and cooked at 240°F, 10 pounds pressure for 90 minutes for 1/2 pound cans.

The second way to avoid botulinum poisoning is to boil home-canned products for 10 to 15 minutes before eating. This neutralizes the toxin. If contamination of purchased products is suspected return the material to the store. Another important rule to remember is: never taste low acid, canned or frozen foods suspected of being spoiled. With proper care and preventive measures, there should be no reason to fear botulism.

Norman W. Destroier, *The Technology of Food Preservation* (Connecticut, 1959), p. 194.

David N. Holvey, M.D., Editor, *The Merck Manual* (New Jersey, 1972), p. 711.

Destroier, p. 196.

May is Cleanup Month in Alaska

Ice and snow are melting all over the state. Is there ugly garbage hiding underneath? Plan your neighborhood cleanup now. Call the litter and recycling **HOTLINE** number nearest you to order large plastic garbage bags, small car or boat litter bags, or vinyl stickers to identify trash receptacles or bins for "aluminum only." These materials, available free of charge, advice about organizing and implementation of cleanup and recycling activities can be obtained from DEC regional offices.

In 1981
60 Communities Held Cleanups
Over 722 Tons Collected



In 1980
25 Communities Held Cleanups
over 275 Tons Collected

REGIONAL OFFICES

Northern Regional Office
P.O. Box 1601
Fairbanks, Alaska 99707
(907) 452-1714

Southeast Regional Office
P.O. Box 2420
Juneau, Alaska 99803
(907) 789-3151

Southcentral Regional Office
437 E Street
Anchorage, Alaska 99501
(907) 274-2533

REPORT ALL OIL and HAZARDOUS SUBSTANCE SPILLS: Call toll-free Zenith-9300
(call long distance ops atoll)

PERMIT INFORMATION CENTER: Call 465-2615 (Juneau)
279-0254 (Anchorage)
452-2340 (Fairbanks)

Call collect any time for information on state, federal, and local permits.
Calls after working hours will be recorded and returned when working hours are resumed.

RECYCLING and LITTER HOTLINE: 789-3151 (Juneau)
274-2533 (Anchorage)
452-1714 (Fairbanks)

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The truth about botulism

Food handling is biggest cause — especially in Alaska

By Chris McClain

In 1975, two women from New Stuyahok, a village on the Nushagak River near Bristol Bay, died from eating contaminated beaver. Botulism, a deadly disease produced by botulinus bacteria, had grown on a chunk of beaver tails sealed in a plastic bag and kept behind a stove for several weeks.

Few persons are aware that more illness, including botulism, is caused by improper food handling than by errors in commercial processing or packaging.

Alaska has the highest rate of botulism poisoning in the world documented among Natives, according to a state expert on epidemic diseases. However, no known cases have occurred in the state from either commercially or home canned foods.

No deaths from botulism have occurred in Alaska since 1977, thanks to better education, prevention and treatment efforts, says the expert — state epidemiologist Dr. John Middaugh.

Foodborne poisoning is a sneaky attacker and botulism is a "chilling" word to the food industry.

The American food industry has had for many years a good record of keeping botulism out of its products, due at least in part to federal laws and inspections established in recent decades.

From 1899 through the early 1970s there were nearly 1,800 cases of botulism in the United States in about 700 separate outbreaks, with nearly 1,000 deaths. Roughly 50-60 outbreaks, involving more than 200 victims, were related to commercial products. The contaminated commercial foods included ripe olives, sardines, spinach, ham, potted meat and beets.

Food poisoning may result from a variety of inciting agents but the tendency persists to identify every type of such illness under the guise of "ptomaine" poisoning. The term has been consistently used since its introduction a century ago, even though it is unscientific and meaningless.

There is no specific entity or groups of substances that properly might be called "ptomaine." The word is derived from *ptoma*, which means carcass or dead flesh.

Today, the majority of meat carries the U.S. Department of Agriculture's stamp of approval. But during the Depression when I was a kid in eastern Washington I ate a lot of beef, veal and pork without a stamp of approval.

I also recall that my father took care of his deer with very little effort. He'd hang it up to bleed for three days. And the coldest place for storage was the root cellar.

Had I known about food poisoning, botulism and bacteria, I probably would have been a vegetarian.

Bacteria is the known cause of food poisoning and botulism spores are found throughout the environment, in the soil and water. We probably swallow many of these in raw fruits and vegetables. The botulism spores themselves are harmless. But in warm airless environments — that is, where no oxygen is present — they go to work to produce their deadly toxins.

There are six known strains of botulism, identified as Types A, B, C, D, E and F, and other rare strains that have not been identified. Poisoning most commonly occurs from Types A, B and E botulinus germs. Botulism is probably the deadliest form of food poisoning known — a toxin so lethal that a millionth of a gram will kill a human being and a glassful, evenly distributed, could destroy the human race.

So, it is only natural that botulism causes great general concern, and when it does, it can ruin a thriving industry.

Back in August of 1978, Alaska's salmon industry was in jeopardy due to the death of an elderly person in Birmingham, England.

It was established that four elderly persons ate a salmon salad. The salmon was traced to a Seattle firm and had been canned in Alaska.

The British government acted quickly to warn people not to eat salmon canned in Alaska.

Health officials were in a quandary, as canned salmon botulism poisoning had never happened before in the industry.

Meanwhile, the Food and Drug Administration sent investigators to Unimak Island, on the Aleutian chain, where the salmon was canned in July 1977.

The case was closed when FDA inspectors stated that the salmon was cooked 10 minutes longer than required.

If the FDA could have continued with the investigation, it might have been learned what else was in the salmon salad. It could have been prepared early, then left standing without refrigeration — when foods are not properly refrigerated, bacteria multiply at an unbelievable speed.

And while cooking probably will kill botulism if it has begun to grow in food, it is not fail-safe — temperature, pressure, cooking time and packaging all are critical factors in both commercial processing and home canning.

The recent death of a Belgian man was also traced to Alaska salmon, and subsequent embargoes against the product in some European countries have added to the burdens of bad publicity and

the recall of millions of cans of the product. This time, however, botulism was found in at least 20 cans. Precisely why and how the botulism developed is still a matter of speculation.

Of course, the risk of botulism is just as great with home-canned and home-prepared foods. Food poisoning was especially common when homemakers followed the recommended cold-pack method. This method often failed to get the food contents of the jar hot enough to kill the tough spores of *Clostridium botulinum*.

As I recall, my mother would fill the jars with raw or blanched food, then place them in a boiler atop the wood stove.

She was very cautious, examining each jar before using the contents. She knew when bacteria was at work inside a jar by its tiny bubbles. But she didn't know there was a difference between the acidity of beans and tomatoes that determined the cooking time. The use of pressure cookers for home canning decreased food poisoning.

A major botulism scare arose in 1963 with 17 cases and five deaths resulting from vacuum-packed smoked whitefish. The fish had been packaged in a plastic film from which all air had been

pumped before sealing. This method was supposed to prolong shelf-life under refrigeration, but the removal of oxygen, called an "anaerobic" environment, coupled with lack of refrigeration merely encouraged the formation of botulin toxins.

On Oct. 25, 1963, the FDA recommended that all smoked fish then on the market which had been caught or processed in the Great Lakes area be destroyed. Five days later, the FDA and the National Fisheries Institute issued a joint release announcing that Great Lakes smoked fish should henceforth be frozen and kept frozen in shipment.

Also in 1963, in Detroit, a mother, daughter and a neighbor ate tuna fish sandwiches. The mother survived.

The tuna industry faltered and sales remained low for many months.

In fact, five separate outbreaks of botulism occurred from commercial products in 1963.

However in the years between 1899 and 1977, 72 percent of all botulism outbreaks was traced to home canning, while a mere 9 percent was attributable to commercial processing. (Causes for the remaining outbreaks were unknown.)

In the late 1970s, a major outbreak of botulism in Mich-



Photo by Fran Durner

Members of whaling crews in Barrow divide fresh whale meat — some for immediate cooking and consumption but the majority for storage and future meals. The Native practice of eating raw, aged and fermented meats causes all of Alaska's known cases of botulism.

igan — 58 cases, no deaths — was caused by home canned chili peppers used at a Mexican restaurant, and another — with 14 cases and two deaths — was traced to a country club luncheon in New Mexico (no specific source was ever found).

Today, botulism need not be fatal if treated by the best medical care and if symptoms are recognized immediately.

Usually symptoms occur 12 to 49 hours after eating the contaminated food. There's blurred or double vision and sometimes sensitivity to light, difficulty in swallowing and breathing, abdominal pain, diarrhea, severe nausea and vomiting, changes in speech, difficulty with coordination in walking and general weakness.

Each year, until recently, botulism claimed at least one or two lives among the Native population. These deaths generally did not make international news nor would the FDA become involved in investigations or "bans," because the botulism comes strictly from Native delicacies such as whitefish, fishhead soup, fish eggs, salted salmon, fermented seal and raw and aged meats.

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... washe

Tanunak to treat those not ill enough to be evacuated. Health officials later estimated the whale had been dead about three months before it washed ashore.

From my observation, there's no preparation when containers are made of seal organs, intestine and stomach. And sanitation is difficult without running water.

In the early 1950s, I was in Kotzebue when I witnessed three Beluga whales butchered on the shore. The whale meat was tossed into a tub, some landed on the ground, it was picked up and heaved into the waterless tub.

The state maintains a botulism registry, begun in 1947 with a study of all information available to date, and

maintained carefully since then. The registry shows the following for the past seven years:

- 1975 — 3 cases, 2 deaths.
- 1976 — 14 cases, 1 death.
- 1977 — 8 cases, 2 deaths.
- 1978 — none.
- 1979 — 5 cases, 0 deaths.
- 1980 — 3 cases, 0 deaths.
- 1981 — 9 cases, 0 deaths.

"All botulism in Alaska has occurred from Native prepared foods," says Dr. Middaugh. "This is well known among public health workers around the state, and any time there's a suspected case, a medical epidemiologist hits the plane right away. We have literally snatched food 1800 and 1949, the case fatality rate for botulism nationwide was more than 60 per-

cent. By the early 1970s, the rate was 23 percent. The number of cases that are reported

off the table from people getting ready to eat it. "A lot of Natives have stopped eating Native foods, and though we recognize that these are an integral part of the culture ... they are beginning to stop letting meat thaw in plastic bags or ferment, beginning to cook more. If Native people use Native foods, but cook them, they don't get sick."

In the fifty years between 1800 and 1949, the case fatality rate for botulism nationwide was more than 60 per-

cent. By the early 1970s, the rate was 23 percent. The number of cases that are reported

each year, however, remains more or less steady, even today. "What has improved, says Middaugh, is medical diagnosis. "That's the art of medicine," he says. "If someone has nausea and vomited, and has any problem with vision and swallowing, dry mouth and throat, then we consider it botulism until we prove it isn't."

Chris McClain is an Anchorage freelance writer.

Recd. 1/22/81

REPORT OF THE ALASKA SENATE COMMITTEE ON QUALITY
ASSURANCE IN THE SALMON FISHING INDUSTRY
BY THE SUBCOMMITTEE ON EDUCATION

2/20/82
In House Rules
103
SB 103

Background and Need

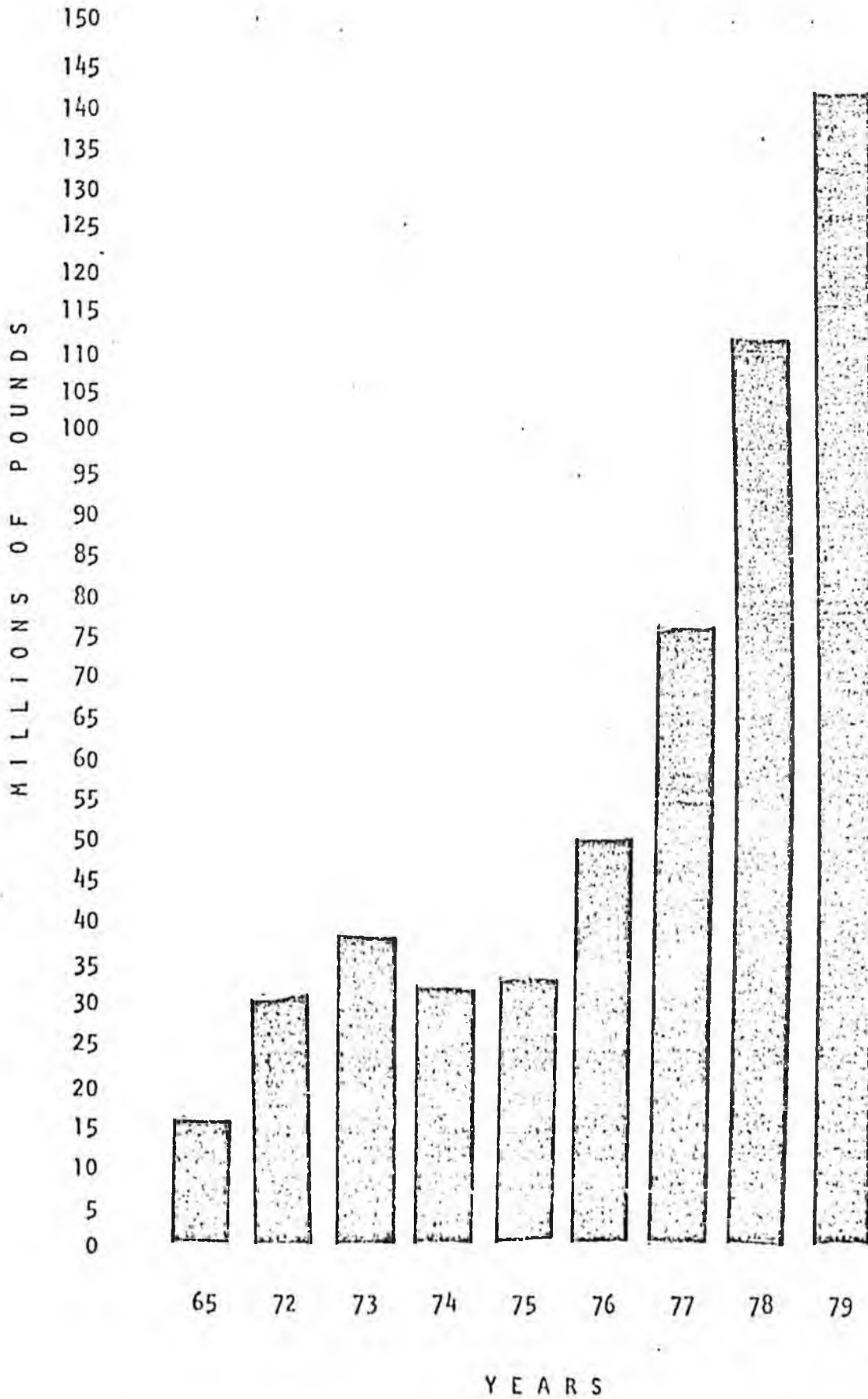
The Alaska salmon industry has undergone a major change in the last ten years. This change consisted of a shift from a primary emphasis on canned salmon to a heavy emphasis on fresh and frozen salmon processing (Fig. 1). This shift is as dramatic as, and is economically more significant than the development of the tanner crab fishery.

Traditionally, the fresh and frozen salmon markets were supplied by troll-caught salmon from Southeast Alaska and the Pacific Northwest. These were high-quality silver and king salmon, bled and dressed immediately after capture and iced within a short period of time. The supply was supplemented by gillnet-caught salmon, again principally silvers and kings.

As the market for fresh and frozen salmon expanded, it had to be filled with net-caught salmon. This move was accompanied by an increase in cold storage capacity in the Gulf of Alaska and air shipments from Bristol Bay and the AYK district.

During the last four years the growth has been dramatic (Fig. 1). In 1979 over 100 million pounds of salmon, including sockeye, chums and pinks that would previously have gone into the can, went to the frozen market. This is accomplished

ALASKA FROZEN SALMON PRODUCTION



by "high grading" at the plant, which has resulted in an overall lowering of quality in both the canned and frozen product.

Many of the fishermen and processors who are now producing for the fresh and frozen market formerly canned all of their product. Therefore, they are not familiar with the proper methods of handling fish to attain a high quality frozen product.

In Japan and Europe the devaluation of the U.S. dollar has put salmon within the buying range of more people. The Japanese market is for high quality dressed salmon with the head on, which are sold whole on the retail market. In Europe, the demand is for frozen salmon which are thawed and split for mild curing and smoking. Both markets demand a quality fish with no external or internal blemishes or visible flaws. North America, too, is experiencing a shift toward fresh and frozen salmon for use as steaks and fillets and, to a lesser extent, the mild cure and smoking market.

European and Asian markets are looking to our competition for a high quality product. This includes Canada and Norway, both of whom have high quality standards set by government regulation.

Processors in Europe complain about bruises, soft flesh, belly burn, rancidity and poor butchering of the product they receive from the U.S., including Alaska. These are all caused by improper handling and processing.

Problem

The Alaska fish are as good as any when they come from the water, but several million pounds of frozen salmon were condemned by state and federal inspectors after the 1979 season. Quality loss occurs in the hands of humans.

The problem of salmon quality is statewide, but is more critical in areas where the production of frozen salmon is a relatively new form of processing.

Goals and Objectives

The goal of this project is to "Raise the quality of Alaska frozen salmon to a level that will meet or exceed that of any other country's product competing on a world market."

Our immediate objective is to improve the overall quality of Alaska salmon. Clearly, efforts need to be made in assisting the industry to improve the quality of salmon submitted to the world markets. Education is needed in proper techniques for handling salmon.

A committee has been appointed to determine these educational needs and the kinds of educational efforts the state should support. A broad-based educational program, directed at fishermen, tendermen and fish processors, is recommended by the committee.

Approach

A broad-based education program will be developed.

This program must be delivered to the largest number of industry members possible. The project will reach fishermen, tendermen, processors and shippers of salmon; i.e., all segments of the industry. In order to reach most of the industry, a number of different audio and visual educational techniques will be employed. These will include, but not be limited to:

1. Seminars, workshops and conferences
2. Consultation services
3. Public service radio spots
4. "How-to" fact sheets
5. Slide series on handling salmon
6. 16-mm educational film on salmon handling and processing methods
7. Salmon handler's manual

In order to provide these educational services it will be necessary to employ a full-time specialist in the care, handling and processing of frozen salmon. This will need to be a long-term project. Current practices are ingrained and will take a number of years to change.

Outline of Education Activities

1. Seminars, workshops and conferences. Seminars and workshops will be conducted in fishing ports throughout the

state. These will be directed at fishermen and processing personnel. This mechanism is helpful in making industry members aware of the problem and will offer solutions to specific problems of each fishery and region. This has been demonstrated to be one of the best methods for provoking a desirable change.

A conference will be held to bring together the leaders of the fishermen's organizations with the objective of informing them of the problems poor quality has caused in the marketplace; to obtain their ideas for a long-range solution; and to enlist their support. A second conference will be held with the quality assurance personnel in the processing plants to inform them of the problems that occur in plants and to provide them with information and materials for training their in-plant workers.

2. Consultation services. In order to improve the quality of fish landed it will be necessary to do conversion work on many of the salmon vessels presently in use. This will include the installation of slush ice, refrigeration systems, or other types of cooling systems on the vessel. In some areas of the state the older or smaller vessels are not lined. Fish lay in the bilge or against not engineer room bulkheads. In some cases boxing may be justified. The specialist would be available to provide technical information on these and other specific problems. In many cases, the

fishermen or processors could make the necessary changes themselves with technical assistance made available through this program.

3. Public service radio announcements (PSA's). All radio stations make time available for public service announcements. Several stations have been contacted and have expressed a willingness to air educational spots relating to good handling practices for salmon. A series of PSA's will be produced and distributed to all radio stations in coastal communities. The PSA's will contain "how-to" tips as well as what not to do. They will each contain an educational message; however, their prime function will be to raise the general awareness of the necessity for good handling practices. Through personal contact with participating radio stations it is expected that the PSA's will be aired at a time most fishermen listen to the broadcast band--at the time of the marine weather forecast.

4. "How-to" fact sheets. A series of "how-to" fact sheets will be written. They will be developed for each fishery by region. It is necessary to develop them by fishery and region because of the differences in the harvesting methods employed and the different conditions existing in each region. Fact sheets will also be developed for in-plant handling. Subjects to be covered will include, but

not be limited to, effects of temperature; sanitation; use of ice; refrigeration; etc. These fact sheets will be given broad distribution to fishermen and processors and be used in workshops and seminars.

5. Slide series on salmon handling and processing.

A series of slides is presently being assembled that shows the effect of poor handling and butchering practices. This series will be expanded to show proper methods. The series will be duplicated for use in workshops and seminars and will be available for fish processors to use in their own in-plant training sessions. These slides must be considered as a tool rather than standing on their own as an educational program.

6. 16-mm movie film/television tape on salmon handling and processing methods. A 16-mm educational movie film will be developed showing proper handling and icing and the processing of frozen salmon in the plant. Television tape copies of this film will be made available for circulation to schools and educational TV, and will be used in workshops, seminars, etc. A film will not be a complete educational program but will augment the other educational efforts.

7. Salmon handler's manual. The fact sheets will be completed and supplemented with additional materials to produce a salmon handler's manual. This manual will in-

clude the why as well as the how to. The major use of this manual will be for in-plant training by company personnel. It will also be used to train new quality control people in the plants.

Interactions

It is necessary that this project interact with present education efforts in salmon quality enhancement in both the private and public sectors. This would include the University of Alaska, the National Food Processors Association, fishermen's associations, and the state legislature.

It is recommended that a permanent advisory committee be appointed to monitor the program. This committee should meet on a quarterly basis to review progress and to identify problem areas.

Salmon Quality Education

BUDGET

SALARIES

Instructor 12 mo @ \$3000 mo	\$ 36,000	
Clerical assistance 1/2 time 12 mo	8,000	
	<u>44,000</u>	
Staff benefits @ 20.5%	9,020	
TOTAL		\$ 53,020

EQUIPMENT

Office equipment	1,500	
Audio Visual	<u>950</u>	
TOTAL		2,450

EXPENDABLE SUPPLIES

Recording tape	480	
35-mm film	120	
Office supplies	<u>200</u>	
TOTAL		800

TRAVEL

7,800

CONTRACTUAL SERVICES

16-mm movie	40,000	
Printing (fact sheets, manual)	13,200	
Postage	1,100	
Communications	3,000	
Xerox and drafting	2,000	
Video tapes	400	
Reproduction of slide sets	500	
Subcommittee travel and per diem	<u>10,000</u>	
TOTAL		<u>70,200</u>

TOTAL DIRECT		134,270
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TOTAL INDIRECT @ 50.8% of S & W		<u>22,352</u>
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GRAND TOTAL		\$156,622
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STATE
of ALASKA

MEMORANDUM

8/3/82
Patting

TO: ✓


Glenn Akins
Deputy Commissioner
DEC

DATE: July 29, 1982

FILE NO:

TELEPHONE NO: 465-2628

FROM:

F.S. Honsinger, D.V. 
Director
S&AISUBJECT: July, 1982
Status Report on Seafood
Inspection

This salmon season, under a cooperative effort with the U.S. Food and Drug Administration (FDA), combined state/federal inspection teams are conducting many of the cannery inspections, and concentrating on the canning procedures.

Because of the smaller than anticipated Bristol Bay salmon run, we have not experienced the large volume of air shipments we had anticipated. Only on the Kenai Peninsula has it been necessary to use contract inspectors for this phase of the seafood inspection program. By staggering our regular inspectors hours, we have been able to monitor the Anchorage air shipments.

Our inspectors have been covering the Alaska Peninsula and Bristol Bay from the start of the 82 sockeye season, including both shore based and floater operations, and in addition, have monitored the air shipments originating in those same areas.

Because of the Bristol Bay and new Prince William Sound salmon price disputes, and nonfishing by a large segment of the fishing fleet, we have had to alter inspector travel schedule almost on a daily basis.

In Southeastern, with full time state inspectors working out of Ketchikan and Juneau with the FDA inspectors, we are getting much better coverage of the area than ever before.

LEGISLATIVE SUMMARY

SB 872 "An Act relating to sanitation, sanitary practices, and quality assurance in the seafood processing industry."

GENERAL: Adds to the powers of the Commissioner of Environmental Conservation to issue permits and enforce quality assurance plans. Seafood processing can not take place with out a plan of operation approved by the Commissioner. This plan will cover water supply, handling, cleaning, canning, freezing, storage, and transportation to ensure sanitation and to prevent contamination and to insure the integrity of the preservation process for safety. Adds to the Commissioner's authority to classify, grade and inspect the product prior to sale. Also, gives the Commisioner authority to conduct or contract for studies research, experiments and demonstrations to improve sanitation, surveillance techniques and inspection activities. Someone found in violation of the permit is subject to a class A misdemeanor (\$5,000 - 1 year jail sentence).

Sec. 1. Amends the powers and duties of the Commissioner of Environmental Conservation by adding that he may: issue permits and enforce quality assurance plans developed in cooperation with industry representatives.

Sec. 2. Adds a new section to AS 03.05

A seafood processing establishment or processing vessel may not operate with out a plan of operation in writing from the Commissioner nor without a permit issued by the Commissioner.

A plan of operation must include: water supply and treatment to be used in processing and consumption by humans; waste treatment and disposal; handling, cleaning, canning, freezing, storage, and transportation to be used; insure cleanliness, sanitation, wholesomeness, and prevent contamination; surveillance to assure sanitation, integrity of the preservation process and product safety; and other information the Commissioner may require by regulation.

Sec. 3. Adds fisheries to AS 03.05.030 regarding the rules for grading and classification of agricultural products.

Deletes the language that the Commissioner may make and promulgate rules and replaces it with the Commissioner may adopt regulations.

Adds fisheries products to, existing language, for classification, grading and inspection prior to being sold; requires the marking or labeling to show the kind, grade or other classification of the contents.

Adds a new section: stating that the Commissioner means the Commissioner of Natural Resources in areas of his jurisdiction and it means the Commissioner of Environmental Conservation in areas of his jurisdiction.

Sec. 4 Adds a new section to AS 03.05

The Commissioner of Environmental Conservation may conduct or by grants or contracts to accomplish studies, research, experiments and demonstrations to: improve sanitation practices and improve techniques for surveillance and inspection activities.

Sec. 5 Adds that a violation of the permit issued by the Commissioner for a seafood processing establishment or processing vessel to the penalty section. A person found guilty will be guilty of a class A misdemeanor (\$5000 and 1 year jail sentence.)

SPONSOR: Rules Committee by Request of the Governor

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

JAY S. HAMMOND
GOVERNOR

NEWS RELEASE



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HAMMOND SUPPORTS MILLER'S PROPOSAL FOR SALMON QUALITY PROGRAM
4-19-82
#51

FOR IMMEDIATE RELEASE

JUNEAU Alaska Governor Jay Hammond this morning expressed strong support for proposals unveiled Friday by Lieutenant Governor Terry Miller including one that a "two-tiered" salmon safety-quality inspection system be established to assure the quality of Alaska seafood products.

Hammond today said he advocated most of the proposals unveiled by Miller before the Republican State Convention in Sitka. They were highlighted by a proposal that all in-state canneries use an extra inspection system which could guarantee the integrity of salmon cans.

Miller also elaborated on several of Hammond's March 12th proposals that the state make a special appropriation to the Alaska Seafood Marketing Institute (ASMI) to help the institute assess the amount of damage done to the public's confidence in canned salmon and then to devise a marketing strategy to reverse sales slumps.

MORE

Such slumps have occurred following the death Feb. 6 of a 26-year-old Belgium man and the recent illness of a 68-year-old Connecticut woman from botulism, both incidents potentially caused by eating canned salmon packed at Alaska canneries.

Miller in his speech also supported an expanded state fish pack loan program to aid processors buy this summer's expected record salmon catch and backed an advanced quality inspection and rating system--concepts advocated earlier this spring by the governor and his Salmon Working Group, a working group of Hammond's Cabinet and the seafood processing industry, fishermen, cannery worker representatives and the marketing institute.

Legislation to serve as a vehicle to bring about the quality inspection program, as well as the appropriation to ASMI, have already been introduced before lawmakers.

"Clearly Terry is correct. For the public to have any substantial confidence in the quality of our canned half-pound salmon after the publicity these two incidents have fostered the industry should plan on requiring substantially upgraded inspection of all of the 1982 pack through methods such as the double dudding and electronic weighing processes proposed for inspection of the 1980 and 1981 packs which have been recalled voluntarily by the industry and the Food and Drug Administration.

"It is absolutely vital that we take substantive measures to assure the public of the quality of our fish products and to guarantee that a similar incident does not occur again. These means of testing all cans for imperfections seem a reasonable, major sign of our commitment to quality and the public's safety," Hammond said.

MORE

Hammond said that by "double dudding," or the process of checking the curves of the cans' ends to guarantee there is a vacuum inside the cans, and then electronically weighing them to make sure that the cans did not have a hole which then resealed, the causes for the recent botulism toxin incident can almost assuredly be eliminated.

Hammond said canneries can install the added inspection devices, to team with the ongoing industry inspection effort, at reasonable costs. More importantly, Hammond said such tests may be required by foreign countries, such as Great Britian, as the minimal condition needed to permit the renewal of export sales this summer. Four European countries banned Alaska canned salmon in late February--the state and Food and Drug Administration seeking to have the ban lifted.

Miller in his Friday speech said dudding could cost the industry as little as 10 cents per 48-can case.

Hammond today joined Miller in again urging legislative leaders to move legislation providing for a marketing study and sales promotional effort to be financed jointly by the state and industry, spearheaded by ASMI.

The governor also urged lawmakers to continue their review of other potential efforts to aid the industry, such as expanding the fish pack loan program introduced by the Hammond-Miller administration two years ago, as they work on finalizing a quality control-inspection bill. Currently, a joint legislative committee is handling all facets of the salmon issue.

MORE

"While it is still too early to tell the full impact of the most recent botulism incident, which may or may not be related to salmon, it is certain, given the national media attention the Connecticut case drew over the weekend, that the impact could be negative. With a record run of salmon just over two months away, it is vital that we move now," Hammond said.

"We have to implement the best program we can afford to save, not just our processing industry, but our entire fishing industry and the towns that depend upon it, from economic ruin this summer and in the years ahead.

"We have no choice," Hammond said, "but to assume that this situation will have a dramatic impact on the state's largest private employer and our third leading industry. We have no choice but to take decisive action despite falling revenues. Otherwise, it could well be too late," Hammond said.



Official Business

Alaska State Legislature

SB
872

House of Representatives

Pouch V
State Capitol
Juneau, Alaska 99811

Minutes of the Joint House and Senate Committee
Meeting on Salmon Quality Control
March 23, 1982 2:30 P.M.
House Finance Room

Rep. Rick Halford
Rep. Haugen
Rep. Gardiner
Rep. Sutcliffe

Sen. Bettye Fahrenkamp
Sen. Kerttula
Sen. Mulcahy
Sen. Eliason

The following members were in attendance from the House, Rep's. Halford, Haugen, Gardiner, and Sutcliffe. Present from the Senate were Sen's. Fahrenkamp, Mulcahy, and Eliason. Senator Kerttula was excused.

Rep. Halford opened the meeting and described the format of the meeting. An agenda was passed out and the following order of testimony was taken.

Kenneth Hansen, District Director, U.S. Food and Drug Administration
Commissioner Ernst Mueller, Dept. of Environmental Conservation
Commissioner Ron Skoog, Department of Fish and Game
Ed Hoch, Deputy Commissioner, Commerce and Economic Development
Lois Cook, Division of Administrative Services, Dept. of Economic Dev.
Dick Reynolds, Office of Fisheries Development, Department of Commerce and Economic Development
John Peterson, Ocean Beauty
Bob Anderson, Chugach Fisheries
Bob Thorstenson, Icicle Seafoods
Frank Horseley, Evans Pacific
Forest Paulsen, CFAB
Eric Eckholm, Alaska Seafood Marketing Institute
Rodger Painter, United Fisherman of Alaska
Hank Ostrosky, Fisherman
Terry Rutford, Fisherman

Ken Hansen testified first and explained what the Food and Drug Administration was doing to help cope with the botulism scare. He felt that the incident where a Belgian man was killed from the botulism was not just related specifically to the Ketchikan plant that actually canned the salmon but that it was an industry wide problem that had to be solved. He stressed that salmon quality control should be instituted industry wide. He mentioned that an agreement had been made between the F.D.A. and the National Food Processors Association which was a voluntary program where industry was recalling their products and running them through a check weigher or dud detector. Ken Hansen showed

pictures of the indexed defected can. Rep. Haugen asked whether there was a way of checking the weight of the can. Hansen responded that if the check weigher came up with a light can it would be rejected. The loss of weight would indicate a leakage of product and possible contamination to the contents. Rep. Halford asked whether there was a reliability difference between the check weigher and the dud detector. Ken Hansen responded that there was a question of the dud detector's reliability, and an English test showed the dud detector to be less reliable than the check weigher.

Commissioner Mueller testified on the recommendations that were made from the Governor's Task Force. He said there are measures that the state might adopt to mitigate impacts of the Alaska canned salmon emergency. The proposal was passed out to all committee members. He also discussed SB 872, which was introduced in the Senate Resources Committee. The bill establishes more stringent controls on sanitary practices, and quality assurance in the seafood processing industry. Mueller also suggested using HB 699, introduced by Rep. Sutcliffe, as a vehicle for the finance guarantee pack loan program that the legislature will be adopting. He ended his testimony by stating that the Governor had not planned on introducing a Pack Loan Guarantee bill at this time.

Commissioner Skoog, Dept. of Fish and Game, also testified on letting foreign processors into the State of Alaska. He said that Clem Tillion is negotiating with foreign processors about coming to Alaska, and he didn't feel those foreign processors would be in direct competition with Alaska processors.

Ed Floch, Lois Cook and Dick Reynolds testified on the Dept. of Commerce and Economic Development's position on the recent crisis. Lois Cook said there was a \$75,000 appropriation remaining from the overseas Copenhagen office and that this money could be used to help the recent embargo of all American canned salmon in Europe. Ed Floch discussed the ongoing \$200,000 contract they have with a consulting firm regarding salmon market projections. The results of that report will be ready April 1, 1982. Sen. Fahrenkamp asked Ed Floch about the contract and getting more specifics on it. He responded he would get that information at her convenience. She responded, "How about tomorrow?"

John Peterson, Bob Anderson, and Bob Thorstenson testified on the industry's position on the recent crisis. Almost one third of the total salmon market is in canned salmon according to Peterson and that means there has to be improvement in the fresh frozen market to pick up the slack for a loss in the canned salmon sales. Peterson said that the situation had hit certain processors much harder than others. He presented the industry's plan of what had to be done. This was passed out to all Committee members. In the plan there were six important categories that he explained. They were: more research for finding defective cans, a possible ASMI Salmon Recovery Program, a delay of the 1982 Salmon Pack Tax, a recall assistance program costing 13.75 million dollars, a loan program costing 319 million dollars and an ASMI Quality Assurance Program. Peterson explained that recalling the salmon and

taking it off the grocery shelves was very costly. The grocery store owners would essentially have to be paid for the removal of his stock by the processing industry.

There were questions from the committee members to Mr. Peterson. Rep. Haugen asked if the European embargo was all inclusive. He said yes all American canned salmon had been taken off the market. Senator Mulcahy asked what the market would be this year considering that we had \$2.3 million extra cases of salmon left over from the 1981 pack. Peterson responded that he concurred with Commissioner Skoog and that there would be a significant surplus of canned pink salmon but very little effect on red salmon. Rep. Halford said that this session seems to be a session of moving targets. First with state revenues and now with canned salmon. He said we should freeze that moving target now. Sen. Eliason wanted to know what the reaction of foreign processors was. He said it was negative and he didn't favor foreign processors coming in. Terry Gardiner put forth a written plan to the Committee called the Canned Salmon Stabilization Fund Purchase Program.

Forest Paulsen testified for CFAB and explained what their cooperative could do to help solve the problem. Paulsen emphasized that CFAB wanted the commercial banks to participate in the loan program that he proposed. Rep. Halford asked Paulsen as a responsible financial officer of a lending institution how could the state be best protected or would they be better protected holding the Salmon Pack as collateral or actually holding the paper on the fishermen and processors. He responded it would be much better to own the actual Salmon Pack Inventory as collateral versus holding more outstanding loans on the fishermen and processors who would have a lower net worth. Rep. Sutcliffe asked what would happen if the state actually did purchase a portion or all of the salmon pack? He responded that the inventory would be purchased, and then the processor could pay back the banks and CFAB back for loan commitments. They wouldn't default. Presently CFAB has 26% of all outstanding loans in the State for fishermen and processors.

Roger Painter, explained the position of the United Fishermen of Alaska and indicated that the bottom line needed for the industry recover was 100 million dollars. He also endorsed Alaska Seafood Marketing Institute's plan called Alaska Salmon 1982 Recovery Program. He said that 93% of all pink salmon goes into a canned product form and that's your problem area. The fresh and frozen markets have great potential. He also is in favor of getting the foreign processor into Alaska.

Eric Eckholm testified on the ASMI plan that would cost the State 10 million dollars to implement. It essentially calls for a marketing effort aimed at the consumer to restore their confidence in buying salmon. It includes research, reaching the U. S. consumer through the media, hitting the retail supermarkets, and a European promotion.

Ron Laflame and Frank Horseley spoke on a proposed action plan to improve public relations. They felt a consumer awareness campaign was necessary. They suggested a seven day vacation to an Alaskan fishing resort for a winner of their sweepstake program. They said it would be a national marketing campaign including all of the continental United States. They also suggested that they would work with other companies like Blue Diamond Almonds, Sunkist lemons, California avocados, and Iceburg lettuce to push the sales of canned salmon. They felt this type of a joint sales and marketing campaign would be very effective.

Public testimony included Hank Ostrosky and Terry Rutland. Hank spoke on the international cartel manipulation by countries like Japan and Great Britain who are putting a price squeeze on Alaska canned salmon. He went on to say that the Alaska Fisherman was caught between a battle of giants. Terry testified that the fisherman needed the Alaska salmon plan and that ASMI had one of the best plans to restore confidence to the consumer. He thought that this was a real opportunity to improve the marketing of fresh frozen salmon. Right now Alaska fresh frozen salmon is 40% of the total market. It could account for a lot more.

There were no questions from Committee members. Hearing none, Rep. [Halford concluded testimony and adjourned the meeting at 6:15 p.m.]

RECOMMENDATIONS ON MEASURES THE STATE MIGHT ADOPT
TO MITIGATE IMPACTS OF THE ALASKA CANNED SALMON EMERGENCY

Prepared By
Governor's Working Group
on the Canned Salmon Emergency
March 8, 1982

SB
872

The Alaska fishing industry faces substantial costs and loss of revenues as a result of the recent death in Belgium of a man who contracted botulism upon consuming salmon from a 7-3/4 oz can processed in the Ketchikan NEFCo-Fidalgo plant in July 1980. Because the can was found to have apparently been contaminated by introduction of botulina spores through a hole which was caused by the processing equipment in Ketchikan, that plant's entire 1980 and 1981 7-3/4 oz packs were recalled in the United States and many other countries. Additionally, all Alaska canned salmon in several European countries was embargoed. At present, the industry is temporarily withdrawing all 7-3/4 oz cans which were processed through the same type of canning equipment and which were not also examined for defects by electronic means. These cans will be subsequently tested and those without defects returned to the market. Depending upon the results of this testing, there may be further recalls of individual processing plants production.

Regardless of the eventual outcome of the present situation, the Alaska salmon canning industry will suffer significant financial loss from two sources--(a) the direct cost of compliance with the recall, the temporary withdrawal and examination of cans and bringing their production runs into compliance, and (b) lost revenues from the likely lowering of consumer demand for canned salmon and a subsequent retail price drop. Traditionally, this time of year is one in which the industry has the positive cash flow needed to finance the summer's pack. This flow is now reversed for many processors because they must pay for the return of the suspect cans, their examination, and ultimate return to the market place.

Governor Hammond established an informal working group to address potential impacts of this situation on the Alaska seafood industry and the State in general, and also to formulate and examine strategies to assist the industry in overcoming the potential loss. The working group members are:

- Commissioner Ernie Mueller, Chairman
- Commissioner Ron Skoog
- Commissioner Charles Webber
- Roger Painter, Executive Director, United Fishermen of Alaska
- x Eric Eckholm, Executive Director, Alaska Seafood Marketing Institute

Rick Lauber, Representative, Pacific Seafood Processors
Association

Mike Whitehead, Special Assistant to Governor Hammond

Larry Cotter, Business Manager, International Longshoreman's
& Warehousemen's Union

It must be understood that at this point in time, the exact consequences of this incident cannot be predicted. The number of actual recalls, the number of cans involved, and the cost to the industry will not be known for several months. To some extent, there will be a cause and effect relationship between these factors. The intent of the industry in preparing for the 1982 salmon harvest will not be able to be determined with any degree of accuracy until early May at the earliest. An individual firm's reaction will be dependent upon its own management decisions, economic situation, and how directly it is affected. However, as a practical matter, we can assume that the loss to the industry will be great, and that the loss will be translated into a loss to fishermen, cannery workers, communities, small businesses and the many, many others whose life-style and livelihood depend, at least in part, on Alaska's seafood industry. Thus, any strategy which is developed by the State must attack the situation in a direct and expeditious manner, and also provide means, over the long term, to prevent recurrence of this incident.

After review of the material available to it, the working group has made the following observations and recommendations:

MARKETING

I. The State is conducting a comprehensive analysis of the 1982 Alaska seafood market. This project will be able to estimate the market impacts of the canned salmon incident, and the contractor for this ongoing project has been requested to redirect the study where necessary:

- ° Lead agency: Commerce and Economic Development
- ° Additional funds needed: None
- ° Preliminary report: April
- ° Final report: May 15
- ° Further work needed: None

II. Detailed analysis of the market implications will be needed, and detailed market demand statistics and price information will be essential for at least the next two years. The Alaska Seafood Marketing Institute is negotiating a contract to provide these services:

- ° Lead agency: ASMI
- ° Additional funds needed: \$100,000 (estimate)
- ° Contract negotiated: March 30
- ° Reports prepared: To be determined
- ° Further work needed: Secure appropriation

III. A substantial effort in advertising and marketing will be required to reverse any erosion in sales of canned salmon and other fisheries products that will result from reduced consumer confidence. ASMI is developing a detailed proposal based on the work of the Tuna Institute after a tuna-related botulism incident occurred in the early 1960s. No funding exists for such a project, however, HB 453, now in the House Rules Committee would, if amended, be able to provide funding to the Alaska Seafood Marketing Institute for this special project.

- ° Lead agency: ASMI
- ° Additional funds needed: To be determined
- ° Proposal available: March 15
- ° Further work needed: Legislature needs to amend and pass House Bill 453

IV. Opportunity exists for possible large volume institutional purchase of canned salmon by the U. S. Government for use in Defense Department, Bureau of Prisons, and other institutional feeding programs. The State may be able to encourage these purchases through the Alaska Congressional Delegation.

- ° Lead agency: ASMI
- ° Status: Ongoing

V. The European nation embargo on Alaska canned salmon and restriction by other nations must be removed before the industry can become viable. Now that the U. S. Food and Drug Administration has made its final position known, foreign nations should be encouraged to adopt it, rather than a more harsh alternative. The Alaska Congressional Delegation, the U. S. Department of Commerce, and the State Department all need to be contacted by the State.

- ° Lead agency: Governor's Office
- ° Further work to be done: Contact Congressional Delegation and U. S. Government agencies
- ° Time: As soon as possible

FINANCING

I. The State's current fish pack loan program could help assist the industry in meeting its financial needs for the 1982 harvest. Additionally, the program does hold a substantial amount in notes from the 1981 pack to processors who will suffer economic loss as a result of this incident. Funds in the fish pack loan fund will lapse at the end of June 1982, and no funds will be available for the 1982 pack unless the Legislature takes action. In addition, eligibility requirements for these loans must be amended by the Legislature so that loans can be extended to all those in need. Extending payment period of these loans beyond the current one year statutory limit is extremely important to improving the ability of this program to offer real help to the industry. More funds would be available if the current appropriation were restructured into a loan guarantee program which would leverage additional funds through the private financial market. HB 669, currently in the House Finance Committee, could be amended and passed to meet these needs. Specific statutory language will be available from the Pacific Seafood Processors Association late in the week of March 8.

- ° Lead agency: Commerce and Economic Development and PSPA
- ° Industry position available: March 10
- ° Further work needed: Amend and pass HB 669.

II. Present mechanisms exist to provide funds through State-sponsored programs to assist the industry in meeting this crisis. The Alaska Renewable Resources Corporation, the Commercial Fisheries and Agriculture Bank and the Alaska Industrial Development Authority need to be contacted to determine programs and resources available. The Department of Commerce and Economic Development has scheduled a meeting for Tuesday, March 9, among these programs.

- ° Lead agency: Commerce and Economic Development
- ° Date of Meeting: March 9
- ° Availability of recommendations: March 10

III. The Legislature may want to consider special forms of tax relief for those suffering loss as a result of this incident. The most appropriate tax vehicle may well be the Raw Fish Tax. Consideration could be made of forgiveness or deferral of part or all of the 1981 Raw Fish Tax payments of those who suffer loss, as well as suspension or deferral of the 1982 tax payments. Industry representatives will likely make such a proposal to the Legislature.

- ° Lead agency: Pacific Seafood Processors Association
- ° Proposal prepared: March 10
- ° Further action: Legislation submitted by appropriate committee

QUALITY ASSURANCE AND PRODUCT SAFETY

I. Research needs to be performed to determine the extent of microbial contamination of cannery environs, possible points of contamination of canned salmon, improved means of preventing contamination, and means of rapidly and effectively detecting can integrity failure. The Pacific Seafood Processors Association is developing a detailed proposal in this area. If this program is supported, funds should be appropriated to the Department of Environmental Conservation, who would then contract with a qualified scientific research establishment.

- ° Lead agency: ADEC with PSDA
- ° Additional funds needed: \$500,000 (estimate)
- ° Proposal available: March 8
- ° Additional work needed: Seek legislative appropriation

II. The Alaska Seafood Marketing Institute has developed a draft model Seafood Quality Assurance Program as part of its mandated effort to improve quality control in the Seafood Processing Industry. This voluntary program will be undergoing wide review in the next few months, and will be in place on a test basis in the 1982 season. The plan would then be updated and made final for the 1982 season. This program would eventually cover all major Alaska seafood, not just canned salmon. ASMI is also looking into means to encourage or enforce voluntary compliance with these guidelines.

- ° Lead agency: ASMI
- ° Draft available: Now
- ° Preliminary implementation: 1982 season
- ° Final implementation: 1983 season

III. The State needs to expand its current program of surveillance over seafood processing in order to help ensure that incidents such as this one do not occur in the future, and to help assure the consumer that we have taken positive steps to increase the safety of the product. As far as the canned salmon industry goes, the currently developed Canned Salmon Control Plan system could be used as a vehicle for strengthening State requirements. If the State required that such a plan be prepared and approved before each processor begins his annual operations, the State could enforce use of the plan through its current inspection and enforcement program.

- ° Lead agency: ADEC
- ° Funds required: To be determined
- ° Further work to be done: Draft and introduce new legislation

1982 SEASON

I. The impact of the canned salmon/botulism incident will likely be felt the greatest in the 1982 fishing season. At this point, it is not possible to predict the impact on raw fish prices, cannery operating schedules, product marketing and pricing, and many other factors. It is important to analyze, on an ongoing basis, the capacity for processing fresh, frozen and canned salmon, the intent of the processing industry in using this capacity, actual plant utilization, and any shift from canned salmon to other forms. The Department of Fish and Game conducted an analysis of plant capacity in December 1981, this is not expected to change significantly.

Because of the competitive nature of some of this information, it is not likely that the State will be able to ascertain precisely what the processing industry will do during the 1982 season. Information available will probably be largely limited to monitoring ongoing operations and noting any changes from past practices. The ability of the State to respond to under-utilized fish processing capacity is limited. However, it may be possible to encourage use of foreign fish processing vessels, or air freighting raw fish to other processing areas. The most effective way to keep abreast of this evolving aspect is to rely on periodic reports of the Department of Fish and Game as the season progresses.

- ° Lead agency: ADF&G
- ° Progress reports: As needed

II. In the event that there is significant under-utilization of canning capacity, some fish processors may want to fly fish to freezer plants, or fly them fresh to market. Currently, there is no legal obstruction to air freighting fish directly from the point of catch to a plant or market outside of Alaska. Transporting fish by air intra-state does, however, fall under the jurisdiction of the Alaska Transportation Commission. In the past, the seafood industry has alleged that insufficient certificated carriers were available to transport the quantities of fish required, and the ATC was too inflexible to allow non-certificated carriers or to issue emergency certification that would assure transport of fish to available processors. At this point, it appears that the ATC has sufficient authority to provide sufficient carriers, and merely needs to be convinced of the need. This should be the responsibility of the processing industry in concert with appropriate air carriers. However, the working group should keep informed of developments so that it can take action necessary to assure that harvested fish are not delayed in transporting to available processing facilities.

- ° Lead agency: ATC
- ° Status: Ongoing

III. In the event that active capacity is not sufficient to process the 1982 harvest, it may be appropriate for foreign-owned processing vessels to provide the additional capacity needed. However, there are legal problems associated with the State controlling foreign processing vessel use in Alaska's waters. There is legislation pending before Congress that would allow a governor of the affected state to control foreign processor entry. It is suggested that the State take action necessary to encourage the passage of this legislation.

- ° Lead agency: Office of the Governor and
Department of Fish and Game
- ° Status: Ongoing

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

Leg Lib
SB 872
1982

FISCAL NOTE

I. REQUEST
Bill/Resolution No. _____
Title _____
Requested by _____ Date _____

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

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES		485	485	485		
200 TRAVEL		110	110	110		
300 CONTRACTUAL		590	590	590		
400 COMMODITIES		17	17	17		
500 EQUIPMENT		100	100	100		
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		1,302	1,302	1,302		

FUNDING (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

FULL TIME						
PART TIME						
TEMPORARY						

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

100'S

1) Upgrade 2 inspectors / Anchorage
2) Add 1 Compliance inspector - Anchorage
3) Add 1 inspector / Homer
4) Add 1 inspector / Bristol Bay
5) Add 1 inspector / Southcentral
6) Add 1 inspector / Unalakleet
7) Add 1 microbiologist / Fairbanks
8) Add 2 microbiologists / DEC Gabe Palmer
9) Add 1 Chemist / DEC Gabe Palmer
10) Add 2 Clerical / Fairbanks
11) Add 1 inspector / Anchorage

12 - 2400000

IV. DATE _____ PREPARED BY _____
AGENCY _____

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

200's

Travel equivalent to FY 83 budget

300's

Space 20,000

Utilities 20,000

Training 50,000 (FDA, NHTS, CDC)

Research 500,000 (Microbiology, can integrate)

400's

Equivalent to FY 83 budget

500's

Lab equipment

FISCAL NOTE

*For Thursday
a.m.*

I. REQUEST

Bill/Resolution No. SB 872 the seafood processing industry
 Title An Act relating to sanitation, sanitary practices, and quality assurance in
 Requested by Rules Committee by Request of Governor Date March 23, 1982

II. FISCAL DETAIL

Agency Affected Department of Environmental Conservation
 Program Category Affected Public Protection
 BRU, Program, Or Subprogram(s) Affected Seafood & Animal Industries, Seafood Indu
 (Note: If more than one budget component is affected, separate line-item
 amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES		42.8	57.1	57.1		
200 TRAVEL		35.5	35.5	35.5		
300 CONTRACTUAL		500.0				
400 COMMODITIES		3.0	3.0	3.0		
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		581.3	95.6	95.6		

FUNDING (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
GENERAL FUND		581.3	95.6	95.6		
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
FULL TIME	14.0	16.0	16.0	16.0		
PART TIME	2.0					
TEMPORARY						

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

SB 872 provides authority for the Commissioner of Environmental Conservation to conduct research leading to improved techniques to improve sanitation practices and development of improved techniques in surveillance (including inspectional activities). Includes microbiological assessment for botulism and other organisms in seafood products and the research into new technological surveillance of can integrity for canned salmon.

Provides for upgrading two FTT (3 mo.) positions in the seafood component to PFT (PCN 18-7304 and PCN 18-303), and 12.6 for '83 travel for the two positions.

Requests 22.9 for additional travel of seafood inspection personnel for increased surveillance of program responsibilities in SB 872.

IV. DATE April 19, 1982

PREPARED BY F.S. Honsinger, D.V.M.

AGENCY ADEC

Original: Legislative Finance

PHONE 465-2628

cc: Budget and Management

Prime Sponsor (First Legislator Named)

33-001 (Rev. 12/81)

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

Received
4/22/82
4:30 p.m.

FISCAL NOTE

I. REQUEST

Bill/Resolution No. SB 872 the seafood processing industry
Title An Act relating to sanitation, sanitary practices, and quality assurance in
Requested by Rules Committee by Request of Governor Date March 23, 1982

II. FISCAL DETAIL

Agency Affected Department of Environmental Conservation
Program Category Affected Public Protection
BRU, Program, Or Subprogram(s) Affected Seafood & Animal Industries, Seafood Indust.
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES		42.8	57.1	61.0		
200 TRAVEL		61.2	35.5	35.5		
300 CONTRACTUAL		575.5	15.0	15.0		
400 COMMODITIES		6.0	3.0	3.0		
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		685.5	110.6	114.5		

FUNDING (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
GENERAL FUND		685.5	110.6	114.5		
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
FULL TIME	14.2	16.0	16.0	16.0		
PART TIME	2.0					
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III) SB 872 provides authority for the Commissioner of Environmental Conservation to conduct research leading to improved techniques to improve sanitation practices and development of improved techniques in surveillance (including inspectional activities). Includes microbiological assessment for botulism and other organisms in seafood products and the research into new technological surveillance of can integrity for canned salmon.

Provides for upgrading two PPT (3 mo.) positions in the seafood component to PFT (PCN 18-7304 and PCN 18-7305), and 12.6 for '83 travel for the two positions, and also provides for five contract inspectors for '82 canned salmon season, averaging four months per inspector.

Request: 24.9 for additional travel of regular seafood inspection personnel for increased surveillance of program responsibilities in SB 872, and 23.7 for the contract inspectors for the '82 canned salmon season.

Full seafood inspection staffing request will be provided for the FY84 budget as provided for in SB 872.

IV. DATE April 19, 1982 PREPARED BY F.S. Honsinger, D.V.M.
AGENCY ADEC
Original: Legislative Finance PHONE 465-2628
cc: Budget and Management
Prime Sponsor (First Legislator Named)
33-001 (Rev. 12/81)

Adopted



Alaska State Legislature

SENATE Resources Committee

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Official Business

BETTYE FAHRENKAMP, Chairman
VIC FISCHER, Vice-Chairman
BRAD BRADLEY
DICK ELIASON
DON GILMAN
BOB MULCAHY
ARLISS STURGULEWSKI

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Bradley
Senator Eliason
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

April 21, 1982
4:05 p.m.

Beltz Room
Room 211 - Capitol

Hearing:

SB 872 An Act relating to sanitation, sanitary practices, quality assurance, and marketing of Alaska seafood products.

Lieutenant Governor Terry Miller spoke in support of CSSB 872, calling it a necessary response to the current crisis plaguing the salmon industry. Involved are a state-sponsored mandatory inspection program, and an industry-based voluntary program with incentives. Miller concluded by stating that Governor Hammond supports the philosophical thrust behind CSSB 872.

Ernie Mueller, Commissioner, Department of Environmental Conservation, stated that the current role of the Department is to assure that all seafood is processed in accordance with safety and sanitation regulations, rather than assuring product quality. Mueller suggested the bill be changed to clarify the relationship between DEC and the Alaska Seafood Marketing Institute, and a new section be added mandating that the Department report back to the legislature next year with recommendations on how it will carry out the program in CSSB 872. He stated that the current fiscal note upgrades two part time employees to full time. In regard to regulations, he explained that the Department would prefer that each plant submit a plan to DEC on how it will operate, and inspections will be to assure conformance with each individual plant's plan.

Dr. Fred Honsinger, Director, Seafood and Animal Industry Division, Department of Environmental Conservation, described the difficulty the Department has in finding qualified inspectors.

The meeting was adjourned at 5:00 p.m. until 8:15 a.m. the following day.



Alaska State Legislature

SENATE Resources Committee

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Official Business

BETTYE FAHRENKAMP, Chairman
VIC FISCHER, Vice-Chairman
BRAD BRADLEY
DICK ELIASON
DON GILMAN
BOB MULCAHY
ARLISS STURGULEWSKI

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Bradley
Senator Eliason
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

April 22, 1982
8:30 a.m.

Beltz Room
Capitol - Room 211

Hearing:

SB 872 An Act relating to sanitation, sanitary practices, quality assurance, and marketing of Alaska seafood products.

Rodger Painter, Executive Director, United Fishermen of Alaska, explained that the U.S. Food and Drug Administration is reviewing its current program of inspection of canned salmon, and is intending to increase surveillance and require additional procedures. He stated that the Alaska Seafood Marketing Institute is working on a model fish hold inspection program. He urged that the State step in only if there is no substantial participation, rather than giving DEC broad inspection powers now. Painter concluded by emphasizing the difference between product safety and product quality, and suggested that SB 872 be amended to instruct the Department of Environmental Conservation to come back to the legislature with a plan on how to implement the quality assurance program.

Rick Lauber, Pacific Seafood Processors, stated that the processors want to do everything possible to make sure no further crises occur, and would like the emphasis of FDA and DEC to be placed on product safety. Lauber urged that ASMI be allowed to continue developing quality control guidelines, and that the State step in only if the processors do not participate voluntarily.

Senator Fahrenkamp expressed concern over the completeness of the fiscal note, stating she wants to make sure DEC has the personnel and the funds necessary to implement the program.

At 9:50 a.m. the meeting was recessed until after session.

The meeting resumed at 12:25 p.m.

Eric Eckholm, Executive Director, Alaska Seafood Marketing Institute, said he was not at liberty to make an official statement on SB 872, as his Board of Directors had not met to discuss the bill, but he believes the majority of the industry supports the bill. He stressed the importance of using in-plant and industry personnel in the inspections. Eckholm stated the basic inspection seal is needed right away to assure confidence in the consumer, but ASMI would like to do a market test on the quality seal this fall to determine its affect on marketability.

Dr. Fred Honsinger, Director, Seafood and Animal Industry Division, Department of Environmental Conservation, presented a new fiscal note allowing for more employees. He stated that an ongoing training program would need to be instituted, and that FDA and the National Marine Fisheries Service are willing to help in this regard. Because of time constraints, contract employees will be most feasible for this season.

The meeting was adjourned at 1:05 p.m.



Alaska State Legislature

SENATE Resources Committee

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Official Business

BETTYE FAHRENKAMP, Chairman
VIC FISCHER, Vice-Chairman
BRAD BRADLEY
DICK ELIASON
DON GILMAN
BOB MULCAHY
ARLISS STURGULEWSKI

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Eliason
Senator Gilman
Senator Sturgulewski

April 23, 1982
1:40 p.m.

Beltz Room
Capitol - Room 211

Hearing:

- SB 835 An Act establishing a National Petroleum Reserve, Alaska, trust fund account and providing for uses of the money placed in the account: and providing for an effective date.
- SB 872 Relating to sanitation, sanitary practices, and quality assurance in the seafood processing industry.
- CSHB 47 An Act relating to the prohibition against waste of the meat of big game animals and wild fowl.

SB 872

Dr. Fred Honsinger, Director, Seafood and Animal Industry Division, Department of Environmental Conservation, suggested that page 3, line 7 of the Committee Substitute be changed from "in conjunction" to "after consultation".

Senator Gilman moved the amendment to page 3, line 7. He then moved the Committee Substitute and asked unanimous consent. Gilman moved the Letter of Intent and asked unanimous consent.

SB 835

Tom Koester, Attorney General's Office, stated that SB 835 raises some legal questions. It violates the constitutional prohibitions of a dedicated fund, and the enactment of local or special legislation. In addition, it makes an appropriation in an enactment bill, and the wording "minimum of 50%" takes the power of appropriation away from the legislature. Koester concluded by stating that he would provide the Committee with written testimony outlining the legal questions raised by the bill. (See attached.)

Senate Resources Committee

April 23, 1982

Page 2

Tom Smythe, Consultant, North Slope Borough, provided background on the National Petroleum Reserve, Alaska. He supports SB 835, stating that the funds are needed to continue a program of service in the field and alleviate impacts on the community.

Robert J. DuPere, Consultant, North Slope Borough, explained that the constraint is on the operating budget. Funds are needed for sanitary and solid waste facilities: Search and Rescue: mitigation of environmental impacts: airstrips, roads, and other lines of communication. DuPere then suggested overcoming the constitutional problems outlined by Tom Koester through wording changes that would allow the legislature to make yearly appropriations to impacted communities.

Senator Gilman expressed concern over how impacts will be measured, and how eligibility for funds will be ascertained.

Senator Fischer raised questions about how the 50% that doesn't go to the North Slope Borough will be spent. Also, he suggested that appropriations to the North Slope Borough be subject to legislative review periodically, or that a Letter of Intent be sent with the bill.

Senator Fahrenkamp directed Koester, DuPere, and the Resources Committee Staff to work together after the meeting to find an agreeable solution to the issues raised.

HB 47

Senator Sturgulewski moved CSHR 47 (Jud)(am) with individual recommendations.

The meeting was adjourned at 3:05 p.m.

SENATE
RESOURCES COMMITTEE
LETTER OF INTENT
CSSB 872(Res)

It is the intent of the Senate Resources Committee in passing out this bill that the inspection seal shall not be used by the Alaska Seafood Marketing Institute until authorized by the Commissioner of the Department of Environmental Conservation.

It is also the intent of the Senate Resources Committee that the Department of Environmental Conservation supply, on a regular basis, to the Alaska Seafood Marketing Institute a list of processors that have complied with the permitting and plan of operation provision of this Act.

DEVELOPMENT GUIDELINES

FOR

SEAFOOD PROCESSING

QUALITY ASSURANCE

PLANS OF OPERATION

INTRODUCTION

These guidelines are provided to assist the Alaska seafood processing industry in the development of their quality assurance plans of operation. Each permit application for a seafood processing operation that is submitted to the Department of Environmental Conservation must be accompanied by a Q.A. plan of operations which conforms to these guidelines.

The objective of the Q.A. plan of operations is to define the specific procedures which will be utilized to detect and prevent the production of unwholesome or adulterated product, and product which does not meet applicable standards of specifications. The plan must demonstrate in a detailed, written format, that when applied; it will effectively and reliably meet this objective.

The format defined in these guidelines has been designed to facilitate ease in the development of the plan of operation and the review process.

TABLE OF CONTENTS

SUBJECT

PURPOSE

AUTHORITY

PROCEDURES

- (a) Quality Assurance Plan Development
- (b) Quality Assurance Plan Development Guidelines
- (c) Evaluation of Facilities and Equipment
- (d) Quality Assurance Plan Review and Evaluation
- (e) Permit
- (f) Inspection

SUBJECT: Guidelines for Quality Assurance Plans of Operation

PURPOSE: Provide guidelines for development of quality assurance plans of operation for seafood processing operations to insure consistent production of safe, wholesome, unadulterated, acceptable quality fish and fishery products.

AUTHORITY: AS.03.05.010(c), AS 03.05.025, AS 03.05.026

PROCEDURES:

(a) Quality Assurance Plan Development

- (1) Each seafood operation must submit for review and approval by the department, a comprehensive, written quality assurance plan which conforms to these guidelines. Every element contained in the guidelines must be specifically addressed in the quality assurance plan.
- (2) The format prescribed in these guidelines will be required for all quality assurance plans submitted to the department for review.
- (3) The department will not actively participate in the development of quality assurance plans for industry other than to provide clarification of specific requirements contained in the guidelines.

(b) Quality Assurance Plan Development Guidelines

I. Permit Application

To include revised application form with instructions.

II. Facilities & Equipment Plans & Specifications

To include step by step instructions for development of plans, specifications and associated information for land based and vessel based operations

General Categories of information will be as follows:

1. Site Plan (land based)
2. Operating Location Information (vessel based)
3. Equipment & Operation Locations
4. Surface Finishing Schedules
5. Equipment & Material Specifications
6. Plumbing Plan
7. Lighting
8. Ventilation
9. Structure Characteristics and Equipment for Insect & Rodent Control

III. Water Supply & Treatment

To include:

1. Description of Water Source(s)
2. Raw Quality of Water Source
3. Methods of Protection of Source
4. Carriage System from Source to Operation

5. Quantity of Water Used
6. Methods of Treatment
7. Monitoring Program for Quality & Treatment

IV. Waste Treatment & Disposal

To include:

1. Types of Waste Generated
2. Quantities of Waste by Type
3. Methods of Treatment
4. Methods & Locations for Storage
5. Methods & Locations for Disposal

V. Quality Assurance Plan

1. Statement of the Purpose of the Plan
2. Organizational Structure
 - a. Organizational Chart
 - b. Direct Management Relationships
 - c. Functional Relationships
 - d. Assignment of Responsibility & Authority
 - e. Individual's Names
3. Products Processed & Process Methods
 - a. Basic Products Processed
 - b. Finished Product's Form
 - c. General Process Methods by Product Form

4. In - Process Controls
 - a. Product & Product Form
 - b. Process Flow Diagrams with Critical Point Identification & Inspection Station Identification & Report Flow
 - c. Process Flow Narratives
 - d. Description of each Q.A. activity at each inspection Station to Include: Attributes Inspected For, Specifications, Sample Plan or Control, Action Taken on Non-conformance
 - e. Recordkeeping & Reporting

5. Packaging Operation Controls
 - a. Product, Product Form, Type of Packaging
 - b. Flow Diagrams with Critical Point Identification, Inspection Station Identification & Report Flow
 - c. Coding & Labeling Controls to be Included
 - d. Packaging Process Flow Narratives
 - e. Description of Each Q.A. Activity at Each Inspection Station to Include: Attributes Inspection for, Specifications, Sample Plan or Control, Action Taken on Non-conformance.
 - f. Recordkeeping & Reporting

6. Finished Product Evaluation
 - a. Product, Product Form & Quantity

- b. Description of Evaluation Process to Include:
Attributes Inspected For, Specifications, Sample
Plan or Control, Action Taken on Non-conformance
- c. Recordkeeping & Reporting

7. In-Coming Material Controls

- a. Lists of Materials by Category
- b. Description of Q.A. Inspection Activities by
Material or Category to Include: Attributes
Inspected For, Specifications, Sample Plan or
Control, Action Taken on Non-conformance
- c. Recordkeeping & Reporting

8. Warehousing Requirements & Controls

- a. Floor Plan for Warehousing Areas
- b. Quantities of Materials to be Warehoused by
- c. Plan for Product & Material Segregation & Rotation
- d. Plan for Damaged Materials Handling
- e. Recordkeeping & Reporting

9. Control & Handling of Non-Conforming or Unacceptable
Materials

- a. Identification Procedures
- b. Segregation Procedures

- c. Disposal Procedures
- d. Recordkeeping & Reporting

10. Sanitation Monitoring

- a. Cleaning Methods & Schedules
- b. Facilities & Equipment Condition
- c. Grounds Maintenance
- d. Pest Control & Pesticides
- e. Instructions for Personnel Hygienic Practices
- f. Scheduled Inspections
- g. Recordkeeping & Reporting

11. Calibration of Equipment & Instruments

- a. Equipment & Instruments Requiring Calibration
- b. Frequency of Calibration for Each Piece of Equipment or Instrument
- c. Method of Calibration For Each Type of Equipment or Instrument
- d. Verification of Control Used for Calibration
- e. Recordkeeping & Reporting

12. Recordkeeping & Reporting Forms

This section will include recommended, and in some cases mandated form examples. Each plan submitted will include examples of all forms to be used

13. Analytical Methods Reference

This section will include definitive descriptions for each evaluation, testing or analytical procedure used in the Q.A. process

14. Product & Materials Specifications

This section will include copies of all product and materials standards or specifications used by the processor

15. Contingency Plans

This section will include proposed contingency plans in case of failure of major systems to include notification of the department of reversion to the contingency plan. Major areas to be addressed are as follows:

- a. Water Supply & Treatment Systems
- b. Waste Treatment and Disposal
- c. Major System or Equipment Failure, i.e. steam generation, refrigeration, electrical, etc.
- d. Disaster Plan
- e. Recall Plan

16. Technical Reference Appendix

This section will include copies or listings of

technical references used as support for the Q.A.
process

VI. Definition of Terms

This section will be used to define terms used in the development guidelines and will be recommended to be included in each plan of operations to define terms used in the actual plan

(c) Evaluation of Facilities and Equipment

- (1) An onsite evaluation of the facilities and equipment will be conducted by a department inspector to determine compliance with Alaska Statutes and Regulations prior to formal review of the submitted quality assurance plan. A report of the inspector's findings will be submitted to the reviewing official and a copy provided to a responsible individual representing the processing operation at the time of inspection.
- (2) The onsite evaluation will be scheduled upon receipt of a written request from the operator of the seafood processing facility. Onsite evaluations will be conducted within a reasonable period of time after receipt of the written request.
- (3) Onsite evaluation of the processing facilities may be postponed at the discretion of the department. Postponement of onsite evaluation will not preclude provisional approval of the proposed quality assurance plan.

(d) Quality Assurance Plan Review and Evaluation

- (1) Upon receipt of the proposed quality assurance plan and onsite evaluation report, they will be forwarded to an evaluation team which will consist of department staff members with specific expertise in the various types of processing technologies, (i.e.: low acid canning, curing and smoking, freezing, processed prepared foods, etc.) as well as product characteristics and associated public health and product quality concerns.
- (2) The quality assurance plan and onsite evaluation will be reviewed for compliance with the guidelines and Alaska statutes and regulations. Any significant deficiencies noted will be reported to the seafood program administrators with suggestions for corrective actions to make the plan acceptable.
- (3) The department will respond within 15 days after receipt of each permit application and quality assurance plan.

(e) Permit

- (1) Upon approval of the quality assurance plan and onsite evaluation the department will issue a permit to operate in accordance with 18 AAC 34.020 which incorporates the quality assurance plan.

(2) Failure to comply with the terms of the permit may result in suspension of the permit in accordance with 18 AAC 34.020(e), (f).

(f) Inspection

Inspection may include the collection of samples for examination and/or testing to include: product, raw materials, ingredients, food additives, chemical compounds and substances, packaging materials, labels, records, and documents relating to the quality control and quality assurance process.

NOTE: An attachment for the Guidelines for Quality Assurance Plan Development which consists of a copy of 18 AAC 34, FISH INSPECTION, with a compliance definition and public health explanation by section and/or paragraph will be provided to clarify interpretation and promote understanding of regulatory requirements.

SB872

TESTIMONY ON SALMON SAFETY AND QUALITY ASSURANCE
BEFORE THE
SENATE RESOURCES COMMITTEE

BY
LT. GOVERNOR TERRY MILLER

April 21, 1982

I appreciate the opportunity to appear before this committee to talk for a few moments about the need for a safety and quality program for Alaska's sea food products. The legislation before the committee provides for basic safety and establishes the framework for improving quality of Alaska seafood products by establishing a two-tier quality assurance program.

The first tier would warrant Alaska's salmon as safe and edible as a result of state-sponsored inspection. Within one year, we can have a State of Alaska seal on the labels of canned salmon that ensures that the product has been inspected for safety and quality.

Such a safety warranty program would at once accomplish two purposes, first, it would advise the consumer that the fish has been inspected to help ensure it is fit for human consumption; it would reassure those who have read or heard worldwide media announcements of the botulism death and sickness and the canned salmon recall.

Second, it would enhance marketing. Alaska is salable. Our tourism promotions have proven that the allure and excitement of our state appeals to a national and international market. A prominent seal indicating that the salmon has been caught in Alaska waters can enhance the image of the product. This would also allow future advertising and promotion efforts to be done generically by advising the consumer to look for the seal of integrity. Alaska salmon can be as appealing as Maine lobster, Florida oranges, or Washington apples.

The first-tier program would be mandatory. As a major world salmon producer, Alaska must put the interests of consumers first, we must try to ensure that consumers will be protected. This mandatory first-tier inspection is nothing but basic public protection; a traditional government function. It is not massive market inference and will not require an army of state employees to administer. To the contrary, the Department of Environmental Conservation, ASMI, and industry can jointly design a system which minimizes state intervention and optimizes industry benefit.

Through the use of "dudding" machines, cans can be electronically checked for their convexity which helps assure the integrity of the can and avoids botulism. Some responsible salmon canners already do this. "Dudding" adds only 10¢ to the cost of a case of salmon, with 48 cans to the case. Dudding can be done at high speed as the cans are sent in for labels. Indeed, it should be done in conjunction with electronic weighing, to try to avoid further incidences of botulism. Any can that is dudded and electronically weighed would qualify for a state seal.

By emphasizing the "dudding" process I do not mean to preclude a continuing search for other means or methods that may be even more effective in preventing an unsafe product from reaching the market. The legislation before you does provide for a continuing effort on the part of the Department of Environmental Conservation to improve surveillance and inspection activities.

We also need a second-tier quality assurance program, one that is voluntary and involves the active participation of industry. In many foreign markets, Alaska salmon (both canned and frozen) has the reputation of not being a quality product. The designation "premium grade", or the equivalent, could be added to the seal to indicate to the consumer that not only is the product safe, but the quality is intact. This quality check can be accomplished through statistical checking of case batches through the laboratories of the National Food Processors Association or similar organizations. The National Food Processors Association already does sampling for the FDA.

Several quality assurance programs could be examined as possible models. I would favor the one resulting in the least state interference with normal market behavior. Again, this grading could be voluntary, but marketing generically through the use of the seal would encourage industry participation. The money that the state spends marketing canned salmon would be spent only to promote salmon bearing the Alaska mandatory safety and voluntary quality seal. We should not spend a dime trying to market salmon that will bomb in the market place.

I believe the voluntary approach as outlined in this legislation for the second tier system is feasible. It is my expectation that the Department of Environmental Conservation (DEC) and the Alaska Seafood Marketing Institute (ASMI) will implement this system first for canned salmon and that, over a period of time, quality standards will also be set for other means of preserving salmon and other seafoods. However, I think that quality is so important to the future of this industry that the legislature and the administration should monitor the

efforts of DEC and ASMI so that further steps can be taken if necessary to improve the reputation of Alaska seafood in the marketplace.

It should be made clear that DEC will be the lead agency in ensuring that the quality guidelines are set. I believe that language in the bill does make this clear but also provides for ASMI participation to the extent that their expertise in marketing and their understanding of the processing industry can be useful in setting realistic and reasonable standards.

So, I support the two-tiered quality assurance program as outlined in this bill. The first tier being mandatory and guaranteeing basic product safety and being implemented as quickly as possible. The second tier would address product taste, color, and general desirability; it would be based on voluntary industry participation with strong incentives for involvement and would be implemented in stages over a three-to-five year time frame.

This seal of safety and quality program can be modeled after an existing program. The federal tuna safety inspections helped that industry rebound and could well become our example.

Governor Hammond earlier this week endorsed the approach that is outlined in this bill. Fishermen and representatives of the processing industry have agreed that the directions set in this legislation can be accomplished and agree with the need for a certification of these goals. That, by the way, is a significant step. There is general recognition by those dependent upon the fishing industry that if we are to maximize market potentials and allow for future economic growth, these steps are necessary.

I don't want to belabor the importance of what you are now considering. There are many in the legislature who believe that aid to the industry in the wake of the market instability due to the botulism incidents is contingent upon safety and quality assurance. Frankly, I agree with them. I believe that this bill does provide these basic assurances and that this legislation should be the catalyst for marketing and pack loan assistance to an industry reeling from the death of a Belgian man and the illness of an American woman who possibly may have eaten a can of tainted salmon.

Today, now, the salmon industry is in mortal jeopardy. The crisis has reached such proportions that the state must take dramatic and immediate action to rescue this industry from what otherwise may become certain disaster. Make no mistake about it, the stakes are high if we fail. A collapse or crippling of this industry will leave few Alaskans untouched.

Let's review what this industry means to our state. Fishermen in Alaska waters last year earned about \$600 million and the wholesale value of the fish pack is double that. The fishing industry is the state's largest private employer with a peak of about 55,000 jobs each summer, and the industry is the second-largest revenue generator for the state behind petroleum. Employment in the processing industry has grown by 43% in the past eight years. The support industries in the service sector, transportation fields and other businesses, ranging from hardware to electronics, also benefit substantially from the industry. It is time to also explode the myth that only the small coastal communities benefit from fishing. More commercial fishermen live in Anchorage than any other community and Anchorage employs more than 1,500 in the processing industry and salmon transportation sector.

While it may seem unreasonable that one, and possibly two, botulism-tainted cans out of the more than 210 million cans packed last year can threaten an industry that is so integral to the economic future of Alaska, it is unfortunately true. We are faced with the almost certain failure of some of the canneries in Alaska with consequent job losses, diminished earnings to the fishermen because of market instability, and falling state revenues generated by the industry. The processors, if they reopen, will be buying fish this year while they have yet to sell much of the fish from the 1980 and 1981 pack.

In 1963, the tuna industry suffered through a similar incident. Following the botulism related death of two Detroit women, 85,000 cans were recalled and the sales of tuna dropped nearly 50%. But it is hard to draw comparisons. In the tuna incident, only one cannery was involved--in this salmon incident, several canneries are involved and 50 million cans recalled. Also, tuna is a loss leader, traditionally sold in grocery store bins at a loss to attract customers while salmon is traditionally sold off the top shelf at a premium price.

Also in 1963, the tuna industry launched a \$10 million public relations effort to offset their botulism scare. That was in 1963 dollars. The tuna industry worked aggressively to recoup lost markets. If they hadn't, tuna canners and fishermen might not have survived. They also established a quality assurance program; one that is still in force today in modified form. Industry solicited FDA and National Marine Fisheries Service (NMFS) inspection, and cooperated in establishing safeguards to prevent a recurrence of these incidents.

It is time to stop arguing and lamenting about the setback; we must counterattack with a multi-faceted effort. It took 18 months to turn around the tuna industry in

1963-64. A sustained market slump for salmon beyond 18 months could doom the canned salmon industry in Alaska--processors, fishermen and all.

So, if safety and quality guidelines similar to what you are now considering pass, I strongly advocate these two actions: appropriation of money immediately to ASMI to stabilize and then expand the market for Alaska salmon, and adjustment of the fish pack loan program so that most processors can open this year. To be effective, these actions must be taken soon since the fishing season is nearly upon us and industry must know the extent of the state response so it can plan for the season.

Again, I appreciate the opportunity to testify before you this afternoon. I am gratified that this legislation is receiving consideration by this committee and I wish you success in your deliberations.

STATE OF ALASKA
THE LEGISLATURE

7

POUCH Y STATE CAPITOL
JUNEAU ALASKA 99811
437 465 3800

LEGISLATIVE AFFAIRS AGENCY

MEMORANDUM

April 7, 1982

SUBJECT: Federal-state jurisdictional conflicts in
the regulation of seafood processing vessels.
(SB 872)

TO: Senator Bettye Fahrenkamp, Chairman
Senate Resources Committee

FROM: Edward H. Hein *ELH*
Legislative Counsel

You have asked whether Sec. 2 of SB 872 presents a potential for conflicts with federal agencies, such as the Coast Guard, over the regulation of seafood processing vessels.

The general rule is that a state has authority to regulate matters affecting the health and safety of its citizens and to regulate the purity of food products produced in the state. The regulation may affect areas beyond the state's borders to the extent that the regulated activity affects or is connected to a legitimate state interest, such as health and safety. State regulation may be limited or pre-empted by federal regulation in areas of national concern that require uniformity across the country.

Section 2 of the bill appears to be aimed at protecting the health and safety of consumers of Alaska seafood products. The section bolsters the inspection and permit system that already exists under 11 . . . 37 by requiring processors to submit to the department an annual plan of operation.

Commissioner Mueller informs me that the department currently cooperates with the U.S. Public Health Service in Seattle and the King County (Washington) Health Department in providing for vessel sanitary inspections.

Under 46 U.S.C. §§367 and 404, vessels up to 5,000 gross tons "used in the processing or assembling of fishery pro-

Senator Bettye Fahrenkamp
Page 2
April 7, 1982

ducts in the fisheries of the States of Oregon, Washington, and Alaska" are exempt from Coast Guard inspections.

It appears, therefore, that Sec. 2 of SB 872 on its face does not present a conflict with federal law as it relates to processing vessels.

EHH:jdn

MEMORANDUM

State of Alaska

TO: The Honorable Ernst W. Mueller
Commissioner
Department of Environmental
Conservation

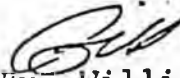
DATE: November 30, 1982

FILE NO:

TELEPHONE NO: 465-3603

FROM: Wilson L. Condon
Attorney General

SUBJECT: State liability on
"sealed" seafood


By: William G. Mellow
Assistant Attorney General

You have asked whether the state can be held liable for injury associated with consumption of seafood bearing a state approved seal. The answer is yes.

State liability claims can be predicated upon two broad bases; (1) negligence in carrying out statutory and regulatory duties and, (2) misrepresentation of the quality of food products.

The broad concept of sovereign immunity which shielded state and federal government from operational negligence a decade ago is now almost nonexistent. The basic rule applied by our court is that where there is negligence, there should be liability; immunity is the exception. State v. Abbott, 498 P.2d 712 (Alaska 1972). The state is liable for negligent inspections and failure to enforce discovered safety violations. Adams v. State, 555 P.2d 235 (Alaska 1976); Wallace v. State, 557 P.2d 1120 (Alaska 1976). Nevertheless, by statute, AS 09.50.250, the state is immune from liability arising solely from misrepresentation. Consequently, it is probable that as to this latter base of liability there would be state immunity. However, here the immunity is somewhat ethereal as the court's declaration that immunity is the exception will generally result in a finding wherever conduct which results in "misrepresentation" is also negligence of another form.

To reduce the above to a concrete example assume that pursuant to AS 03.05.010(c) regulations authorizing inspections and setting standards are promulgated and that a state inspector negligently fails to detect a sanitary violation or having detected same, fails to diligently pursue enforcement. A subsequent death which is proximately linked to the unsanitary condition of the product exposes the state to liability to the estate of the decedent. Simultaneously, if the contaminated product carried a State of Alaska quality seal, it could be stated that the decedent relied upon the quality assurance of the seal to his detriment and thereby has a claim for damages for the misrepresentation. A claim based solely upon misrepresentation might

well be struck on grounds of sovereign immunity but would survive challenge if it also rested upon the claim of negligence in inspection. It would be very unlikely, where a large damages claim is involved, that an attorney would himself be negligent enough to present a claim solely on the basis of injury by misrepresentation. Rather, it can be anticipated that all claims would also include a claim based upon negligent performance of a ministerial function.

The letter of November 1, 1982 from Eric Eckholm to Glenn Akins, a copy of which you attached to your opinion request, states that Canada, the U.S. Department of Commerce, and the State of Maine have no liability for the quality of products passing through their respective inspection programs. This is surely because of specific, well defined statutory immunity. Carefully drafted statutory language specifically addressing state inspection and quality assurance would eliminate state liability exposure. Unless such statutory immunity comes into existence in the future, the unequivocal answer to your question is that there is liability for state negligence to the same extent as would be present if the liability exposing activity were carried out by a nongovernmental entity.

I am willing to meet informally with your staff or representatives of the ASMI to discuss this matter and answer your questions and will additionally provide desired bill drafting upon request.

WGM/jal

Draft

DEVELOPMENT GUIDELINES

FOR

SEAFOOD PROCESSING

QUALITY ASSURANCE

PLANS OF OPERATION

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- (d) Quality Assurance Plan Review and Evaluation
- (e) Permit
- (f) Inspection

INTRODUCTION

These guidelines are provided to assist the Alaska seafood processing industry in the development of their quality assurance plans of operation. Each permit application for a seafood processing operation that is submitted to the Department of Environmental conservation must be accompanied by a quality assurance plan of operations which conforms to these guidelines.

The objective of the quality assurance plan of operations is to define the specific procedures which will be utilized to detect and prevent the production of unwholesome or adulterated product, product which does not meet applicable standards of specifications, and insure compliance with Alaska regulations and statutes. The plan must demonstrate in a detailed, written format, that when applied it will effectively and reliably meet this objective.

Examples provided in these guidelines are intended only to clarify explanations of what type of information is necessary, and a method of presenting that information. They are not intended to be a complete example of all information that may be required, and may not be considered as approved for any specific product or process.

While the guidelines and information required in a quality assurance plan of operation are concerned only with regulatory and public health concerns, the plan may be expanded to include application for product image enhancement, elegance and functional attributes for marketing purposes and consumer satisfaction.

The format defined in these guidelines has been designed to facilitate ease in the development of the plan of operation and the review process.

Submit the completed plan of operation, as well as questions regarding requirements of these guidelines, to:

Seafood Program Supervisor

Division of Seafood and Animal Industries

Department of Environmental Conservation

P.O. Box 1832

Anchorage, AK 99510 Telephone (907) 272-1561

SUBJECT: Guidelines for Quality Assurance Plans of Operation.

PURPOSE: Provide guidelines for development of quality assurance plans of operation for seafood processing operations to insure consistent production of safe, wholesome, unadulterated, acceptable quality fish and fishery products.

AUTHORITY: AS 03.05.010(c), AS 03.05.025, AS 03.05.026.

PROCEDURES:

(a) Quality Assurance Plan Development

(1) Each seafood operation must submit for review and approval by the department, a comprehensive, written quality assurance plan which conforms to these guidelines. Every element contained in the guidelines must be specifically addressed in the quality assurance plan.

(2) The format prescribed in these guidelines is required for all quality assurance plans submitted to the department of review.

If a processor wishes to submit an existing quality assurance program manual as their plan or in place of portions of the plan, an outline of the major requirements of these guidelines which provides direct reference to the section of the submitted manual that satisfies each requirement will be included with the plan.

(3) The department will not actively participate in the development of quality assurance plans for industry other than to provide clarification of specific requirements contained in the guidelines.

(b) Quality Assurance Plan Development Guidelines

I. Permit Application: Complete "ANNUAL UNIFORM PERMIT APPLICATION FOR SEAFOOD PROCESSORS" (Form 18-304) and include with the remainder of your Quality Assurance Plan of Operation.

II. Facilities and Equipment Plans and Specifications: Plans and specifications for design and construction of facilities and equipment are required with an initial permit application and plan of operation and prior to any major change in operation, and/or addition to or major renovation of facilities.

Drawings or plans do not need to be prepared by a registered engineer if all requested information is provided in accordance with these instructions:

(A) Site Plan: A drawing to scale (1 inch = 8 feet or larger) of the entire premises showing the location of all buildings, roadways, alleys, dock areas, streams, catchbasins, water wells, reservoirs, storage tanks, septic systems and solid waste storage. The character and surfacing of all traffic areas and drainage features of the premises must be provided. The north point of the compass must be indicated on the drawings.

Vessel based operations shall provide the navigational coordinates (latitude and longitude) of their anchorage for processing. They shall also include a chart (map) of the harborage or anchorage area where processing will be accomplished.

(B) Floor Plans: A floor plan must be prepared to scale (1 inch = 4 feet or larger) for each floor and all buildings that are utilized by the operation for any purpose. Each floor plan is to accurately illustrate the facilities as they will exist when the establishment is in operation.

Essential information which must be included are as follows: 1) walls; 2) partitions; 3) posts; 4) doorways; 5) windows; 6) floor drainage openings and gutters; 7) principal pieces of equipment; 8) facilities for equipment and utensil cleaning and sanitizing; 9) hand wash facilities; 10) employee work positions; 11) conveyors; 12) chutes; 13) storage areas (indicate type; i.e., dry, cold, chemical, etc., as well as temperature for cold storage areas); 14) shelves; 15) racks; 16) ventilation fans (indicate exhaust or intake); 17) ramps; 18) stairways; 19) lockers; 20) benches; 21) toilets; 22) urinals; 23) lavatories; 24) number of employees to be using each welfare and toilet room; 25) ceiling height; 26) operational use for each room; and 27) floor pitch is to be indicated by grade lines or arrows to show drainage characteristics.

(C) Finishing Schedule: The following information must be provided:

1. Material make-up of walls, floors, ceilings, shelves, counters, etc. (For example gypsum board, concrete, marlite).

2. Finish used on surfaces. (For example, specifications for paint, epoxy, fiberglass, etc.)

(D) Specifications: Manufacturers specifications or complete description of equipment must be provided (dimensions, materials, welded construction, etc.). Photographs of equipment are recommended in addition to specifications.

Note: Lighting, ventilation and plumbing may be incorporated on one drawing but, must be on a drawing or plan separate from the floor plan. The scale for the lighting, ventilation and plumbing plans shall be the same as the floor plan (1 inch = 4 feet or larger).

(E) Lighting: Plans must define the location, type and size of all lighting fixtures as well as indicate shielding (to protect against breakage and falling glass) in all exposed product packaging and storage areas.

(F) Ventilation and Insulation: Plans must indicate the type, size and location of ventilation and insulation used to control excessive steam, vapors, fumes and condensation.

(G) Plumbing:

- (1) Potable water, hot and cold (domestic and processing systems).
- (2) Seawater or salt water systems for fluming, processing, equipment washing, etc.
- (3) Nonpotable systems.
- (4) Waste systems (processing and domestic).
- (5) The following information must be provided in the plans for each of the above systems:
 - (a) Line sizes and locations;
 - (b) Location of each outlet or connection;
 - (c) Backflow/anti-siphonage protection; and
 - (d) The color coding system used in the plant for identification of each line as to the system.

(H) Pest Control: Plans must indicate the structural controls utilized to prevent access to the establishment by insects, birds and animals such as doors, screens, air curtains, etc.

This information may be included on either the floor plan or lighting, ventilation and plumbing plan.

III. Water Supply and Treatment: Engineered plans must be submitted in accordance with 18 AAC 80.100(C) which provides the following information:

- A. A description of the water source(s).
- B. Raw quality of the water source(s) which must comply with 18 AAC 70 and 18 AAC 80.050.
- C. The methods of protection of the water source(s).
- D. Carriage system from the source(s) to the operations(s).
- E. Quantity of water used.
- F. Methods and system for treatment of water supplies.

Sampling and analysis of water from water systems will be accomplished in accordance with 18 AAC 80.060 and 18 AAC 80.070.

Reporting and recordkeeping will be accomplished in accordance with 18 AAC 80.080.

IV. Waste Treatment and Disposal: The following general information must be provided:

- A. The types of waste generated.
- B. The quantities or volumes of each type of waste generated per 24 hour period.
- C. The methods and locations for storage of each type of waste.
- D. The methods of treatment for each type of waste.
- E. The methods and locations for disposal of each type of waste.
- F. The frequency and methods for monitoring waste storage, treatment and disposal to assure compliance.

The following specific information is required:

A. Domestic Sewage.

1. The maximum number of individuals served per day by the system.
2. If food service is provided and number of meals served per day.
3. The name of the municipal system, if discharged to such.
4. The following is required if a septic tank and leach system are utilized:
 - a. Tank size, type and number of compartments.
 - b. The soil type or percolation rate.
 - c. The type of soil absorption (leach) system.
 - d. Dimensions and size of the soil absorption system.
 - e. Separation or distance from the nearest well or water source.
 - f. Separation or distance from the nearest body of water.
 - g. Separation or distance from the water table.
 - h. Separation or distance from subsurface impervious layer (if applicable).

Note: An Alaska Department of Environmental Conservation ^{approved} adequacy test by a professional engineer licensed in the State of Alaska may substitute for the information (a through h) above.

5. The following is required for use of a septic tank with sand filter:
 - a. Tank size, type and number of compartments.
 - b. The sand filter size and load rate.
 - c. Specific information describing the discharge point and load rate.
 - d. Specific information describing the discharge point and location.

6. The following is required for use of package treatment plants:
 - a. Manufacturer or brand name of treatment plant.
 - b. The model of the treatment plant.
 - c. The capacity of the treatment plant.
 - d. The type of treatment.
 - e. Specific information describing the discharge point and location.

B. Processing waste.

1. The volumes in gallons per day of salt water discharged and fresh water discharged.
2. The maximum quantity of processing solids generated per day (24 hour period).
3. Environmental Protection Agency NPDES permit number if issued. If no NPDES permit issued, explain why; i.e., EPA declined to issue based on discharge quantity or volume.

4. Type of treatment; i.e., grinding or screening and recovery. In the case of grinding provide the following information regarding the grinder:
 - a. Manufacturer or brand name.
 - b. Model.
 - c. Capacity ratings for solid and liquid volumes.
 - d. Maximum discharge particulate size.
5. If disposal is to a third party recovery plant specify the name and location.
6. If disposal is by landfill or land discharge specify the location, name and solid waste disposal permit number of the operator.
7. As built or construction plans are required for all discharge systems. Information to be included is as follows:
 - a. Discharge point and location.
 - b. Depth at which the line is buried.
 - c. The type and size of the outfall line.
 - d. The depth below mean low, low water of the discharge point.
 - e. The loading facilities, storage facilities and site barge if barging, as well as chart coordinates for ocean dumping site or locale.

V. Quality Assurance Plan:

A. Statement of Purpose

This section shall state the purpose of the Quality Assurance Plan of Operations.

Example: The purpose of this plan is to define the specific procedures to be utilized to assure production of a safe, wholesome, unadulterated product in accordance with Alaska statutes and regulations and in conformance with applicable standards and specifications.

B. Organizational Structure

The quality assurance organization will be independent of the production organization to insure that quality assurance is exempt from control or direct pressure from production or other facets of the processing organization which might interfere with their performance.

Exception: In small operations where the owner or general manager (the final decision making authority) directly and actively supervises and/or participates in the on-line operations as a normal daily function, the aforementioned segregation of organization structure is not necessary.

This section will include an organization chart with corresponding statements which provide the following (Example, see Figure #1):

1. Direct management and supervisory relationship of the quality assurance organization and personnel to other major facets of the organization.

2. The functional relationship of the quality assurance organization and personnel to the other major facets of the organization.

3. Facets of organization to be addressed are as follows: a) management; b) production; c) warehousing; d) sanitation; e) maintenance; and f) quality assurance.

4. A description of general responsibilities by organizational area.

5. Names of individuals assigned major organizational responsibility and authority.

6. Identification of personnel who have authority to stop production and/or retain (prevent use or distribution of) product and materials.

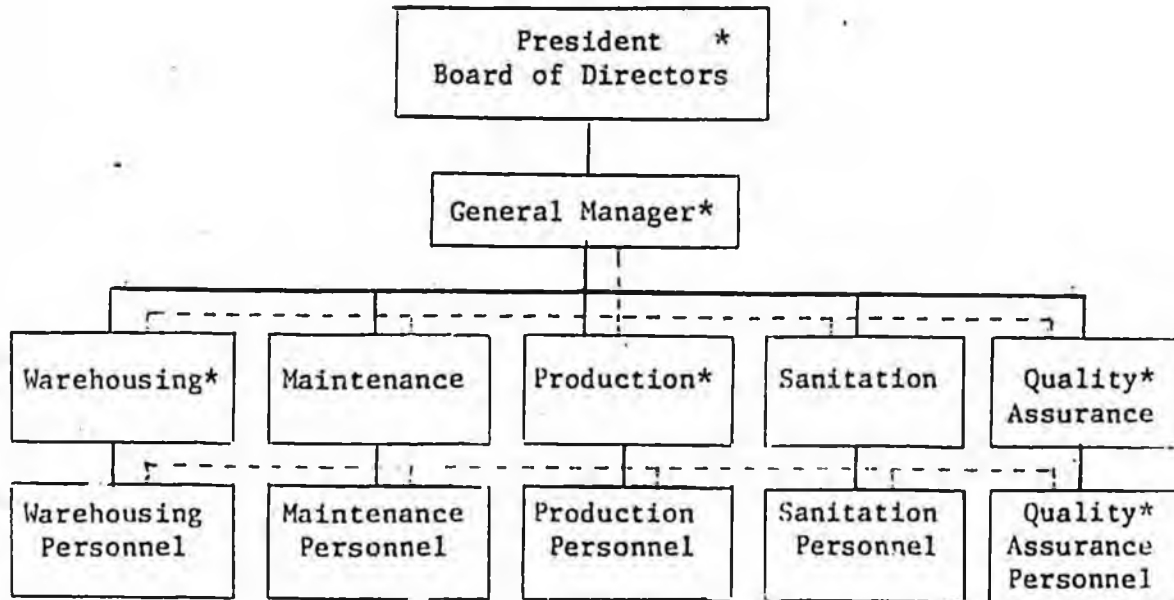
C. Products Processed and Process Methods

1. A list of products processed which identifies the species processed and the finished product form.

2. Identification of major process methods utilized.

(Example: See Figure #2)

Organizational Chart



General Manager: Overall authority and responsibility for all operations.
John Chinook

Warehousing Responsibilities: Receiving, storage and shipping of all product, materials, and equipment, sanitation of warehousing areas and quality control. Bill Chum

Maintenance Responsibilities: Maintenance and repair of all facilities, equipment and grounds, operation of water and waste systems, and quality control. Bob Prawn

Production Responsibilities: Processing and packaging operations, on shift sanitation of processing areas and equipment, and quality control. Joe Kita

Sanitation Responsibilities: General sanitation, pest control and quality control. Jack Silver

Quality Assurance Responsibilities: Assure production of safe, wholesome, unadulterated product and compliance with applicable standards, specifications, laws and regulations through monitoring and inspection procedures. Charles Coho

* Authority to stop production and/or retain (prevent use or distribution of) product and materials

Products

Canned Pacific Salmon,
 All species.
 Can sizes: 307 x 200.25
 301 x 408

Pacific Salmon, fresh
 frozen; All species,

~~individually vacuum~~

Process

Mechanical Butchering
 and sliming, horizontal
 still retorting, air
 cooling.

Manual butchering,
 mechanical sliming,
 blast frozen, packed.
 individually vacuum
 packed.

D. In Process Controls

The following information is to be provided for each general process:

1. A process flow diagram which identifies:
 - a. products processed;
 - b. each step or procedure in the processing operation;
 - c. critical control points in the operation;
 - d. each quality assurance inspection point through the process; and
 - e. the report flow from each inspection point.

(Examples: See Figures #3 and #6)

2. A narrative description of the process which provides an explanation of each step or procedure. (Example: See Figures #4 and #7)

3. A description of each quality assurance activity at each inspection station to include:

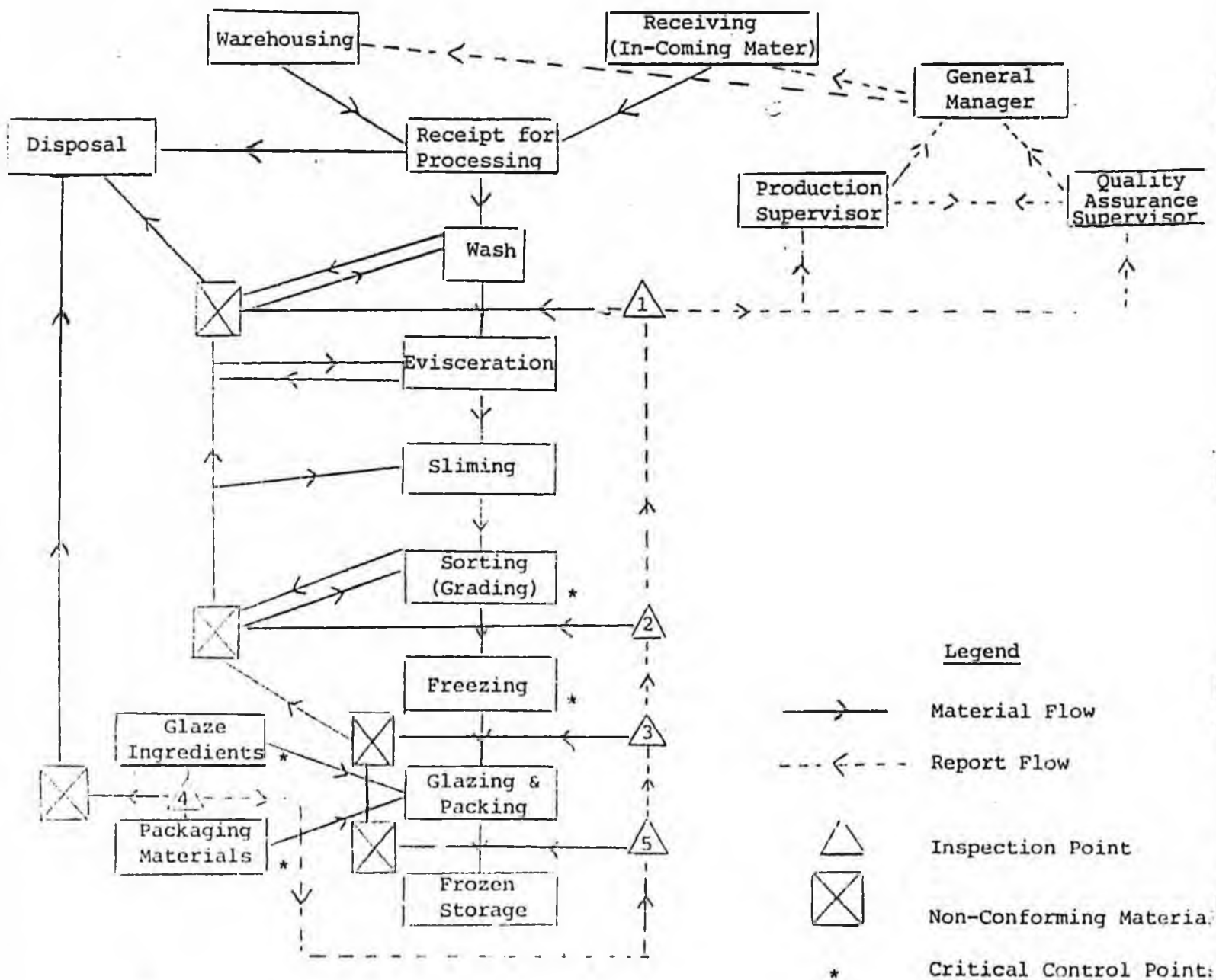
- a. Attributes inspected for
- b. Specifications for attributes
- c. Sample plan or control
- d. Action taken on non-conformance

(Examples: See Figures #5 and #8)

4. Recordkeeping and reporting will be maintained for not less than three years and will include the following information for each inspection conducted:

- a. Product or Item Inspected
- b. Date and Time of Inspection
- c. Attributes Inspected For
- d. Specifications for Attributes
- e. Inspection Results
- f. Inspector's Name (Signature)
- g. Reviewer's Name (Signature)
- h. Disposition of Product or Item, or Action Taken.

Products: Pacific Salmon, All Species - Eviscerated, Fresh, Frozen



Note: The flow for non-conforming materials should show the possible flow for rework or reconditioning as well as disposal.

Process Narrative

Product: Pacific Salmon, All Species, Eviscerated, Fresh, Frozen

Procedures

1. Salmon are received in totes or via conveyor from refrigerated storage, after in-coming materials inspection at the dock.
2. Salmon are inspected and washed by processing personnel and placed on butchering line for evisceration heading, gilling and rinsing.
3. Salmon are placed on a conveyor for sliming through a mechanical slimer and discharged to a holding table with a continuous flow of water.
4. Salmon are removed from the slimer discharge table, inspected, sorted by species, size and grade by processing personnel and placed on a receiving table with dividers for segregation.
5. Salmon are removed from the sorting table and placed on freezer racks which are transferred to the blast freezer.

6. Salmon are removed from the blast freezer when a core temperature of -10° F is reached (approximately five hours freeze time) and transferred to the packing area for glazing and packing.

7. Salmon are removed from freezer racks and placed in a mechanical glazer for a three stage glaze application and discharged to a receiving table.

8. Glazed salmon are removed from the glaze discharge table, placed in individual plastic bags and placed in pre-labeled fish boxes which are strapped with plastic bands.

9. The boxes of salmon are weighed, marked with the net weight, (based upon glaze percentage and packaging tare subtracted from gross weight) and placed upon pallets.

10. Loaded pallets of boxed salmon are removed immediately to cold storage rooms or refrigerated vans.

EXAMPLE

Pacific Salmon, All Species
Product/Material

Evisceration, Freezing and Packaging
Process/Procedure

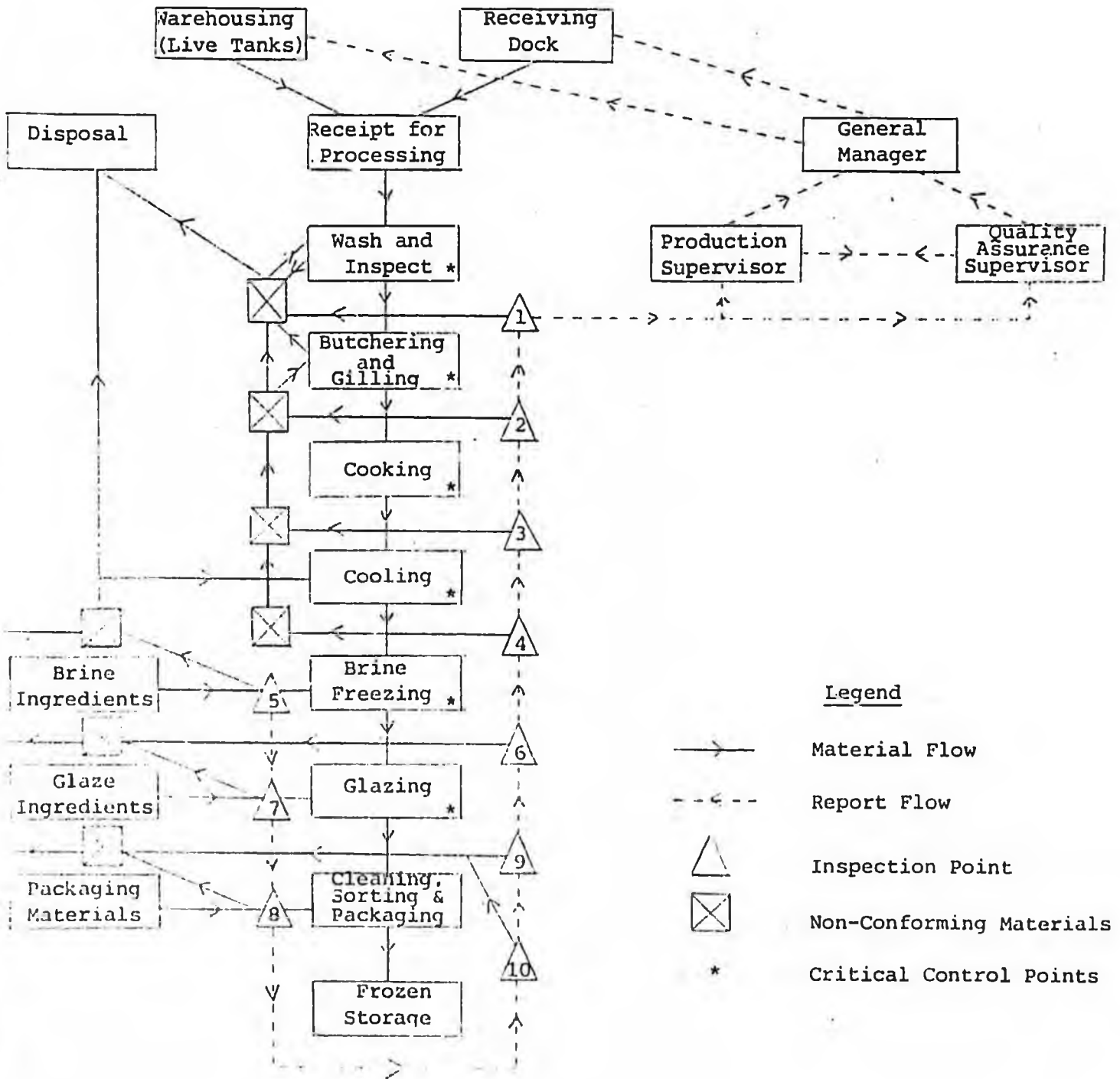
In-Process Control/Packing Control
Quality Assurance Function #1.

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
#1. Following process inspection and wash.	Wholesome and clean-free from adulteration.	<p>Fresh, no sign of decomposition.</p> <p>Clean, free of sand, dirt, and other adulteration.</p>	Monitor fish after wash procedure, once every 2 hours minimum and examine minimum of 25 fish.	<p>All fish acceptable, no action.</p> <p>Any fish unacceptable, notify production and quality assurance supervisors.</p> <p>Check product down line for unacceptable product.</p> <p>Improve process inspection and/or wash procedures.</p>
#2. Following process inspection and sorting.	Wholesome, clean/unadulterated, complete evisceration, reasonably free of slime; properly sorted.	<p>Fresh, no sign of decomposition.</p> <p>Clean, free of sand, dirt and other adulteration.</p> <p>Head, gills, viscera and blood line completely removed.</p> <p>Reasonably free of slime, properly sorted by species and/or size.</p>	<p>Monitor fish after process inspection and sorting, once per hour minimum.</p> <p>Examine minimum of 25 fish.</p>	<p>All fish acceptable, no action.</p> <p>Any fish unacceptable, notify production and quality assurance supervisors.</p> <p>Check product down line for unacceptable product.</p> <p>Improve process inspection and/or sort procedures.</p>

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
<p>#3. Prior to removal from blast freezer.</p>	<p>Internal (core) temperature.</p>	<p>-10° F Maximum internal (core) temperature.</p>	<p>Check internal temperature in the thickest portion of the loin muscle in the largest fish on the last rack to enter freezer.</p> <p>Check minimum of 3 fish for internal temperature.</p>	<p>All temperatures less than or equal to -10 ° F remove from freezer for immediate glazing and boxing.</p> <p>Any temperature greater than -10° F fish remain in freezer.</p> <p>Recheck temperature periodically until all temperatures acceptable.</p>
<p>#4. Prior to each shift during preparation of glaze solution.</p> <p>Prior to beginning each shift during set up of packing operation.</p>	<p>Cleanliness of glazer, proper ingredients, proper mixture.</p> <p>Cleanliness of packaging materials.</p> <p>Proper packaging materials.</p>	<p>Glazing equipment clean, (dependent upon formulation of glaze). (Ingredients must be acceptable as food additives).</p> <p>Clean, free from dirt or other adulteration.</p> <p>(Boxes or liners specified for type of pack).</p>	<p>Inspect glazing equipment prior to mixing of glaze solution at the beginning of each shift for cleanliness.</p> <p>Check glaze ingredients prior to mixing glaze.</p> <p>Prior to beginning each shift check each major container, pallet, etc.</p>	<p>Equipment clean, no action.</p> <p>Not clean, notify production and quality assurance supervisors. clean.</p> <p>Proper ingredients, proper quantities, no action.</p> <p>Improper ingredients or quantities, notify production and quality assurance supervisors. Correct problem.</p> <p>Clean and proper materials, no action.</p>

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
				<p>Not clean or improper materials, notify production and quality assurance supervisors. Correct problem.</p>
<p>#5. After glazing and packaging.</p>	<p>Glaze percentage net weight labeling.</p>	<p>Glaze of 6%, average actual net weight not less than marked net weight.</p> <p>Proper species. Keep frozen. Packer name and address, AK number. Net weight.</p> <p>(State proper placement on box and size of lettering).</p>	<p>Once every 2 hours, 10 fish for glaze %.</p> <p>10 cases for net weight and labeling.</p>	<p>All within specifications, no action.</p> <p>Any deviations from specifications, notify production and quality assurance supervisors.</p> <p>Check product packed since last quality assurance inspection for non-conformance, rework non-conforming product.</p>

Product: Frozen, Fancy King Crab Legs and Claws



Note: The flow for non-conforming materials should show possible flow for re-work or re-conditioning as well as disposal.

Process Narrative

Product: Frozen, Fancy King Crab Legs and Claws

Procedures

1. Crab are received in totes from holding tanks or the dock area after in-coming materials inspection.
2. Crab are inspected and washed by processing personnel and transferred to the butchering line.
3. Crab are butchered, gilled, washed and discharged to a receiving table.
4. Crab are packed in crates for cooking
5. Filled crates are transferred to a cooker filled with circulating salt water at a temperature of 212° F and cooked to an internal temperature of 186° F (approximate cook time 20 minutes).
6. Upon reaching internal temperature of 186° F crab is transferred from the cooker to a chiller filled with circulating salt or fresh water

at a temperature of 35° F, and chilled to an internal temperature of 40° F

7. Upon reaching an internal temperature of 40° F crates of crab are removed from the chiller and placed in a brine freezer filled with circulating salt water at a temperature of -10° F until internal (core) temperature of 0° F or below is reached.

8. Upon reaching an internal (core) temperature of 0° F or below the crates of crab are removed from the brine freezer. Crab is transferred to a glaze tank where it is immersed and removed allowing a frozen glaze to form. Control is exercised to insure uniform consistent glaze percentage.

9. Glazed crab is transferred by hand from crates to a table where it is inspected, sorted, and packed in plastic lined, pre-labeled boxes.

10. Boxes of crab are weighed, marked with the net weight (ascertained based upon glaze percentage and tare weight of packaging materials).

11. Boxes of crab are placed on pallets and full pallets are removed immediately to the cold storage areas or refrigerated vans.

EXAMPLE

Fancy King Crab Legs and Claws
Product/Material

Butchering/Freezing/Packaging
Process/Procedure

In-Process/Packaging Controls
Quality Assurance Function

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
#1. Following processing inspection and wash.	Live, clean, free from adulteration. Correct species.	Crab must be live, clean, free of sand, dirt and other adulterants. Must be king crab, blue king crab or deep water king crab.	Monitor a minimum of once per hour. Examine a minimum of 25 crab for all attributes.	No deficiencies noted - no action. Any deficiencies noted - check product down line for non-conformance. Rework or reject if non-conformance found. Improve process procedures to prevent reoccurrence.
#2. Following butchering, gilling and wash.	Properly butchered, all gill material removed. Clean, free from adulteration.	Crab must be separated into sections (3 walking legs and claw) and the tail with total carapace removed. All gill tissue must be removed. Sections must be clean and free from adulteration.	Monitor a minimum of once per hour. Examine a minimum of 25 sections for all attributes.	No deficiencies noted - no action. Any deficiencies noted - check product down line for non-conformance. Rework or reject if in non-conformance found. Improve process procedures to prevent reoccurrence.

NOTE: Continue with specific information for each inspection point, attributes, specifications, sample plan or control and action taken.

VI. Packaging Operation Controls: Packaging is an integral part of the food manufacturing process in that it (1) assures continued integrity of the processed product, and; (2) includes satisfaction of regulatory requirements for economic (net weight or fill) and labeling aspects.

Plan of Operation Requirements

The following information shall be provided with each type of packaging process and shall include a list of specific products and container sizes associated with each packaging process.

A. Flow Chart: Provide a flow chart of the packaging process which identifies each step of the procedure and identifies critical control points within the procedure. (Example: See Figure #9).

B. Labeling and Coding: Although labeling, and coding aspects of the packaging process are not truly "critical" in nature, these aspects must be controlled to maintain product identity and meet regulatory requirements. Therefore, regular scheduled monitoring procedures must be included as part of the packaging operation controls.

C. Process flow narrative. (Example: See Figure #10).

D. Inspection for Attributes: This section shall include the following information;

1. The item and/or packaging procedure.
2. A definition of each attribute for which examination, evaluation and/or testing is conducted.
3. The specification for each attribute.
4. A description of the control; i.e., the sampling plan and inspection procedure. (Note: may refer to analytical methods for procedure definition.)
5. The action to be taken when non-compliance is noted.

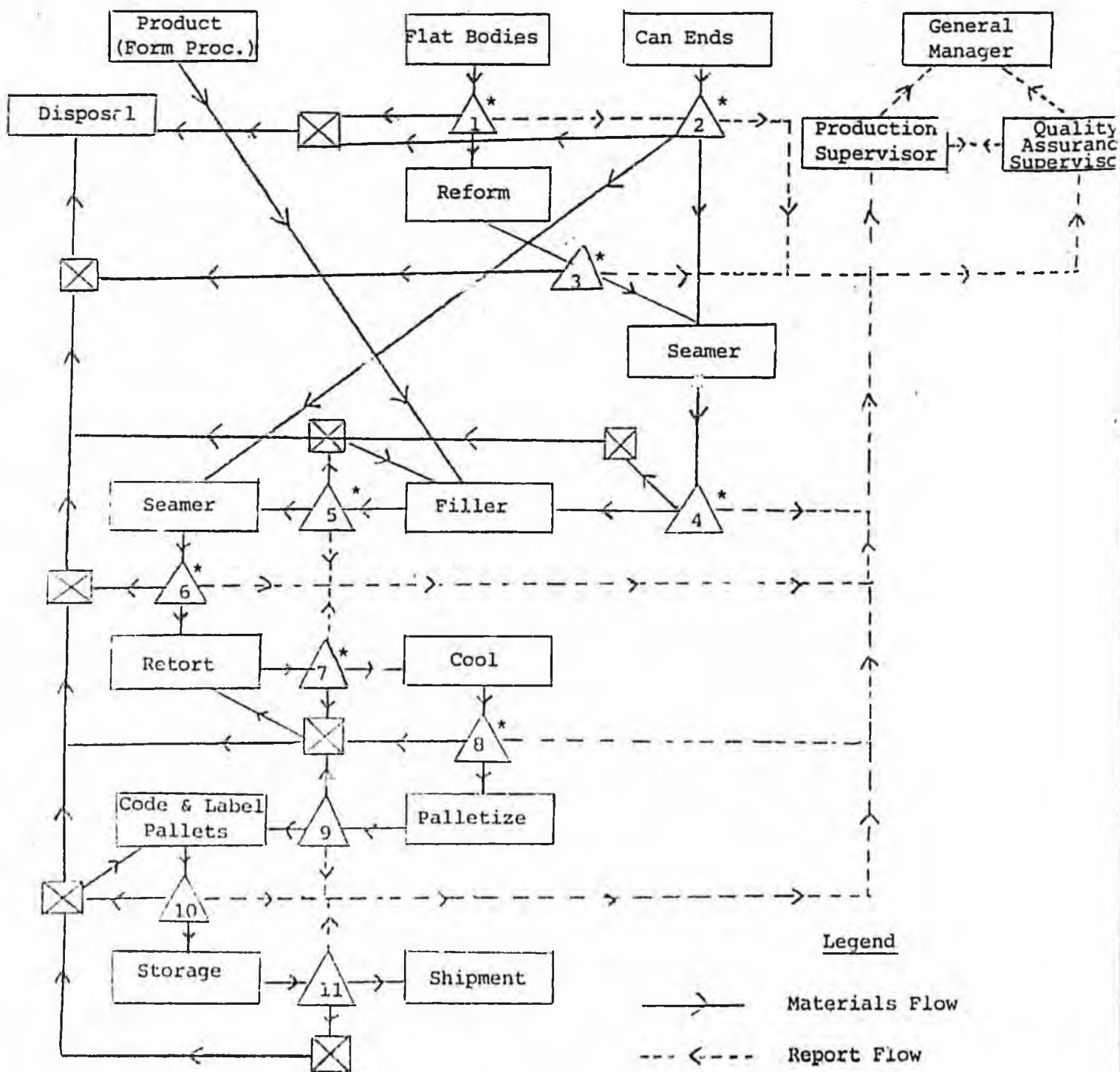
See Figure #11 for example.

D. Recordkeeping and Reporting: Results of each inspection for attributes must be recorded on forms designed for that purpose and maintained by the processor.

Records must include the following basic information: product/line or location; date of inspection; time of inspection; code (if applicable); attributes inspected for; specification; number of samples inspected; inspection results; action taken and individuals reported to; inspector's name and signature; and reviewer's name and signature.

Product: Pacific Salmon, All Species

Container Type: Reformed 301 x 408 and 307 x 200.25 Cans



Legend

→ Materials Flow

- - - Report Flow



Inspection Point

*

Critical Control Point



Non-Conforming Material

Note: The flow of non-conforming materials should indicate possible flow for re-work or reconditioning as well as disposal.

EXAMPLE

Product: Pacific Calmon, All Species

container: Reformed 301 x 408 and 307 x 200.25 cans

1. Each case of flat bodies, non-code and code ends are inspected by processing personnel and records maintained of can manufacturers lot identification, quantities, time frame of use and inspection results.
2. Flat bodies are reformed.
3. Non-code end is seamed to reformed bodies. Repeated visual examinations of the non-code end double seams and side seams of reformed cans are performed daily during the first one-half hour after start-up of can reforming operations, following a prolonged shutdown, following a jam-up in the seaming head, and after each adjustment of the can reforming and non-code end seaming equipment. Thereafter, visual examinations are made at intervals not to exceed 30 minutes. Records are prepared covering the results of these examinations, including notations for all noted irregularities and the corrective actions taken.
5. Cans are conveyed via cable conveyors to the packing line. Cable conveyors which move empty cans to the filler are operated to minimize can damage. Cables are shut off when empty can runs are full and cans are not moving.

6. Cans are mechanically filled with 100% visual inspection by processing personnel for proper fill. Improperly filled cans are removed from the line to the patching table where the fill problem is corrected and the cans returned to the line.

7. The code-end is seamed to the can. Repeated visual examinations of the code end double seams and side seams are performed daily during the first one-half hour after start-up of salmon packing operations, following a prolonged shutdown, following a jam-up in the seaming head, and after each adjustment of the top seaming equipment. Hereafter, visual examinations are made at intervals not to exceed 30 minutes. Records are prepared covering the results of these examinations, including notations for all noted irregularities and the corrective actions taken.

8. The filled cans are conveyed to a packing table where they are placed on dividers and packed in retort baskets.

9. All retort baskets of unretorted product, or some of the containers on top of each basket are plainly and conspicuously marked with a heat sensitive indicator to indicate whether or not such unit has been retorted.

10. Canned product is retorted in accordance with 21 C.F.R. 11.340 and NFPA Bulletin 26L and process records are maintained in accordance with 21 C.F.R. 113.100.

11. Upon completion of thermal process, baskets are removed from the retort transferred to the cooling area adjacent to the palletizing area and allowed to air cool to a maximum internal temperature of 105° F.

12. Cooled product is mechanically removed from the retort baskets, palletized and wrapped in a plastic stretch wrap for stability.

13. Each pallet is labeled with the name of the product, container size, quantity, lot identification code, packer's name and address, and Alaska Department of Environmental Conservation permit number.

14. Labeled pallets are transferred to the temporary warehousing area pending shipment.

EXAMPLE

Pacific Salmon, All Species/Canning, Reformed 301 x 408 and 307 x 200.25 Cans/Packaging-Processing Operation Control

Product/Material	Process/Procedure	Quality Assurance Function		
Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
#1. Flat bodies.	Condition of flats. Damage, side seams, overlap.	No damage acceptable Side seam closure complete. No excess solder or thickness to interfere with seaming. No overlap, edges meet evenly at side seam. Cans shall be clean, free from rust, dirt and other adulterants.	Inspect 25 bodies randomly selected from each of 5 cases randomly selected from each manufacturer's lot of can bodies. Note: Every case inspected by production personnel.	No defects noted, no action taken. Any defects noted, select duplicate sample and examine again. Determine disposition, rework (100% examination and sort) or reject.
#2. Can ends.	Condition of ends Damage, sealant, and cleanliness.	No damage acceptable. Even application of sealant around circumference of seam Ends shall be clean, free of rust, dirt, and other adulterants.	Inspect 25 ends randomly selected from each of 5 cases randomly selected from each manufacturer's lot of can ends. Note: Every case inspected by production personnel.	No defects noted, no action taken. Any defects noted, select duplicate sample and examine again. Determine disposition, rework (100% examination and sort) or reject.
NOTE: Continue with specific information for each inspection point, attribute, specification, sample plan or control, and action taken.				

VII. Finished Product Evaluation: This section will include the following;

A. A description of the evaluation process for each product to include:

1. Attributes inspected for
2. Specifications
3. Sample plan or control
4. Action taken on non-conformance

(Example: See Figure #12).

B. Recordkeeping and Reporting will contain the following basic information: product; date of inspection; time of inspection; code; quantity of product in lot; attributes inspected for; specification; number of samples inspected; inspection results; action taken and individuals reported to; inspector's name and signature; and reviewer's name and signature.

EXAMPLE

Fancy King Crab Legs and Claws
Product/Material

Frozen
Process/Procedure

Finished Product Evaluation
Quality Assurance Function

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
Finished product.	Ratio of legs to claws, Uniformity of walking legs, Deformities, percent meat, appearance, color, flavor, odor texture, drained weight and microbiology.	See specifications section of Alaska King Crab Marketing and Quality Control Board specifications for frozen Alaska King Crab.	6 cases of product shall be selected at random. All 6 cases of product shall be subjected to non-destructive inspections for all attributes.	<p>No deficiencies noted, no action.</p> <p>Any non-conformance noted, select and inspect duplicate sample. Determine conformance or non-conformance with specifications.</p> <p>in case of non-conformance, determine disposition (re-work, reject).</p> <p>Identify product and status.</p>

VIII. Incoming Materials Control: Incoming materials will be inspected upon receipt for condition and suitability for their intended use.

A. Lists of all materials identified according to the following categories.

1. Raw materials, ingredients, processing and packaging materials.
2. Critical raw materials, ingredients, processing and packaging materials. (Materials shall be considered "critical" if they might represent a potential health hazard, a source of contamination, or otherwise adversely affect the wholesomeness of quality of the product.)
3. Regulated food additives.
4. Cleaning compounds, sanitizers, lubricants, water treatment compounds, pesticides and other chemicals.

B. Inspection for attributes shall include the following information.

1. The name of the item or item group.
2. A definition of each attribute for which examination

evaluation and/or testing is conducted.

3. The specification for each attribute.
4. A description of the control; i.e., the sampling plan and inspection procedure.
5. The action to be taken when non-compliance is noted.
(Example: See Figures #13 and #14).

C. Recordkeeping and reporting will include the following basic information: item; date of inspection; time of inspection; invoice number; code (if applicable); attributes inspected for; specifications, number of samples inspected; inspection results; action taken and individuals reported to; inspector's name and signature; and reviewer's name and signature.

EXAMPLE

Chemical Compounds
Product/Material

Receipt of Materials
Process/Procedure

In-Coming Materials Control
Quality Assurance Function

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
Warehouse receiving.	<p>Damage/acceptable condition.</p> <p>Product as ordered or acceptable substitute for intended purpose.</p> <p>Properly labeled and labels legible.</p>	<p>No damage acceptable.</p> <p>Listed for intended use in USDA listing of proprietary substances and non-food compounds; Misc. Pub. #1419.</p> <p>All containers labeled and labels intact and legible.</p>	<p>100% inspection during during off-loading if possible.</p> <p>Verify listing.</p> <p>Examine 5 containers and any containers which appear suspect.</p>	<p>No damage, accept.</p> <p>Any damage, reject damaged containers. Reject if not listed for intended use.</p> <p>All labels intact and legible, accept. Any labels not intact to identify product and use instructions, reject those containers.</p>

EXAMPLE

Fresh Salmon, Round
Product/Material

Receipt of Materials
Process/Procedure

In-Coming Materials Control
Quality Assurance Function

Inspection Point	Attribute	Specification	Sample Plan or Control	Action Taken
Dock receiving area.	Condition. Species. Temperature. Condition of vessel/fish hold.	<p>Fresh, clean, no signs of decomposition or adulteration.</p> <p>Sort by species.</p> <p>40° F maximum.</p> <p>Clean, free from potential contaminants.</p>	<p>Examine fish randomly through out unloading procedure.</p> <p>Verify proper sorting by species.</p> <p>Check internal temperature by inserting metal stem thermometer in anal vent of fish at beginning, midpoint and end of unloading.</p> <p>Examine vessel fish hold and deck at time of unloading.</p>	<p>No off condition, accept. Any off condition, sort load and reject off condition fish or reject load.</p> <p>Improper sorting, resort and improve sort procedure.</p> <p>Temperature 40° F or lower, accept. Temperatures in excess of 40° f, ice or refrigerate at 35° F or below and process immediately or reject.</p> <p>Vessel hold clean, no potentials for contamination, no action.</p> <p>Vessel hold not clean and/or other potentials for contamination, examine fish thoroughly, wash all fish immediately if contamination can be corrected, advise fisherman regarding problem or reject fish.</p>

IX. Warehousing Requirements and Controls: this section will include the following information:

A. A layout of all areas used for warehousing (major storage) with designation to identify each area or location; i.e., area A, B, C, etc. This should be to scale and must express the actual area utilized.

B. The quantities of materials to be warehoused by general category. This is to be expressed in normal quantitative terms relative to the material; i.e., pounds, cases, gallons, count, etc.

C. Identification of the storage areas to be used for storage of each general category of material to demonstrate adequate storage space and appropriate segregation of product.

D. Temperature specifications for controlled environment storage areas; i.e., chill rooms, cold rooms, refrigerated brine storage, etc.

E. An explanation of rotation procedures for materials subject to rapid deterioration.

F. Procedures for handling and determining disposition of damaged materials.

G. Recordkeeping and reporting will include the following:

1. Monitoring and logging temperatures of refrigerated storage facilities a minimum of once every 12 hours.

2. Reporting of damaged or deteriorated containers or materials and maintenance of a record of such reporting to include item, date, whom reported to, and action taken.

X. Control and Handling of Non-Conforming or Unacceptable Materials:

Provide the following information:

A. Specific procedures to identify non-conforming or unacceptable materials to prevent accidental use or re-introduction to the production process such as the use and placement of highly visible labels or tags.

B. Procedures for segregation of non-conforming or unacceptable materials.

C. Procedures for disposal or disposition of non-conforming or unacceptable materials.

D. Recordkeeping and reporting will include: name of the item and quantity; date and method of identification; individual reported to; and date and method of disposition.

XI. Sanitation Monitoring: This section will describe the following;

A. Cleaning methods and schedules by area, operation and/or specific equipment.

- B. Facilities and equipment condition/ *MAINTENANCE*
- C. Grounds maintenance requirements for premises surrounding processing facilities.
- D. Pest control and pesticides use by area.
- E. Instructions for personnel hygienic practices.

Specific procedural instructions for A and D above must include:

1. Procedures for product, ingredient and materials protection during periods of sanitation activity.
2. Specific methods for each cleaning, sanitizing or pest control operation.
3. The cleaning compounds, sanitizers, chemicals and pesticides to be used.
4. The frequency of each operation i.e., schedules for each activity.
5. Procedures for storage and handling of clean equipment and utensils to prevent re-contamination.

6. Procedures for the storage and handling of cleaning compounds, chemicals, pesticides and cleaning equipment to prevent contamination of product, ingredients, materials or equipment and utensil surfaces.

Scheduled inspections shall be conducted to insure compliance with the plan of operation, good sanitation practices and state regulations (AAC 18.34). Inspections shall be accomplished in accordance with the following minimum frequencies:

A general sanitation inspection for all aspects shall be accomplished at least once per operating day.

The processing and packaging operations shall be inspected at least twice per operating shift, once prior to beginning the shift and once during the shift (prior to resuming operation after the mid-shift break is recommended).

Sanitation inspection results shall be recorded in accordance with the format found in Figure #15.

SANITATION INSPECTION

Date _____

Time _____

<u>ITEM</u>	<u>DESCRIPTION</u>
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PRODUCT, RAW MATERIALS, INGREDIENTS AND FOOD ADDITIVES

- (01) Approved source, materials and condition, no spoilage.
- (02) Original container, properly labeled.
- (03) Potentially hazardous foods maintained at acceptable temperatures during storage, processing and transportation.
- (04) Adequate facilities to maintain product and material temperatures.
- (05) Thermometers provided and properly located.
- (06) Protection of product, ice and materials during storage, processing and transportation.
- (07) Product, materials and ice handled to prevent contamination.

EQUIPMENT AND UTENSILS

- (08) Food contact surfaces designed, constructed, maintained, installed and located to facilitate cleaning and prevent contamination.

ITEM	DESCRIPTION
(09)	Non-food contact surfaces designed, constructed, maintained, installed and located to facilitate cleaning and prevent contamination.
(10)	Adequate utensil and equipment washing facilities provided, maintained, located and operated properly.
(11)	Equipment and utensils sanitized after cleaning and prior to use.
(12)	Sanitizing solution acceptable, proper concentration, temperature and exposure time.
(13)	Food contact surfaces clean, free of detergents and abrasives.
(14)	Non-food contact surfaces clean.
(15)	Storage and handling of clean equipment and utensils to prevent contamination.
(16)	Wiping cloths, clean, use restricted.
(17)	Single service articles, packaging materials stored, dispensed and used properly to prevent contamination.
(18)	No unacceptable re-use of single service or packaging materials.

WATER

- | | |
|------|--|
| (19) | Source approved and safe. |
| (20) | Treatment as approved and monitoring records maintained. |

ITEM	DESCRIPTION
------	-------------

- (21) Samples submitted as required.
- (22) Hot and cold water where required.
- (23) Adequate pressure.
- (24) Adequate quantity.

WASTE DISPOSAL

- (25) Sewage disposal approved and functioning properly.
- (26) Processing waste disposal approved and functioning properly.
- (27) Monitoring records maintained.

GARBAGE AND REFUSE

- (28) Adequate number of containers provided where necessary, disposal frequency, clean, insect and rodent proof and covered.
- (29) Outside storage areas insect, bird and animal proof, clean, properly located, incineration approved.

PLUMBING

- (30) Properly installed and maintained.
- (31) No cross-connections, protection from back-siphonage, backflow provided where necessary.

ITEM	DESCRIPTION
------	-------------

TOILET AND HANDWASH FACILITIES

- (32) Adequate number, convenient and accessible, properly ^{designed} ~~designed~~, installed and maintained.
- (33) Toilet rooms enclosed, self-closing doors, not opening to product areas, clean, hand cleaner, sanitary towels, appropriate waste containers, hand wash signs provided.

BUILDING CONSTRUCTION

- (34) Floors properly constructed, drained, clean and good repair.
- (35) Walls, ~~and~~ ceilings, and attached equipment, posts, partitions, etc., properly constructed, clean, good repair.

LIGHTING/VENTILATION

- (36) Lighting provided as required, fixtures shielded.
- (37) Ventilation provided to eliminate vapors and fumes and prevent condensation.

DRESSING ROOMS

- (38) Rooms or lockers provided for employees, properly located, clean.

ITEM	DESCRIPTION
------	-------------

PERSONNEL

- (39) Personnel with infections restricted.
- (40) Hand washing/good hygienic practices.
- (41) Clean clothes, aprons, gloves, hair restraints.

PEST CONTROL

- (42) No insects, rodents, birds or other animals present/outer openings protected to prevent entrance.

OTHER OPERATIONS

- (43) Chemical compounds, cleaning materials, pesticides and other toxic items properly stored, labeled and used.
- (44) Maintenance operations carried out in manner to preclude contamination of product, materials and equipment.
- (45) Premises maintained free of litter, unnecessary articles; cleaning and maintenance equipment properly stored.
- (46) Complete separation of living/sleeping quarters, laundry and other domestic operations from processing, exposed product, packaging, and storage areas.
- (47) Clean and soiled linens, aprons, gloves, etc., properly stored and handled.

SEAFOOD PROCESSING OPERATION

SANITATION INSPECTION

ITEM	DESCRIPTION OF DEFICIENCY	ACTION TAKEN
------	---------------------------	--------------

Inspector's Signature _____

Reviewer's Signature _____ Date _____

XI Calibration of Equipment and Instruments: This section will include the following information;

- A. A list of all equipment and/or instruments requiring calibration.
- B. The frequency of calibration for each piece of equipment or instrument.
- C. Explanation of the method of calibration for each type of equipment or instrument.
- D. Procedures and frequency for the verification of the control used for verification.
- E. Recordkeeping and reporting to include: the item calibrated; date of calibration; deviation from control; deviation after calibration; signature of calibrator; and signature of reviewer.

SPECIFICATIONS

This section is to include specifications which are utilized by the firm or operation to assure compliance with applicable state and federal laws and regulations. Specifications which are utilized by the firm to insure in-house requirements are met may be included. Evaluation of product or materials for compliance with specifications for regulatory purposes will only include those specifications or portions of specifications which relate directly to regulatory requirements.

Examples of specifications which may be included are as follows:

1. A specification for chemical compounds to insure acceptability for intended use. This could be very simply a statement that all chemical compounds must be listed as acceptable for their intended use in the List of Proprietary Compounds and Non-Food Substances Approved for Use under USDA Grading and Inspection Programs.
2. Can seam specifications.
3. Finished product specifications.
4. Raw material specifications.

5. Food additive specifications.

6. Packaging material specifications.

All specifications as they relate to the various inspection activities, products, and materials contained in the plan of operations may be included here and referenced in the information provided in other sections of the plan.

RECORDKEEPING AND REPORTING FORMS

This section is to include examples of the forms used for record-keeping and reporting purposes. Since the general categories of information required are very similar in the majority of inspection activities, it may be possible and practical to utilize a few "general" forms for multiple purposes. This may in some cases necessitate the use of procedure specific attachments for continuous information for each procedure such as attributes and specifications.

The format for recordkeeping and reporting forms is optional as long as all of the required information is provided. Pre-printed forms, if used, should be designed for ease of use and clarity of information.

CONTINGENCY PLANS

Contingency plans for major systems critical to acceptable operation of a seafood processing operation will be included in this section. Adequate contingency plans and adherence to said plans during major system failure provides for continued operation and/or protection and preservation of product and materials while insuring that the operation is not in violation of state or federal laws and regulations.

Contingency plans must be provided for the following systems and include the stated information at a minimum:

1. Water Supplies and Treatment.

- a. Provisions for treatment of processing and drinking waters in the event of failure of treatment system in use or contamination of processing water source which was of a quality not requiring treatment prior to contamination.

- b. Immediate notification of the Division of Seafood and Animal Industries of revision to the contingency.

2. Waste Treatment and Disposal.

- a. Provisions for an alternative method of waste treatment and disposal for each waste treatment system in the event of failure.

b. Immediate notification of the Division of Seafood and Animal Industries of revision to the contingency plan.

Each contingency plan will describe the specific methods and equipment to be employed and must achieve reasonable compliance with State of Alaska regulatory requirements. Equipment and facilities required for implementation of each contingency plan must be readily available. The plan will include information describing specifically the availability of equipment and facilities necessary to the contingency plan.

In the event of failure of a system critical to acceptable operations, all processing must cease and appropriate action be taken to protect and preserve product and materials to be kept for future use, until the alternative system described in the contingency plan is in operation.

Contingency plans should be included for the following:

1. Major system failure such as sustained electrical outage, boiler and refrigeration systems failures, etc.
2. Disasters; i.e., fire.
3. Recall plan.

TECHNICAL REFERENCE APPENDIX

This section will include at the minimum, a list of technical references which are used in support of activities under the plan of operation, such as publications which describe technical procedures and methods for examination, evaluation, analysis or testing. Examples of subjects or procedures for which technical references should be included are as follows:

1. Methods for microbiological analysis for waters, products, materials, etc.
2. Procedures and methods for tests used to monitor water and waste treatment systems.
3. Procedures and methods for evaluation, examination or testing of product and material.
4. Procedures and methods for controlled processing; i.e., retort operation, smoking operations, and curing operations.
5. Procedures and methods for evaluation of packaging operations and container integrity.
6. Procedures and methods for testing and calibration of equipment and instruments.

If copies of the technical reference publications or documents are not included, the following information will be provided for each reference:

1. Name of the publication or document.
2. Name of the author.
3. Name and address of the publisher.
4. The edition (generally the most current available).

DEFINITION OF TERMS

This section of the guidelines will contain definitions of terms used in the guidelines to be developed as part of the editing and review process. It also will include a recommendation that a definition of terms section be included in each plan of operation to facilitate clear understanding of the plan.

(c) Evaluation of Facilities and Equipment

- (1) An onsite evaluation of the facilities and equipment will be conducted by a department inspector to determine compliance with Alaska Statutes and Regulations prior to formal review of the submitted quality assurance plan. A report of the inspector's findings will be submitted to the reviewing official and a copy provided to a responsible individual representing the processing operation at the time of inspection.
- (2) The onsite evaluation will be scheduled upon receipt of a written request from the operator of the seafood processing facility. Onsite evaluations will be conducted within a reasonable period of time after receipt of the written request.
- (3) Onsite evaluation of the processing facilities may be postponed at the discretion of the department. Postponement of onsite evaluation will not preclude provisional approval of the proposed quality assurance plan.

(d) Quality Assurance Plan Review and Evaluation

- (1) Upon receipt of the proposed quality assurance plan and onsite evaluation report, they will be forwarded to an evaluation team which will consist of department staff members with specific expertise in the various types of processing technologies, (i.e.: low acid canning, curing and smoking, freezing, processed prepared foods, etc.) as well as product characteristics and associated public health and product quality concerns.
- (2) The quality assurance plan and onsite evaluation will be reviewed for compliance with the guidelines and Alaska statutes and regulations. Any significant deficiencies noted will be reported to the seafood program administrators with suggestions for corrective actions to make the plan acceptable.
- (3) The department will respond within 15 days after receipt of each permit application and quality assurance plan.

(e) Permit

- (1) Upon approval of the quality assurance plan and onsite evaluation the department will issue a permit to operate in accordance with 18 AAC 34.020 which incorporates the quality assurance plan.

(2) Failure to comply with the terms of the permit may result in suspension of the permit in accordance with 18 AAC 34.020(e), (f).

(f) Inspection

Inspection may include the collection of samples for examination and/or testing to include: product, raw materials, ingredients, food additives, chemical compounds and substances, packaging materials, labels, records, and documents relating to the quality control and quality assurance process.

SUBJECT: Relationship of Current Alaska Fish Inspection Regulations and the Canned Salmon Control Plan to the Plan of Operation

The Alaska Fish Inspection Regulations (18 AAC 34.010 - 18 AAC 34.910) and the Alaska Canned Salmon Control Plan are in general quite parallel in their requirements, with each addressing some areas more specifically than the other. The design of these documents has been by necessity quite general to allow application to industry with consideration for differences in facilities, technology and processing methods.

The quality assurance "plans of operation" required under AS 03.05.025 consists of information required under existing permit application procedures, and operation specific information, which defines the actual means and methods employed to accomplish and assure compliance with the general requirements of the regulations.

There are segments of the canned salmon control plan that are directly applicable to the plan of operations with slight modifications and inclusion of referenced information such as sampling plans or schedules and forms used, etc.

Some examples of application of the Canned Salmon Control Plan to the Plan of Operation follow:

The majority of "Sampling Procedures and Notification to Packer and Administration of Results of Examination" and "Container Integrity Examination" could be directly applied to "Finished Product Evaluation" in

the "Plan of Operations". Some of the additional or clarifying information which would have to be included would be as follows:

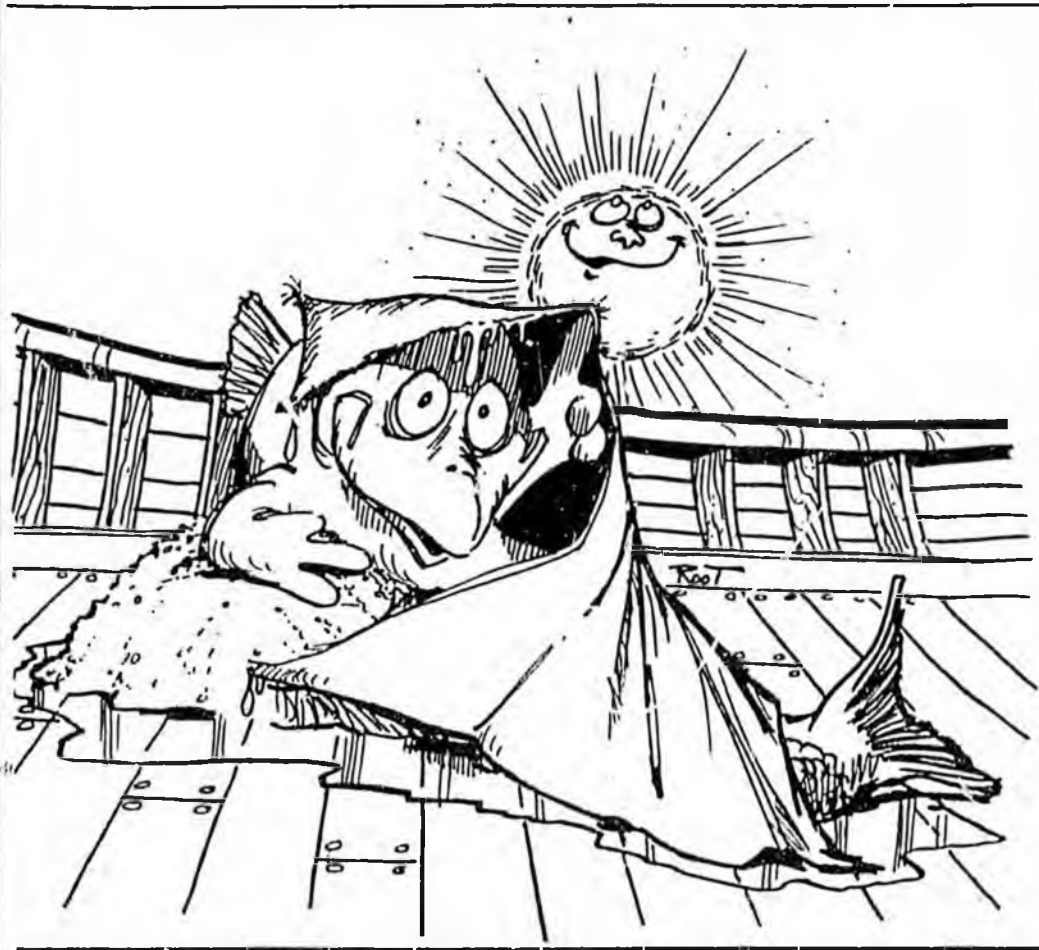
1. The Association Sample Schedule.
2. Specifications which define merchantable quality and specifically identify defects and attribute requirements for containers and product.
3. Inclusion of ADEC in notification procedures for product detained for reexamination.
4. Specific procedures and methods used to identify uninspected product to prevent distribution prior to inspection and release.
5. Examples of forms used for recordkeeping and reporting.

"Procedures for Reconditioning and Destruction" as well as portions of "Container Integrity Examination" and "Sampling Procedures and Notification to Packer and Administration of Results of Examination" would have similar application to "Control and Handling of Non-Conforming or Unacceptable Materials" as found in the guidelines for the "Plan of Operations".

Additional opportunities for cross-application of activities exist but, the aforementioned should be sufficient to demonstrate the relationship between the Canned Salmon Control Plan and the Plan of Operations.

FISHERY INDUSTRIAL
TECHNOLOGY CENTER

University of Alaska
Kodiak, Alaska



Salmon Quality Education Program

By
John P. Doyle

Final Report of the Work Completed with Funds Provided by SB103

Dr. Jong S. Lee, Director

FITC 83/A-1
November 1983

Fishery Industrial Technology Center
Pouch K
Kodiak, Alaska
99615

SALMON QUALITY CONTROL EDUCATION PROGRAM

Final Report of Work Completed
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Fishery Industrial Technology Center
Leader, University of Alaska Marine Advisory Program

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FITC/A-83-1

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TABLE OF CONTENTS

	PAGE
Background	1
Approach.....	2
Status of Educational Activities	3
Project Staff	3
Fact Sheets.....	4
Workshops.....	5
Slide Series	6
Salmon Handler's Manual.....	6
Television Public Service Announcements.....	6
Additional Activities	6
Project Evaluation	6
Recommendations.....	7
Appendix 1 - Workshop Schedule	9

BACKGROUND

With an increasing proportion of Alaska's salmon marketed fresh or frozen rather than canned, raw product quality has become a major consideration for both the processor and fisherman. Inability to produce high quality product is now thought to be the single most significant impediment to the future vitality of Alaskan salmon products in diverse markets.

The lack of uniformly high quality and the resulting poor image of Alaska salmon were recognized by a group of Southeast Alaska cold storage operators during the mid-1970s. They asked the University of Alaska Marine Advisory Program to start an immediate extension education program in salmon quality assurance. To test methods and approaches pilot projects were started on a statewide basis.

In 1979, fishermen and processors from Prince William Sound agreed that a systematic approach was needed to improve salmon quality. Senator Jay Kerttula of Palmer, whose district then included Prince William Sound, took leadership in determining what actions were needed. He formed the Senate Salmon Quality Committee. This committee was composed of the following members:

Senator Jay Kerttula, Chairman, Palmer
James Poor, St. Elias Ocean Products, Cordova
Bob Blake, fisherman, Cordova; president, Cordova Aquatic Marketing Association
Armin Koernig, founder and president, Prince William Sound Aquaculture Corporation
Knute Johnson, retired fisherman, Cordova
Lewis Hasbrouck, tender owner/operator, Prince William Sound
Jack Werner, businessman, Seward
Harold Hansen, former state senator, Juneau
Roy Alley, fisherman, Valdez
Bob Ditman, retired fisherman and miner, Valdez
Bruce Crow, J.B. Crow and Sons, Bethel
Henry Wiese, retired fishermen, Cordova
Wally Noerenberg (deceased), Prince William Sound Aquaculture Corporation
Bill Hall, fisherman, Cordova

and resource persons:

John Doyle, University of Alaska Marine Advisory Program
Alan Otness, fisherman, Petersburg
Walter Yonker (deceased), National Food Processors Association. Pacific Seafood Processors Association

The committee met on December 5, 1979 to discuss a number of alternatives including voluntary incentives, resource management improvements, legally induced incentives, financial assistance and education. The committee identified education as the number one priority and decided to form a subcommittee on education. The education subcommittee members were:

Harold Hansen, chairman
Bill Hall
Wally Noerenberg
Bob Blake
Walt Yonker
John Doyle

On January 3, 1980, the education subcommittee report was approved unanimously by the full Senate Salmon Quality Committee. The report recommended a strong salmon quality education program directed at all segments of the fishing industry. It outlined the educational activities to be undertaken by the University of Alaska Marine Advisory Program.

Upon committee recommendation, Senator Kerttula introduced SB364 into the 1980 Legislature. A salmon quality education bill, SB103, was passed May 17, 1982. SB103 provided the Marine Advisory Program, through the university's Fishery Industrial Technology Center, with \$170,000 to organize and conduct an industrywide educational program on salmon quality control.

APPROACH

It was the opinion of the university that those funds would be continuing. Funds provided by SB103 were therefore included in the university's continuation budget for FY84. A full-time faculty position on salmon quality education within the Marine Advisory Program was advertised. After candidates were screened, the governor's office decided these funds were a one-time only appropriation regardless of the intent of the Senate Salmon Quality Committee. This information was relayed to the university on September 20, 1982, resulting in the development of an alternate approach.

To develop and guide the educational effort an industry oversight committee was formed to review the organization and implementation of the project. That committee consisted of representatives from all segments of the Alaska salmon industry:

Roy Alley
Bob Blake
Bob Cavanaugh, Ocean Beauty Seafoods, Seattle
Bruce Crow
Roger DeCamp, National Food Processors Association, Seattle
Harold Hansen
Mel Monsen, legislative aide, Bristol Bay District, Juneau
Alan Otness
Cliff Phillips, E.C. Phillips & Son, Ketchikan
James Poor

The oversight committee approved the concept of hiring a team knowledgeable about specific regions and fisheries throughout the state to develop materials for and conduct an intensive three to four month educational program statewide. They established a list of priorities for conducting a broadly-based educational program directed at fishermen, tendermen, and processors:

1. Develop a series of "how-to" fact sheets for distribution throughout the industry.
2. Prepare a slide series on salmon handling to be used in conjunction with the workshops and seminars.
3. Conduct salmon quality workshops and seminars around the state.
4. Develop a detailed salmon handler's manual to serve as a standard reference.
5. Produce television public service announcements to enhance public awareness of salmon quality.
6. Disseminate salmon quality improvement information through local radio and newspaper.

STATUS OF EDUCATIONAL ACTIVITIES

Project Staff

Six people were hired for three months to develop and conduct the educational program:

Chuck Crapo, project leader, Anchorage--presently a candidate for a M.S. degree in food science and technology at Oregon State University; eight years experience in Alaska seafood processing industry as a quality control manager and plant manager; and project manager for developing the Alaska Seafood Marketing Institute's salmon quality guidelines.

John Enge, Jr., Petersburg--experience includes crewing in halibut, herring gillnet, salmon seine, and salmon gillnet fisheries; owner/operator of salmon troller; 14 years experience in the processing industry as a production supervisor, buying station manager, production and warehouse foreman, and plant worker; recently worked on contract with the Alaska Fisheries Development Foundation, developing longline baiting system.

Wayne Kvasnikoff, Kodiak--salmon seiner for 24 years in Alaska; fished in seine and gillnet herring, king crab and tanner crab fisheries; tendered salmon in Bristol Bay and Prince William Sound; served on Kodiak Fish and Game Advisory Committee for three years.

Doris Lashley, Kenai--23 years experience as salmon processor and fisherman on the Kenai Peninsula; established and managed Sea Catch, Inc., on Kenai River.

Ken Madsen, Seattle--western Alaska operations manager for Swiftsure Fisheries, Inc.; experience includes four years as manager of processing operations in Ketchikan and Togiak; founder of Seafood Production Systems, Inc., a fish production operation in western Alaska.

Rick Steiner, Anchorage--editor; recently Marine Advisory agent, University of Alaska, Kotzebue; commercial fisherman for two years; M.S. in fisheries science from Oregon State University. Presently Marine Advisory Agent, University of Alaska, Cordova.

Project staff met in Anchorage in January to begin developing educational materials, and met twice via audioconference.

Fact Sheets

The following 16 fact sheets were printed:

<u>Fishermen</u>	<u>No. of Copies Printed</u>
1. Southeast Drift Gillnetters	2,000
2. Southeast Seiners	1,000
3. Southeast Trollers	3,000
4. Freezer Trollers	500
5. Prince William Sound Seiners	750
6. Southcentral Drift Gillnetters	2,000
7. Southcentral/Bristol Bay Setnetters	2,000
8. Kodiak/Chignik Seiners	750
9. Bristol Bay Drift Gillnetters	5,000
10. Kodiak Setnetters/Beach Seiners	500
11. Arctic/Yukon/Kuskokwim Gillnetters	2,000
 <u>Tenders</u> 	
1. Refrigerated Seawater	1,000
2. Chilled Seawater	1,000
3. Ice	1,000
4. Dry	1,000
 <u>Processing</u> 	
Fresh and Frozen Processing	4,000
 TOTAL SHEETS 16	 TOTAL COPIES 27,500

Fact sheet distribution:

- a. Fact sheets were sent to Marine Advisory Program offices in Anchorage, Atmaultuak, Cordova, Dillingham, Juneau, Kodiak, Kotzebue, and Petersburg for further distribution to industry.
- b. All salmon quality project staff distributed the appropriate sheets in workshops statewide to support presentations and for participants to take home.
- c. Sample sheets were sent to every registered salmon processor in Alaska along with an invitation to order the number they could distribute in their plant and to their fishermen.

- d. Sheets were distributed to other offices frequented by fishermen and processors such as the Department of Environmental Conservation Seafood Inspection office in Anchorage, several Alaska Department of Fish & Game field offices, Cooperative Extension Service offices, community college learning centers, and others.
- e. Southeast troll sheets were enclosed with each troll log book sent out by the Alaska Sea Grant Program.
- f. Project staff distributed and posted sheets where workshops were held: in schools, on the docks, in homes.
- g. Specific fact sheets tailored for each fishery and region have been mailed to all permit holders.
- h. Availability of the fact sheets was announced in several industry periodicals.

Statewide response to the fact sheets has been very positive. The cartoon format has helped maintain interest in an otherwise dry subject. Demand for some fact sheets has exceeded our expectations and necessitated reprinting. The Marine Advisory Program office in Anchorage has also received quantity orders from processors.

Workshops

All project staff and Marine Advisory Program agents met in Anchorage February 28 through March 2 for technical in-service training on these topics.

Following this, the project staff and members of the Marine Advisory Program faculty conducted workshops in fishing communities around the state. Appendix 1 lists the schedule and locations of workshops.

The workshops covered the following topics in a two- to three-hour period:

1. Factors affecting intrinsic quality
2. Causes of fish quality loss
3. Importance of early chilling of the catch
4. Iced storage on fishing vessels
5. Chilled sea water systems for fishing vessels
6. Refrigerated sea water systems for fishing vessels
7. Freezing and frozen storage aboard fishing vessels
8. Washing fish
9. Butchering at sea
10. Onboard handling, storage, and offloading of salmon
11. Fishing vessel cleaning and sanitation
12. Upgrading fishing vessels to protect product quality
13. Fish handling during processing

In addition to the technical information conveyed in these workshops, the staff served a more subtle but ultimately more important function: increasing the awareness of the need to improve salmon quality. Current weak market conditions and media efforts to improve this situation were discussed in detail at workshops to emphasize the urgency of improving salmon quality.

Slide Series

A narrated series of 110 slides was developed and distributed to all Marine Advisory Program offices and project staff for use in workshops and to use in special seminars. These have also been distributed to processors and interested groups upon request.

Salmon Handler's Manual

Due to the limited duration of the project, work was delayed on the manual until higher priority items such as the workshops, slide series, and fact sheet were completed. Several sections of the manual have been completed.

Television Public Service Announcements

Workshops were an extremely effective way to deliver a large amount of information to a small segment of the industry. Project staff decided to supplement this intensive education with a more extensive delivery mechanism: television public service announcements. These were intended to reach a broader segment of the industry. Three 30 second television spots were produced in cooperation with the University of Alaska Instructional Telecommunications Service (UAITS) in Anchorage. These have been broadcast on the University Learn/Alaska Instructional Telecommunications Network, the state satellite network, and several local stations during the 1983 salmon season.

The intent of these television public service announcements was not to convey technical information, but to continually remind industry of the need to improve salmon quality. They appear to have had highly significant impact.

Additional Activities

Project staff arranged and participated in interviews on local radio stations and in newspapers around the state to further inform fishermen and processors of quality problems and solutions.

PROJECT EVALUATION

The impact of educational efforts is measured over years and decades. Undesirable habits practiced for years will not change overnight. Once market feedback on salmon quality is established, the economic incentive alone will mandate quality improvement. Our efforts have exposed the industry to whys and hows of quality improvement. Objective measurement of salmon quality will be possible some day but the measures we have now are all subjective; that of the general impressions of fishermen, processors, buyers, distributors and consumers. Such a subjective impression among buyers, sellers and consumers ultimately determines the disposition and price of Alaskan salmon.

Trends in product quality should be determined through a systematic survey of impressions within the salmon marketing complex. After the 1983 season, Marine Advisory Program staff will survey a representative segment of the

Alaska salmon marketing complex and major distributors using questionnaires and phone interviews. This survey should indicate the incidence of certain quality defects and which defects are most detrimental to the marketability of Alaska salmon. Survey results will help direct future quality assurance efforts.

Thus, an assessment of the project's impact on the 1983 season will be derived from analysis of a systematic survey in the winter of 1983-84. Preliminary impressions among project staff and industry leaders were very positive. Staff have unanimously indicated that quality assurance awareness within the industry has increased substantially as a direct result of the project. Staff have noted significant adjustments in actual operating procedures (including icing, sanitation, installation of hold refrigeration, and so on) as a result of improved attitude toward product quality.

Recommendations

1. Fact sheets - reprint and continue distribution; develop posters using cartoon format.
2. Slide shows - develop a slide show specific to each gear type, one for tenders and one for processors. A set of six shows be prepared and distributed to Marine Advisory agents.
3. Workshops - continue, especially for processors, because of high worker turnover. Coordinate scheduling with plant management and fishing organizations to correspond with other important meetings to assure maximum attendance.
4. Public service announcements - develop additional material for radio; develop a television spot for processors.

Because SB103 did not provide for continued funding of the education program, and because of the general realization that a long-term education effort was needed, Senator Kerttula introduced legislation (SB161) to support a continuing effort. SB161 would provide \$142,240 for the University of Alaska Marine Advisory Program to continue salmon quality assurance education. The salmon quality education program has become a continuing effort within the Fishery Industrial Technology Center of the University of Alaska.

APPENDIX 1
Workshop Schedule

<u>DATES</u>	<u>INSTRUCTOR</u>	<u>HOURS</u>	<u>AUDIENCE</u>	<u>LOCATION</u>
3/1/83	Steiner	1	60	Anchorage
3/6/83	Crapo	3	14	Naknek
3/7/83	Enge	3	17	Craig
3/7/83	Lashley	3	9	Naknek
3/7/83	Crapo	3	3	South Naknek
3/8/83	Crapo	3	11	Levelock
3/8/83	Lashley	3	10	Egegik
3/8/83	Enge	3	4	Klawok
3/9/83	Crapo	3	8	Levelock
3/9/83	Enge	3	2	Hydaburg
3/10/83	Crapo	3	12	Pilot Point
3/11/83	Lashley/Kramer	3	5	Dillingham
3/14/83	Crapo	3	8	Newhalen
3/15/83	Crapo	3	4	Iliamna
3/16/83	Coughenower	3	14	Togiak
3/17/83	Kvasnikoff	3	12	Port Graham
3/17/83	Crapo	3	9	Fairbanks
3/17/83	Enge	3	3	Kake
3/19/83	Kvasnikoff/Lashley	3	4	Homer
3/20/83	Enge	3	15	Port Alexander
3/21/83	Crapo	3	12	Valdez
3/22/83	Crapo	3	4	Whittier
3/23/83	Crapo	3	18	Whittier
3/23/83	Kvasnikoff	3	8	English Bay
3/25/83	Kvasnikoff	3	14	Seldovia
3/29/83	Lashley	-	0	Seward
3/30/83	Kvasnikoff	3	18	Chignik Bay
4/1/83	Kvasnikoff	3	12	Chignik Lake
4/2/83	Lashley	3	1	Kenai
4/5/83	Enge	3	12	Hoonah
4/6/83	Enge	3	15	Pelican
4/7/83	Enge	3	15	Juneau
4/7/83	Kvasnikoff	3	15	Port Lions
4/10/83	Coughenower	3	7	Koliganek
4/11/83	Enge	3	3	Haines
4/12/83	Enge	3	10	Juneau
4/13/83	Madsen	3	16	Mountain Village
4/14/83	Madsen	3	45	Emmonak
4/15/83	Madsen	3	7	Alakanuk
4/15/83	Kvasnikoff	6	8	Ketchikan
4/18/83	Madsen	3	33	Marshall
4/18/83	Coughenower	3	14	Koliganek
4/19/83	Madsen	3	11	St. Marys
4/21/83	Madse.	3	7	Bethel
4/21/83	Madsen	3	9	Atmautluak
4/21/83	Steiner	3	15	Nome
4/22/83	Steiner	3	32	Unalakleet
4/22/83	Madsen	2	5	Atmautluak
4/26/83	Kerns	3	3	Sitka
4/28/83	Kerns	3	5	Ketchikan
5/10/83	Doyle	3	38	Cordova
5/12/83	Kerns	3	7	Angoon

<u>DATES</u>	<u>INSTRUCTOR</u>	<u>HOURS</u>	<u>AUDIENCE</u>	<u>LOCATION</u>
5/14/83	Kramer	3	10	False Pass
5/16/83	Kramer	3	20	King Cove
5/18/83	Kramer	3	28	Sand Point
5/19/83	Kramer	2	1	Sand Point
6/1/83	Steiner	3	17	Homer
6/2/83	Steiner	3	12	Kenai
6/3/83	Steiner	3	19	Seward
6/6/83	Steiner/Garza	3	14	Golovin
6/7/83	Steiner/Garza	3	39	Shaktiolik
6/8/83	Steiner	3	53	Elim
6/8/83	Kerns	3	15	Metlakatla
6/10/83	Steiner	3	7	Unalakleet
				TBA Kotzebue

Alaska Seafood Marketing Institute

SBF72

APR 27 1982

526 Main Street Juneau, Alaska 99801 (907) 586-2902



Promoting Alaska's Finest Resource

MEMORANDUM

March 15, 1982

TO: ALL MEMBERS OF THE ALASKA SEAFOOD INDUSTRY

FROM: Eric Eckholm, Executive Director
Alaska Seafood Marketing Institute

RE: RECOMMENDED STATEWIDE QUALITY ASSURANCE GUIDELINES
AND SPECIFICATIONS FOR PACIFIC SALMON

Attached for your review is a preliminary draft of recommended salmon handling guidelines for fishermen, tenders and processors. This draft is available for public comment until May 3, 1982, when it will be revised and distributed for implementation by the industry, beginning with the 1982 season.

One of the major goals of the ASMI quality assurance program is to ensure a consistent, high quality image for all Alaska seafood products in world markets. This goal can only be achieved with the full cooperation of all members of the industry.

This is your opportunity to contribute your quality expertise in the development of guidelines which apply to all gear types in all regions of the state, and to demonstrate that a voluntary quality program can be effective in assuring the high quality of Alaska salmon products.

All questions and comments should be made in writing or by telephone to the ASMI office in Juneau or at one of the public meetings tentatively scheduled for March and April in:

Anchorage
Dillingham
Bethel
Kotzebue

Kenai
Kodiak
Cordova
Ketchikan
Sitka

PRELIMINARY DRAFT

Alaska Seafood Marketing Institute

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Phase 1: Fishing and tendering vessels and operations, processing facilities and operations, quality evaluation criteria and general product specifications.

Preface

These draft guidelines for Pacific salmon represent the foundation upon which the Alaska Seafood Marketing Institute (ASMI) intends to build a comprehensive quality assurance program for all Alaska seafood products.

Consumer surveys show that the approximately one billion pounds of Alaska seafoods produced and distributed annually have a high quality reputation. ASMI believes that it is important to continue its efforts to maintain and improve the quality of Alaska seafood products whereby all members of the seafood industry will benefit from the economic advantage of a consistent, high quality product image in the world marketplace.

Because of the complexities of harvesting, processing, transporting and distributing seafoods from remote points along Alaska's 34,000 miles of coastline and extensive inland river system, there is a need for industry education to assure the quality of seafoods produced in all areas of the state. These guidelines are an important part of that educational effort.

The ASMI quality assurance program is designed to unite the efforts of the seafood industry and government agencies into an effective partnership. ASMI believes that this cooperative effort, involving fishermen, processors, brokers, transporters, and state and federal officials, will be helpful in assuring the consistent high quality of all Alaska seafood products sold in national and international markets.

Notice to Users

These recommended guidelines and specifications for Pacific salmon were developed by the Alaska Seafood Marketing Institute (ASMI) to assist in producing high quality salmon products. They are intended to be used by fishermen, tender operators and processors as general guidelines. They are not intended to replace the advice of trained and experienced technologists regarding the construction, operation and maintenance of unique vessels, facilities and equipment or regarding operating procedures in unique geographic areas. These guidelines and specifications are also designed to facilitate complete understandings in commercial transactions and may be used for reference by public service agencies. They should not in any way be construed as replacing existing state or federal regulations.

ASMI recommends that these draft guidelines be implemented by all members of the industry beginning with the 1982 season.

It is recognized that certain guidelines may not apply to all fishing, tendering and processing, operations, vessels and facilities, in all regions of the state, due to variations in vessel construction, facility design, tides, air or water temperature, intrinsic quality of the fish, or other factors. In such cases, alternative guidelines will be adopted in order to assure high quality salmon production throughout the industry, statewide.

Nothing contained in these guidelines and specifications is intended to be or shall be construed to create or form the basis for any liability on the part of ASMI, or its officers, employees or agents, for any injury or damage resulting from the failure of the person who engages in operations or activities subject to the provisions of, or guided by, these guidelines and specifications to comply with its provisions, or by reason or in consequence of any act or omission in connection with the implementation or enforcement of these guidelines and specifications on the part of ASMI by its officers, employees or agents.

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Contents

	<u>Page</u>
Preface	1
Notice to Users	2
Contents	3
Section I. SCOPE	4
Section II. DEFINITIONS	5
Section III. GENERAL INFORMATION ABOUT SALMON QUALITY	7
Section IV. FISHING VESSELS AND OPERATIONS	8
A. Vessel Specifications	8
B. Recommended Operating Procedures for Fishermen	10
C. Chilling and Chill Storage During Fishing Operations	12
D. Freezing and Frozen Storage Aboard Fishing Vessels	13
E. Fishing Vessel Sanitation	14
Section V. TENDERING VESSELS AND OPERATIONS	15
A. Vessel Specifications	15
B. Recommended Operating Procedures Aboard Tenders	17
C. Chilling and Chill Storage Aboard Tenders	19
D. Tendering Vessel Sanitation	20
Section VI. SHORE-BASED AND FLOATING PROCESSING FACILITIES AND OPERATIONS	21
A. Facility and Equipment Specifications	21
B. Recommended Operating Procedures for All Shore-Based and Floating Processors	24
C. Recommended Operating Procedures for Freezing Plants	27
D. Fish Quality Evaluation Criteria	28
E. Processing Facility Sanitation	29
Section VII. GENERAL PRODUCT SPECIFICATIONS	30
Recommended References	31

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Section I. SCOPE

- 1.1 These guidelines and specifications apply to all five species of Pacific salmon (Oncorhynchus sp.) that are harvested, transported or processed in Alaska and which may be offered for sale in any number of styles, including, but not limited to:
- (a) round
 - (b) eviscerated, head-on
 - (c) eviscerated, head-off
 - (d) heads, fins and tail removed
 - (e) steaks or portions
 - (f) split sides, backbone removed
 - (g) fillet, skin-on
 - (h) fillet, skin-off
 - (i) canned
- 1.2 These guidelines and specifications do not apply to minced salmon by-products, such as eggs, oil, fish meal and minced flesh, at this time. Guidelines will be developed for these products in the future.

Section II. DEFINITIONS

Belly burn is a condition of deterioration of the lining of the belly cavity evidenced by discoloration and/or exposure of the rib bones.

Chilled sea water (CSW) is a type of refrigeration system, sometimes called a "slush ice" system, which uses a mixture of sea water and ice for chilling and holding chilled fish. If compressed air is bubbled through the mixture of sea water and ice for circulation, it is called a "champagne" system.

Contamination means direct or indirect transmission of objectionable matter to the fish.

Cold storage facility is any facility, whether a shore-based establishment or on a vessel, in which fish is kept cold by the use of ice or mechanical refrigeration. A cool room is any facility where fish is held at a temperature of 40°F or below. A cold storage room is any facility where fish is held at a temperature of 0°F or below.

Dry vessels are fishing or tendering vessels which are not using ice, chilled sea water (CSW) or refrigerated sea water (RSW) systems to chill the fish.

"Extrinsic" quality is a term which refers to the condition of a fish due to factors which affect the fish during and after it is harvested. Extrinsic quality defects are caused by improper catching, handling, processing and storage procedures.

Fish refers to Pacific salmon everywhere it is used in these guidelines.

Hatch combing is the raised portion on the deck of a vessel which surrounds the hatch and is designed to prevent runoff from the deck from entering the fish hold.

"Intrinsic" quality is a term which refers to the inherent physical characteristics of a fish before it is harvested, including, but not limited to, species, size, sex, physiological condition, and presence of parasites or disease.

Minimum specification is a description of a design, material or product which is currently attainable and within which all seafood vessels and facilities should be in compliance.

Natural water is fresh water or salt water from a natural source which may meet State of Alaska drinking water requirements, but has not been approved for such use.

Nonpotable water is water from any source which does not meet State of Alaska drinking water standards.

Potable water is water which meets all State of Alaska drinking water regulations.

Preferred specification is a description of a design, material or product which is not necessarily attainable at the present time for all existing vessels and facilities, but should be met or exceeded in the design of all new, or alterations to existing, vessels and facilities.

Prepare means to kill, eviscerate, dress, clean, cut or divide round fish.

Process means to can, cure, freeze, cook or otherwise preserve fish, at any temperature.

Processing facility is defined as any facility, whether shore-based or aboard a vessel, where fish is either prepared or processed for human consumption.

Refrigerated sea water (RSW) is a type of refrigeration system which uses sea water that is cooled by mechanical refrigeration for chilling and holding fish.

Sanitize means to treat surfaces so that the number of microorganisms is substantially reduced.

Unwholesome fish are those of such poor quality that they are unfit for human consumption, as defined by U.S. Food and Drug Administration regulations.

Section III. GENERAL INFORMATION ABOUT FISH QUALITY

Although there are many aspects that must be considered when defining what is meant by "high quality" fish products, there are two major ones that fishermen, tender operators and processors should be concerned with as producers:

- (a) the "intrinsic" quality of the fish before it is harvested, and
- (b) the "extrinsic" quality of the fish as it is delivered to the tender, processor and, finally, the consumer.

The first aspect, the "intrinsic" quality of the fish, is determined by the physical condition of the fish at the time it is harvested, including species, size, sex, stage of maturity and other physiological characteristics. These characteristics are inherent to a particular fish, and the method of handling that fish will not significantly alter these characteristics.

The second aspect, the "extrinsic" quality of the fish, is determined entirely by the methods employed in the harvesting, handling, processing and storing of that fish. Proper handling procedures will result in fish of high extrinsic quality; improper handling methods will result in loss of extrinsic quality. Fish which are handled so poorly that they become "unwholesome" are unfit for human consumption.

These guidelines outline proper procedures for harvesting, tendering, processing and storing Pacific salmon which, if followed carefully, will result in products of consistently high extrinsic quality, which are more desirable to consumers. The product specifications address both intrinsic and extrinsic quality characteristics, however, they are in no way intended to rate the intrinsic quality characteristics of the fish as more or less desirable to consumers.

4. Section IV. FISHING VESSELS AND OPERATIONS

4.1 A. VESSEL SPECIFICATIONS

4.1.1 General Information

- 4.1.1.1 All fishing vessels and gear should be designed for rapid and efficient handling of fish and ease of cleaning and sanitation, and should be so constructed, operated and maintained as to minimize physical damage, contamination or deterioration of fish.
- 4.1.1.2 All vessel operators should have valid gear and vessel and crew licenses issued by the State of Alaska.

4.1.2 Minimum Specifications

- 4.1.2.1 All vessels should have a suitable fish hold for storing the catch, whether it be below deck or on-deck. Plastic totes with drainage capability are acceptable for use as fish holds.
- 4.1.2.2 Fish holds should have watertight bulkheads designed to protect the fish from contaminants such as bilge water, fuel and lubricants.
- 4.1.2.3 Fish holds on dry vessels should have removable floor boards or some other method of construction to facilitate drainage from the hold.
- 4.1.2.4 Fish holds should have the necessary pumps and sumps with the capability to pump the hold dry.
- 4.1.2.5 Fish holds should be adequately insulated to control heat transfer from engine, crew's quarters or heated pipes to fish.
- 4.1.2.6 Fuel and hydraulic lines running through fish holds should be enclosed to protect the fish in case of line failure.
- 4.1.2.7 Vessels should have hatch-combings of sufficient height to prevent the flow of contaminants from the deck to the fish holds.*
- 4.1.2.8 Vessels should be equipped with sufficient hatch covers or suitable covering material to eliminate the exposure of fish to sunlight or airborne contaminants.
- 4.1.2.9 All lights in fish handling areas should be shatterproof or have protective covering such that if they are broken, product contamination will not occur.

*This is a preferred specification for existing vessels 32 ft. and under, but should be included in any new vessel design.

4.1.3

Preferred Specifications

- 4.1.3.1 Vessels should meet all minimum specifications stated in Section 4.1.2, and in addition:
- 4.1.3.2 There should be no exposed ribs or untreated wood on surfaces in the fish hold or in fish handling areas on deck. The hold lining should be smooth and watertight. A plywood sheeted hold, caulked with nontoxic seam compound and coated with a suitable paint or covering is acceptable. A fully approved hold would be completely insulated, and would have an impermeable lining with rounded corners and no obtrusions. Holds should be conducive to easy and complete cleaning to prevent build-up of bacteria.
- 4.1.3.3 Vessels should have watertight hatch covers or covering designed to protect fish from salt or fresh water intrusion.
- 4.1.3.4 On vessels with refrigeration systems, the systems should be in good operational condition and capable of chilling a full load of fish to a range of 30° to 35°F (-1° to 2°C) within a reasonable amount of time.
- 4.1.3.5 RSW vessels should limit their loads to a maximum of 45 lbs. of fish per cubic foot of hold space.
- 4.1.3.6 On vessels with freezing systems, the systems should be in good operational condition and capable of reducing the core temperatures of a full load of fish to 0°F (-18°C), or lower, within a reasonable amount of time.
- 4.1.3.7 Tanked vessels and freezer vessels should be equipped with recording thermometers which accurately measure and record the temperature of the hold, freezers or cold storage area. Vessels which do not have tanked holds should be equipped with bi-metal thermometers which accurately measure the internal temperature of the fish.
- 4.1.3.8 Vessels with below-deck holds should be equipped with chutes or other techniques or devices to convey fish into holds, after removal from net, with a minimum of damage to the fish.

4.2 B. RECOMMENDED OPERATING PROCEDURES FOR FISHERMEN*

4.2.1 General Guidelines for all Gear Types

- 4.2.1.1 Fish should be handled carefully at all times. This includes, but is not limited to:
Remove fish gently from gear.
Do not handle fish or remove from nets by the tail.
Do not throw, kick or step on fish.
Protect fish from damage in shaft alley or any other part of the vessel.
- 4.2.1.2 No pughs, forks, picks, hooks or pumps which damage the edible part of the fish should be used.
- 4.2.1.3 Fish should be protected from heat, sunlight, air-drying and inclement weather.
- 4.2.1.4 Fish should be protected from bilge water, gas, diesel oil, hydraulic oil, grease and other contaminants.
- 4.2.1.5 On vessels with below-deck holds, chutes or other techniques or devices should be used to convey fish into the hold in order to reduce handling and prevent damage often caused by throwing fish into the hold.
- 4.2.1.6 Fish held in bulk on vessels without tanked holds should be shelved at 90 cm (35 in.) intervals.
- 4.2.1.7 On tanked vessels, fish holds should be divided, as necessary, to prevent damage to fish due to the vessel's motion.
- 4.2.1.8 No pets should be permitted on vessels used for catching or transporting fish.
- 4.2.1.9 Live fish should be stunned in the water or as soon as they are brought on board.**
- 4.2.1.10 Feeding cohos and kings should be eviscerated and washed as soon as they are brought on board.
- 4.2.1.11 Round and eviscerated fish should not be intermingled in the hold area. A separate bin or on-deck totes should be used to store eviscerated fish on vessels carrying both round and eviscerated fish.

*Fishermen should also refer to recommended Fish Quality Evaluation Procedures aboard tenders on page 18.

**This is not feasible for seining operations.

- 4.2.1.12 Fish should be delivered to tenders or processing facilities as rapidly as possible. All fish should be chilled within twelve (12) hours from the time of capture.
- 4.2.1.13 Pumps and brailers used for unloading fish should be operated in a manner that minimizes physical damage to fish. The recommended maximum load per brailer is 200 fish or 800 lbs.
- 4.2.1.14 The holds, bin boards and decks should be thoroughly cleaned and sanitized in accordance with the Fishing Vessel Sanitation Procedures described in Section 4.5 of these Guidelines. The vessel should be cleaned after every delivery.

4.2.2 Additional Guidelines for Drift Gill Net Operations

- 4.2.2.1 Drift gill net sets should not be long than two (2) hours.
- 4.2.2.2 Drift gill nets should not be wound onto reel until all fish have been picked from net.

4.2.3 Additional Guidelines for Set Gill Net Operations

- 4.2.3.1 Set gill net sets should not be longer than six (6) hours.
- 4.2.3.2 Set gill nets should not be dragged on the beach until all fish have been picked from net.
- 4.2.3.3 Burlap used to protect fish from exposure to sun and air should be washed in salt water after every use and should be replaced often.
- 4.2.3.4 Fish should be protected from fecal contamination by pets and other animals.
- 4.2.3.5 Fish should be thoroughly washed in salt or fresh water as soon as possible after catching and should be stored in clean containers until delivery to a tender or processor.

4.3

C. CHILLING AND CHILL STORAGE DURING FISHING OPERATIONS

4.3.1

General Guidelines for Round Fish

- 4.3.1.1 All fishermen should use ice or some other method of chilling the fish. Whatever method is used, fish should be chilled as soon as possible after catching.
- 4.3.1.2 If ice is used, the fish should be stored in a sufficient amount of finely divided ice to reduce and hold the temperature of the fish to a range of 32° to 35°F (0° to 2°C).
- 4.3.1.3 If a chilled (CSW) or refrigerated (RSW) sea water system is used, the fish should be maintained at 30° to 35°F (-1° to 2°C). All tanks should be prechilled to 30° to 32°F (-1° to 0°C) before loading fish.
- 4.3.1.4 All ice used for chilling fish should be made with clean water from an approved source and should not be contaminated during manufacturing, transportation or storage.
- 4.3.1.5 All sea water used in CSW and RSW systems should be as clean as potable water. It should be obtained from open waters, away from populated areas or fresh streams.
- 4.3.1.6 The internal temperatures of iced fish and/or the temperature of the hold on vessels with CSW or RSW systems should be monitored and logged at regular intervals, preferably every six (6) hours. Bi-metal thermometers should be used to measure the internal temperature of the fish. The thermometer should be carefully inserted in the anal vent of the fish until the reading stabilizes, or approximately one minute.

4.3.2

Additional Guidelines for Dressed (Eviscerated) Fish

- 4.3.2.1 Dressed fish should be iced in plastic tubs with drainage capability, boxes or small removable bins as soon as possible after evisceration.
- 4.3.2.2 Neither CSW nor RSW systems should be used for holding eviscerated fish.

4.4

D. FREEZING AND FROZEN STORAGE ABOARD
FISHING VESSELS

- 4.4.1 The core temperatures of several average size fish should be measured with a thermocouple at regular intervals during a trial run of a full load of fish, to determine the actual capacity of the freezers during operation at sea.
- 4.4.2 Fish should not be removed from freezers until the core temperature has been reduced:
(a) preferably, to 0°F (-18°C), or
(b) at least, to 5°F (-15°C) or lower.
- 4.4.3 The core temperatures of fish in storage should remain at 0°F (-18°C) or lower.
- 4.4.4 Fish should be frozen and held at a constant temperature with a minimum of fluctuation.
- 4.4.5 The temperature of freezers and storage areas should be monitored at regular intervals, preferably every six (6) hours.
- 4.4.6 Fish should be glazed as soon as possible after freezing to prevent dehydration and oxidation.

4.5.1

General Information

4.5.1.1

Fish stored in an insanitary fishing vessel hold will be contaminated with bacteria and will have a greatly reduced storage life. Fish slime and blood make excellent food for bacteria and should be removed as soon as possible after fish have been unloaded from the vessel.

4.5.1.2

All RSW systems should be designed with a cleaning loop to permit proper cleaning and sanitizing of the sea water piping and the heat exchangers.

4.5.2

Cleaning and Sanitation Procedures

4.5.2.1

The following steps should be followed when cleaning and sanitizing a fishing vessel:

- (a) Flush all fish contact surfaces with clean fresh water or clean sea water.
- (b) Scrub all fish contact surfaces with a brush, using a solution of detergent in warm water.
- (c) Rinse with cold fresh water or sea water.
- (d) Sanitize with a solution containing chlorine or iodine.
- (e) After 5 to 10 minutes, rinse off the sanitizing solution.

4.5.2.2

Wooden boats should not be steam cleaned. Fatty and proteinaceous materials (fish slime and gurry) can be forced into the wood, making the job of thorough cleaning almost impossible.

4.5.2.3

As soon as possible after fish have been removed from an RSW system, the sea water piping and the heat exchangers should be cleaned, sanitized and rinsed, using a caustic solution as the cleaner and an iodine as the sanitizer.

4.5.3

Detergents and Sanitizers

4.5.3.1

The cleaner used should be one suited to removal of fish gurry. Alkaline detergents are best for removal of fat and protein materials (fish slime and gurry). Most common household detergents are mixtures of alkaline phosphates and a wetting agent and are suitable for use on a fishing vessel.

4.5.3.2

A sanitizing agent containing either chlorine or iodine should be used to kill bacteria left after the vessels have been cleaned. Ordinary liquid chlorine bleach (5% hypochlorite) is suitable. It is very important that it be diluted in the ratio of one-half cup to 5 gallons of water. An iodine sanitizer can also be used; it is less corrosive to metal parts of the vessel, but costs about twice as much. Under no circumstances should sanitizers containing phenols (such as lysol and ninisol) be used in a fish hold or on fish handling surfaces.

5. Section V. TENDERING VESSELS AND OPERATIONS

5.1 A. VESSEL SPECIFICATIONS

5.1.1 General Information

5.1.1.1 All tendering vessels should be designed for rapid and efficient handling of fish and ease of cleaning and sanitation, and should be so constructed, operated and maintained as to minimize physical damage, contamination or deterioration of fish.

5.1.1.2 All tender operators should have valid vessel and crew licenses issued by the State of Alaska.

5.1.2 Minimum Specifications

5.1.2.1 All vessels should have a suitable fish hold for storing the catch, whether it be below deck or on-deck. Plastic totes with drainage capability are acceptable for use as fish holds.

5.1.2.2 Fish holds should have watertight bulkheads designed to protect the fish from contaminants such as bilge water, fuel and lubricants.

5.1.2.3 Fish holds on dry vessels should have removable floor boards or some other method of construction to facilitate drainage from the hold.

5.1.2.4 Fish holds should have the necessary pumps and pumps with the capability to pump the hold dry.

5.1.2.5 Fish holds should be adequately insulated to control heat transfer to fish from engine, crew's quarters or heated pipes.

5.1.2.6 Fuel and hydraulic lines running through fish holds should be enclosed to protect the fish in case of line failure.

5.1.2.7 Vessels should have hatch-combings of sufficient height to prevent the flow of contaminants from the deck to the fish holds.

5.1.2.8 Vessels should be equipped with sufficient hatch covers or suitable covering material to eliminate the exposure of fish to sunlight or airborne contaminants.

5.1.2.9 All lights in fish handling areas should be shatterproof or have protective covering such that if they are broken, product contamination will not occur.

5.1.3

Preferred Specifications

- 5.1.3.1 Vessels should meet all minimum specifications stated in Section 5.1.2, and in addition:
- 5.1.3.2 There should be no exposed ribs or untreated wood on surfaces in the fish hold or in fish handling areas on deck. The hold lining should be smooth and watertight. A plywood sheeted hold, caulked with nontoxic seam compound and coated with a suitable paint or covering is acceptable. A fully approved hold would be completely insulated and would have an impermeable lining with rounded corners and no obtrusions. Holds should be conducive to easy and complete cleaning to prevent build-up of bacteria.
- 5.1.3.3 Vessels should have watertight hatch covers or covering designed to protect fish from salt water or fresh water intrusion.
- 5.1.3.4 On vessels with refrigeration systems, the systems should be in good operational condition and capable of chilling full loads of fish to a range of 30° to 35°F (-1° to 2°C) within a reasonable amount of time. Circulation systems should be adequate to ensure even temperatures throughout the hold.
- 5.1.3.5 Tanked vessels should be equipped with recording thermometers which accurately measure and record the temperature of the hold. Vessels which do not have tanked holds should be equipped with bi-metal thermometers which accurately measure the internal temperature of the fish.
- 5.1.3.6 Vessels with below-deck holds should be equipped with chutes or other techniques or devices designed to convey fish into holds, after removal from the hold, with a minimum of damage to the fish.

5.2 B. RECOMMENDED OPERATING PROCEDURES ABOARD TENDERS

5.2.1 General Guidelines

- 5.2.1.1 Fish should be handled carefully at all times. This includes, but is not limited to:
Do not handle fish by the tail.
Do not throw, kick or step on fish.
Protect fish from damage in shaft alley or any other part of the vessel.
- 5.2.1.2 No pugs, forks, picks, hooks or pumps which damage the fish should be used.
- 5.2.1.3 Fish should be protected from heat, sunlight, air-drying and inclement weather.
- 5.2.1.4 Fish should be protected from bilge water, gas, diesel oil, hydraulic oil, grease and other contaminants.
- 5.2.1.5 On vessels with below-deck holds, chutes or other techniques or devices should be used to convey fish into the hold in order to reduce handling and prevent damage often caused by throwing fish into the hold.
- 5.2.1.6 Fish held in bulk on vessels without tanked holds should be shelved at 90 cm (35 in.) intervals.
- 5.2.1.7 On tanked vessels, fish holds should be divided, as necessary, to prevent damage to fish due to the vessel's motion.
- 5.2.1.8 No pets should be permitted on vessels used for transporting fish.
- 5.2.1.9 Round and eviscerated fish should not be intermingled in the hold area. A separate bin or on-deck totes should be used to store eviscerated fish on vessels carrying both round and eviscerated fish.
- 5.2.1.10 Fish should be delivered to processing facilities as rapidly as possible. All fish should be chilled within twelve (12) hours from the time of capture.
- 5.2.1.11 Pumps and brailers used for unloading fish should be operated in a manner that minimizes physical damage to fish. The recommended maximum load per brailer is 200 fish or 800 lbs.
- 5.2.1.12 The holds, bin boards and decks should be thoroughly cleaned and sanitized in accordance with the Tendering Vessel Sanitation Procedures described in Section 5.5 of these Guidelines. The vessel should be cleaned after every delivery.

5.2.2

Fish Quality Evaluation Procedures

5.2.2.1

Both the intrinsic and extrinsic quality of all fish should be evaluated "as received," whenever fish is transferred

- (a) from a fishing vessel or set net site to a tender or other vehicle used for transporting fish, or
- (b) from a tender to another tender or motor vehicle used for transporting fish.

5.2.2.2

A written evaluation of fish quality should be made, and the record of the evaluation should be delivered to appropriate personnel at the processing facility. The written evaluation should include, but need not be limited to

- (a) correct species identification,
- (b) external appearance of eyes, gills, scales, skin and general condition of the entire load,
- (c) odor,
- (d) internal fish temperature, and
- (e) sexual maturity.

If fish quality appears questionable, evaluation should include internal appearance of viscera, kidney and belly walls.

5.2.2.3

Any known deterioration of quality caused by refrigeration system failure, adverse weather conditions, contamination by bilge water, fuel, lubricants, phenols (lysol) or other contaminants, or any other adverse conditions, should be included in the written evaluation.

5.2.2.4

The date and time of the catch on each vessel should be determined by examining fish, logs and checking date and time of last delivery, before fish are transferred to the tender and fish tickets are issued. The catch date and time should be noted on the written evaluation.

5.2.2.5

Fish suspected of being unwholesome or contaminated should be segregated from all other fish on the tender and should be identified in the written evaluation. High quality fish should not be mixed with fish of questionable quality.

5.2.2.6

Fish found during evaluation to be unwholesome or contaminated by bilge water, fuel, lubricants, phenols or other contaminants should not be accepted by tenders or processing facilities.

5.2.2.7

Fish exhibiting visible signs of wounds, seal bites, bruising, belly burn or other signs of intrinsic or extrinsic loss of quality should be segregated.

5.3

C. CHILLING AND CHILL STORAGE
ABOARD TENDERS

5.3.1

General Guidelines for Round Fish

- 5.3.1.1 All tender operators should use ice or some other method of chilling the fish. Whatever method is used, fish should be chilled as soon as possible after loading on the tender.
- 5.3.1.2 If ice is used, the fish should be stored in a sufficient amount of finely divided ice to reduce and hold the temperature of the fish to a range of 32° to 35°F (0° to 2°C) within a reasonable amount of time.
- 5.3.1.3 If a chilled (CSW) or refrigerated (RSW) sea water system is used, the fish should be maintained at 30° to 35°F (-1° to 2°C). All tanks should be prechilled to 30° to 32°F (-1° to 0°C) before receiving fish.
- 5.3.1.4 All ice used for chilling fish should be made from clean water from an approved source and should not be contaminated during manufacturing, transportation or storage.
- 5.3.1.5 All sea water used in CSW and RSW systems should be as clean as potable water. It should be obtained from open waters, away from populated areas or fresh streams.
- 5.3.1.6 The internal temperatures of iced fish and/or the temperature of the hold on vessels with CSW or RSW systems should be monitored and logged at regular intervals, preferably every six (6) hours. Bi-metal thermometers should be used to measure the internal temperature of the fish. The thermometer should be carefully inserted in the anal vent of the fish until the reading stabilizes, or approximately one minute.
- 5.3.1.7 RSW tenders should limit their loads to a maximum of 45 lbs. of fish per cubic foot of hold space.

5.3.2

Additional Guidelines for Dressed (Eviscerated) Fish

- 5.3.2.1 Dressed fish should be stored in ice in impermeable tubs with drainage capability, boxes or small removable bins on the tender.
- 5.3.2.2 Neither CSW nor RSW systems should be used for holding eviscerated fish.

5.5

D. TENDERING VESSEL SANITATION

5.5.1

General Information

- 5.5.1.1 Fish stored in an insanitary tendering vessel hold will be contaminated with bacteria and will have a greatly reduced storage life. Fish slime and blood make excellent food for bacteria and should be removed as soon as possible after fish have been unloaded from the vessel.
- 5.5.1.2 All RSW systems should be designed with a cleaning loop to permit proper cleaning and sanitizing of the sea water piping and the heat exchangers.

5.5.2

Cleaning and Sanitation Procedures

- 5.5.2.1 The following steps should be followed when cleaning and sanitizing a tendering vessel:
- (a) Flush all fish contact surfaces with clean fresh water or clean sea water.
 - (b) Scrub all fish contact surfaces with a brush, using a solution of detergent in warm water.
 - (c) Rinse with cold fresh water or sea water.
 - (d) Sanitize with a solution containing chlorine or iodine.
 - (e) After 5 to 10 minutes, rinse off the sanitizing solution.
- 5.5.2.2 Wooden boats should not be steam cleaned. Fatty and proteinaceous materials can be forced into the wood, making the job of thorough cleaning almost impossible.
- 5.5.2.3 As soon as possible after fish have been removed from an RSW system, the sea water piping and the heat exchangers should be cleaned, sanitized and rinsed, using a caustic solution as the cleaner and an iodine as the sanitizer.

5.5.3

Detergents and Sanitizers

- 5.5.3.1 The cleaner used should be one suited to removal of fish gurry. Alkaline detergents are best for removal of fat and protein materials (fish slime and gurry). Most common household detergents are mixtures of alkaline phosphates and a wetting agent and are suitable for use on a fishing vessel.
- 5.5.3.2 A sanitizing agent containing either chlorine or iodine should be used to kill bacteria left after the vessel has been cleaned. Ordinary liquid chlorine bleach (5% hypochlorite) is suitable. It is very important that it be diluted in the ratio of one-half cup to 5 gallons of water. An iodine sanitizer can also be used. It is less corrosive to metal parts of the vessel, but costs about twice as much. Under no circumstances should sanitizers containing phenols (such as lysol and pinesol) be used in a fish hold or on fish handling surfaces.

Section VI. SHORE-BASED AND FLOATING PROCESSING FACILITIES AND OPERATIONS

6.1 A. FACILITY AND EQUIPMENT SPECIFICATIONS

6.1.1 General Information

- 6.1.1.1 All vessels, vehicles and equipment used in the transportation, unloading or processing of fish should be so constructed, operated and maintained as to minimize physical damage, contamination or deterioration of the fish.
- 6.1.1.2 No fish processing facility may operate in Alaska without a valid annual certificate and permit as required by the State of Alaska.
- 6.1.1.3 Many aspects of fish processing operations, including facility requirements, equipment and utensils, plumbing, sanitary facilities, water supply and ice, thermal processing and waste disposal are regulated by the Alaska Department of Environmental Conservation and the U.S. Food and Drug Administration.* The specifications and procedures outlined in this section are intended to be complementary to applicable state and federal regulations and should not in any way be construed as replacing or conflicting with such regulations.
- 6.1.1.4 All aspects of salmon canning in Alaska must meet the requirements of the current Canned Salmon Control Plan, a voluntary cooperative agreement between the canned salmon industry, the National Food Processors Association and the U.S. Food and Drug Administration.

6.1.2 General Specifications

- 6.1.2.1 The facility should be large enough to accommodate processing operations without interfering with proper sanitary practices. Floors, walls and ceilings should be constructed of materials that can be kept clean, sanitary and in good repair.
- 6.1.2.2 Each room should have sufficient natural or artificial lighting for the purpose for which it is to be used. Lighting should be adequate in all areas to permit visibility for cleaning and sanitary inspection operations.
- 6.1.2.3 All lights should be shatterproof or have protective covering such that if they are broken, product contamination will not occur.
- 6.1.2.4 Ventilation should be sufficient to prevent mold growth, objectionable odors or accumulation of excessive condensates.

*See citation in the Recommended References section of these Guidelines.

- 6.1.2.5 Toilets should be totally enclosed, well-lighted and ventilated the outside. They should be adequately screened and equipped with self-closing doors. Facilities should be adequate, operational and in compliance with city and state codes.
- 6.1.2.6 Adequate handwashing facilities should be provided with soap, running water of suitable temperature and drying facilities. Directions should be posted which instruct employees to wash hands thoroughly before re-entering the processing area. Where practicable, portable hand dips containing a sanitizing solution should be used.
- 6.1.2.7 Equipment which comes in contact with butchered fish should be constructed of smooth, nontoxic, corrosion-resistant metal or other nonabsorbent material or should be covered by another material which is equally sanitary and does not contaminate the fish.
- 6.1.2.8 Where applicable, any grounds surrounding the plant that are under the control of the operator should be free from conditions incompatible with sanitary food manufacturing, processing, packing or holding operations. This may include but is not limited to litter, refuse, tall weeds or inadequately drained areas that could contribute to contamination of food products by providing a place for insects, rodents or microorganisms to generate.
- 6.1.2.9 All outside conveyors and flumes for transporting round fish should be protected so as to prevent fecal contamination by birds and other animals.
- 6.1.2.10 Outside holding bins and outside conveyors used to transport butchered fish should be protected so as to prevent fecal or other contamination by birds, insects and other animals or contamination by dust and dirt.
- 6.1.2.11 Cloth should not be used at water outlets or on sliming tables.

6.1.3 Water Supply Specifications

6.1.3.1 The natural water supply intake should be located with the intent of avoiding pollution from shore facilities, marine vessels or processing residuals.

6.1.3.2 There should be no cross-connections between potable and nonpotable water.

Example 1: A cross-connection can occur when the end of a potable water hose is placed below the surface level in a wash tank full of water.

Example 2: A cross-connection occurs when a potable water service pipe is directly connected to prime a non-potable water pump.

- 6.1.3.3 Natural water which comes in contact with the fish being processed should be effectively sanitized unless the water source is currently approved by a federal, state or local agency.
- 6.1.3.4 Natural water may be used for unloading, fluming or refrigerated holding of round fish (a) if it has been effectively sanitized, (b) if it has been approved by a federal, state or local agency, or (c) if the fish are rinsed with effectively sanitized water before they enter the facility.
- 6.1.3.5 Ice should be made from clean water from an approved source. It should be manufactured, handled, stored and used in a sanitary manner. It should not be reused.

6.2 B. RECOMMENDED OPERATING PROCEDURES FOR ALL SHORE-BASED AND FLOATING PROCESSORS

6.2.1 Employee Education

- 6.2.1.1 All processing workers should be instructed as to the need to handle fish with care at all times. This includes, but is not limited to:
- (a) handle fish gently,
 - (b) do not handle by the tail,
 - (c) do not throw, step on or in any way abuse the fish, and
 - (d) do not handle fish carelessly.

6.2.2 Unloading the Fish

- 6.2.2.1 All pumps, including the suction end, tubing and discharge end, should be designed and operated so as to avoid physical damage to the fish. All pumps should be cleaned and sanitized daily.
- 6.2.2.2 The recommended maximum load per brailer or tote is 250 fish or 800 lbs.
- 6.2.2.3 Elevator buckets and drive mechanisms should be designed and operated so as to avoid physical damage to the fish. They should be cleaned and sanitized after every delivery.
- 6.2.2.4 Discharge after transport by flumes and conveyor belts or handling on sorting tables should not result in fish being dropped more than 18 inches. This equipment should be cleaned and sanitized at least once a day.
- 6.2.2.5 Wagons, totes and bins should be designed and operated to facilitate drainage, and should be cleaned and sanitized at least once per day.

6.2.3 Fish Quality Evaluation Procedures - As Received at Processing Facility

- 6.2.3.1 Both the intrinsic and extrinsic quality of all fish should be evaluated as the fish is received at the processing plant.
- 6.2.3.2 Fish should be evaluated by experienced personnel who are familiar with regulatory agency requirements and company grade specifications.
- 6.2.3.3 Fish should be evaluated according to each company's individual grade standards using the general criteria stated in Paragraph 6.4.1.

- 6.2.2.4 Any fish which are unwholesome (i.e., do not meet minimum standards for human consumption as established by the U.S. Food and Drug Administration) should be discarded.
- 6.2.2.5 Fish of differing quality should be separated, identified and clearly labeled during all phases of processing operations.

6.2.4 General Guidelines for All Processing Operations

- 6.2.4.1 All fish should be kept iced and/or refrigerated before and during processing operations. If ice is used, the fish should be stored in a sufficient amount of finely divided ice to reduce and hold the temperature of the fish to a range of 32° to 35°F (0° to 2°C). If a chilled (CSW) or refrigerated (RSW) sea water system is used, the fish should be maintained at 30° to 35°F (-1° to 2°C). All tanks should be prechilled to 30° to 32°F (-1° to 0°C) before loading fish.
- 6.2.4.2 Raw salmon should be stored no higher than 35 inches (90 cm) deep in clean, well-maintained containers before and during processing operations.
- 6.2.4.3 Any salmon that accidentally fall on the floor should be picked up immediately by the head and nape and rinsed with potable water before further processing.
- 6.2.4.4 Only authorized persons should be allowed in processing areas.
- 6.2.4.5 Effective measures should be taken to exclude pests and pets from the processing areas and to protect against the contamination of fish in or on the premises by all animals, including but not limited to dogs, cats, birds, rodents and insects.
- 6.2.4.6 Cutting boards used at butchering or slining tables which are made of wood or other porous material should be sanitized daily and replaced or reconditioned annually (or more often if necessary) to remove gouged, splintered or otherwise worn surfaces.
- 6.2.4.7 All utensils and surfaces which come in contact with fish should be cleaned as frequently as is necessary to prevent contamination of the fish. Surfaces of equipment used in processing operations which do not come in contact with fish should be cleaned as frequently as necessary to minimize accumulation of dust, dirt, food particles and other debris.
- 6.2.4.8 Fresh fish should be washed, preferably with a low pressure water spray containing 1 ppm chlorine, externally, prior to evisceration, and internally, after evisceration.
- 6.2.4.9 Each facility should have a written cleaning program which includes the use of appropriate detergents and bactericides. The program should provide for intermediate clean-up, sanitizing of equipment at the end of each processing day, and a washdown of

equipment each day prior to processing. Plant personnel should be familiarized with these procedures. Refer to Section 6.5 for a complete description of processing facility sanitation procedures.

6.2.5 Fish Quality Evaluation Procedures - During Processing Operations

- 6.2.5.1 Both the intrinsic and extrinsic quality of the fish should be evaluated on a routine basis during processing operations.
- 6.2.5.2 Fish should be evaluated by experienced personnel who are familiar with regulatory agency requirements and company grade specifications.
- 6.2.5.3 Fish should be evaluated according to each company's individual grade standards, using the criteria stated in Paragraph 6.4.2.1.
- 6.2.5.4 Any fish which are unwholesome (i.e., do not meet minimum standards for human consumption) should be discarded.
- 6.2.5.5 Fish of differing quality should be separated, identified and clearly labeled during all phases of processing operations.
- 6.2.5.6 Any unwholesome portions or defects should be removed at the time of the evaluation.

6.3

C. RECOMMENDED OPERATING PROCEDURES
FOR FREEZING PLANTS

6.3.1

Freezing Operations

6.3.1.1

Fish should be clean, correctly identified, gently laid straight on clean freezer trays or racks, and promptly sharp frozen.

6.3.1.2

Fish should not be removed from freezers until the core temperature has been reduced to 5°F (-15°C) or lower.

6.3.1.3

Fish should be gently removed from freezer trays or racks and immediately glazed or shrink-wrapped and/or packaged to prevent dehydration and oxidation.

6.3.2

Glazing Operations

6.3.2.1

Glaze water should be pre-chilled.

6.3.2.2

The fish should be completely submerged in glaze water.

6.3.2.3

Glaze water may contain approved additives and should be changed frequently to prevent microbial build-up.

6.3.2.4

The glaze should be renewed as necessary during cold storage at the facility.

6.3.3

Cold Storage Operations

6.3.3.1

Frozen fish should be stored at 0°F or lower, with minimal temperature fluctuations.

6.3.3.2

Sufficient space should be provided in cold storage rooms to allow adequate circulation of cool air above, below and around all containers.

6.3.3.3

While in control of the processor, owner or bonded warehouse, frozen fish glaze and/or packaging should be checked periodically and replaced as necessary.

6.4.1

Quality Evaluation Criteria for Fresh Fish

6.4.1.1

All fresh fish should exhibit the following characteristics prior to and during processing operations:

- (a) Eyes should be bright, clear and normal in appearance.
- (b) Gills should be normal in appearance and should smell sea-fresh (practically odorless).
- (c) Skin should be shiny and wrinkles should not remain when fish is bent slightly.
- (d) Skin color should be characteristic of fresh fish that is typical of the species, stage of sexual maturity, district from which it was taken, and time of the year it was caught.
- (e) Viscera and eggs should be bright and firm and should smell sea-fresh (practically odorless).
- (f) Belly cavity should have no breaks due to tissue breakdown by enzymatic action.
- (g) Flesh should be resilient when subjected to finger pressure.
- (h) Flesh color should be characteristic of a fresh fish that is typical of the species, district from which it was taken and time of year it was caught.
- (i) Physical shape should be characteristic of the species at its stage of sexual maturity.
- (j) Scale adherence should be reasonably uniform and nearly complete.*
- (k) Odor should be characteristic of fresh fish. There should be no odor indicating decomposition or contamination.

6.4.2

Quality Evaluation Criteria for Frozen Fish

(To be developed in 1983)

*Fish with substantial scale loss should be carefully examined, as this may be an indication of poor handling practices.

6.5

E. PROCESSING FACILITY SANITATION

6.5.1

General Information

6.5.1.1 A suitable periodic cleaning schedule should be established for each plant which will conform, where applicable, with state and federal regulations.

6.5.2

Detergents and Sanitizers*

6.5.2.1 A standard approved detergent should be used to clean fish contact surfaces.

6.5.2.2 A chlorinated alkaline detergent should be used where needed to clean away protein material (fish slime and blood) from fish contact surfaces.

6.5.2.3 Either gaseous chlorine or a hypochlorite compound can be used as a sanitizing agent (see Reference No. 9 for more details on the use of these forms of chlorine).

6.5.2.4 Under no circumstances should sanitizers containing phenols (such as lysol and pinesol) be used in a fish hold or on fish handling surfaces.

*All processors should use USDA approved detergents and sanitizers as listed in USDA Food Safety and Quality Service Miscellaneous Publication #1373, List of Chemical Compounds Authorized For Use Under USDA Inspection and Grading Programs.

Section VII. GENERAL PRODUCT SPECIFICATIONS

7.1 General Information

7.1.1 Any of the five species of Pacific salmon (Oncorhynchus sp.) harvested in Alaska may be offered for sale in any number of styles, including, but not limited to:

- (a) round
- (b) eviscerated, head-on
- (c) eviscerated, head-off
- (d) heads, fins and tail removed
- (e) steaks or portions
- (f) split sides, backbone removed
- (g) fillet, skin-on
- (h) fillet, skin-off
- (i) canned

7.1.2 Variations in method of processing, style of product and physiology or physical characteristics of the fish are all acceptable if identified and agreed upon by the Seller and the Buyer.

7.2 Nomenclature

(To be developed in 1983)

7.3 Product Specifications

(To be developed in 1983)

7.4 Defects Tables

(To be developed in 1983)

RECOMMENDED STATEWIDE QUALITY ASSURANCE
GUIDELINES AND SPECIFICATIONS
FOR PACIFIC SALMON

Recommended References

State and Federal Regulations

1. Title 21 - Food and Drugs, Part 110, Current Good Manufacturing Practice (Sanitation) in the Manufacturing, Processing, Packing or Holding Human Food. U.S. Food and Drug Administration, effective May 26, 1969, recodified March 15, 1977.
2. Alaska Fish Inspection Regulations, State of Alaska, Department of Natural Resources, Division of Agriculture (1979).

General References

1. Net Caught Salmon - Handle with Care (John P. Doyle), Alaska Seas and Coasts, Volume 6, Number 3 (June 1978).
2. Chilled and Refrigerated Sea Water - Easier and Faster Cooling of Fish (Donald E. Kramer), Alaska Seas and Coasts, Volume 8, Number 4 (October-November 1980).
3. Onboard Freezing Systems: Some Options for the Small Vessel (Edward Kolbe), Oregon State University, Extension Marine Advisory Program, Publication SG 67 (July 1969).
4. Draft Code of Practice for Frozen Fish, 11R7, International Institute for Refrigeration (1969).
5. Operating Instructions for RSW Systems on B.C. Salmon Packers (S.W. Roach), Fisheries Research Board of Canada, Vancouver Laboratory (1973).
6. Recommended International Code of Practice for Fresh Fish, FAO/WHO Codex Alimentarius Commission (1976).
7. Code of Practice for Frozen Fish, CX/FFP 77/15 (FAO Fish. Circ. C145, Rev. 1).
8. Recommended International Standard for Canned Pacific Salmon. FAO/WHO Codex Alimentarius Commission (1969).
9. Fishplant Sanitation and Cleaning Procedures (John P. Doyle), University of Alaska, Marine Advisory Bulletin No. 1 (1970).
10. Cleaning and Sanitizing Agents for Seafood Processing Plants (Jong S. Lee), Oregon State University, Extension Marine Advisory Program, Publication SG 21 (1973).

ALASKA SEAFOOD MARKETING INSTITUTE

ALASKA SALMON 1982 RECOVERY PROGRAM

ALASKA SEAFOOD MARKETING INSTITUTE

ALASKA SALMON 1982 RECOVERY PROGRAM

Phase One - The Dilemma

- * Separate facts from rumor in U.S. and Europe via timely consumer research and trade contact
- * Establish primary source of coordinating reception of facts and preparing issue-oriented materials
- * Isolate the problem area(s)
- * Work closely with qualified government representatives
- * Establish a single "voice" (or source, might involve more than one individual) for the industry on all issues
- * Develop and issue a "position paper" giving information on the problem and outlining what positive steps have been taken to be included in a "fact kit"

Phase Two - The Recovery

- * Launch intensive trade and consumer publicity program
 - \$10 million campaign in U.S. with 25% of budget going to European promotion. Promotion emphasizes product and sweepstakes contest not botulism issue
 - Launch U.S. consumer and trade canned salmon sweepstakes promotion
 - Develop aggressive fresh/frozen salmon promotion
 - Public relations program which will include personal contact with nation's top national food store chains; personally visit leading food editors; select key canned salmon markets for consumer food store taste testing; expand marketing publicity on product attributes via TV, radio, newspaper and magazine interviews

CANNED SALMON PROPOSED EMERGENCY BUDGET

	<u>U.S.</u>	<u>European</u>
1. Research	\$ 75,000	\$ 25,000
2. T.V. (Network)	3,000,000	1,000,000
3. Radio (Network)	1,650,000	500,000
4. Newspaper	1,275,000	425,000
5. Consumer P.R.	225,000	75,000
6. Trade P.R./Merchandising	300,000	100,000
7. Trade Advertising	375,000	125,000
8. Merchandising Materials	150,000	50,000
9. Direct Mail	150,000	50,000
10. Production/Fees	<u>375,000</u>	<u>125,000</u>
SUBTOTAL:	\$ 7,575,000	\$ 2,525,000
GRAND TOTAL:	\$ 10,100,000	

ALASKA SALMON RECOVERY: Research Projects

Projects

The salmon botulism crisis occurred at the same time the Alaska Seafood Marketing Institute was conducting baseline quantitative research in five key national canned salmon markets. This quantitative research has assisted in developing a clear focus as to our existing and potential canned salmon consumer. The demographic and psychographic information derived from this research effort is being incorporated into all media and promotional planning for canned salmon.

It has been recommended that \$100,000 be earmarked for consumer attitudinal research relating to the botulism problem through 1982 in major U.S. and European markets.

Rationale

A "fast facts" three-minute telephone questioning approach would contribute to an ongoing measurement of the consumer awareness and concern over the problem as well as the effectiveness of the campaign.

ALASKA SALMON RECOVERY: U. S. Consumer Media Plan

OBJECTIVES

Target information will be obtained from the recent GMA research study when made available.

1. To alleviate the negative consumer reaction caused by recent crisis in the canned salmon industry.
2. To build maximum awareness of canned salmon among prime potential customers.
3. To stimulate product trial.

STRATEGY

1. Network TV is recommended as the primary media vehicle to provide national coverage.
2. Radio is recommended to provide additional frequency against the target audience.
3. Newspaper ads will provide additional coverage and frequency in key markets where research shows sales potential and/or consumer awareness of problem is greatest.
4. Media dollars will be allocated as follows:

<u>Media</u>	<u>Dollars Allocated</u>	<u>% Total Dollars</u>
Network TV	\$ 3,000,000	50.0%
Radio	1,650,000	28.0%
Newspaper	1,275,000	22.0%
	\$ 5,925,000	100.0%

RATIONALE

1. Network TV offers the most total national coverage of any media as well as the highest reach capability against the target.
2. Radio allows us to build frequency and concentrate media dollars against the active listener by selecting only those station formats and programs that have a high concentration of our target audience. An example might be Paul Harvey.

ALASKA SALMON RECOVERY: Consumer Publicity

The objectives for the proposed consumer emergency program are:

1. To reestablish positive consumer awareness of canned salmon from Alaska.
2. To restore consumer confidence in canned salmon from Alaska.
3. To emphasize to consumers the benefits of Alaska canned salmon - quality, flavor, nutrition and convenience.
4. To increase consumer purchase of Alaska canned salmon.
5. To promote consumer confidence, awareness and use of Alaska fresh/frozen salmon.
6. To support and supplement direct advertising and consumer promotion programs.
7. To target demographic and market areas not covered by consumer advertising.

The strategies for the proposed consumer emergency program are:

1. To use a variety of consumer media channels to reach various consumer segments.
2. To stimulate consumers to purchase and use canned and fresh/frozen salmon from Alaska through consumer recipe and nutrition materials.

SPECIAL PROJECTS

DIRECT MEDIA CONTACTS

Direct media contacts under trade promotion will be expanded to include major markets. An Alaska seafood industry spokesperson will meet the local newspaper, radio and television contacts to promote both canned and fresh/frozen salmon.

Rationale:

These media contacts in each city will give additional consumer exposure to both canned and fresh/frozen salmon.

IN-STORE TASTINGS

In-store canned salmon taste tests in selected key markets.

Rationale:

To expose the consumer to the excellent quality, goodness and versatility of canned salmon.

EDUCATIONAL MAILING

Education kit will be sent to the home economics teachers of junior and senior high schools as well as colleges and universities for inclusion in their home economics programs targeted to teenagers. These comprehensive kits would include the new canned and fresh/frozen fact book, Alaska seafood poster, teacher's guide with lesson plans and activities and spirit masters. These can be used with chain store and extension home economists.

Special Projects--2

Rationale:

To acquaint market segments with the benefits of canned salmon through their educational system.

ALASKA SALMON RECOVERY: Trade Advertising

Using all-expense paid trips to one of the world's finest fishing resorts as an incentive, an aggressive print advertising program would be conducted in select food chain store publications. This promotional effort would be supported by market representative personal contact work and direct mail.

Rationale:

Reassure the grocery trade that canned salmon is still in high consumer demand and will soon be even more so as the Alaska seafood industry launches the most aggressive consumer promotional campaign in the history of this product.

ALASKA SALMON RECOVERY: Trade Publicity

REGIONAL SEMINARS

Regional educational and demonstration seminars for seafood proprietors, supermarkets and seafood buyers/managers by an internationally renowned food expert in key markets. Care, handling and preparation of Alaska salmon will be stressed. This spokesperson will also meet with electronic and print media in each city and will focus on both canned and fresh/frozen salmon.

Rationale:

These educational seminars will result in a better understanding and appreciation of Alaska salmon, thereby increasing sales. These media contacts in each city will give additional consumer exposure to both canned and fresh/frozen salmon.

TRADE ROADSHOW

Representatives for the Alaska seafood industry will make personal contact with major headquarters. These contacts will launch the aggressive multi-million dollar consumer Alaska vacation sweepstakes promotion to key buyers nationwide. A further incentive will be an Alaska fishing vacation contest for the grocery trade. Both canned salmon and fresh/frozen salmon from Alaska will be promoted in this program element.

Point-of-sale materials for canned and fresh/frozen salmon will be introduced to the trade at these meetings. Point-of-sale materials will include tear-off recipe pads, banners and posters.

Trade Publicity--2

Chain store buyers not contacted by personal method will be sent materials and further program exposure will be done through trade magazine advertising.

Rationale:

To regain the confidence of supermarket trade in canned salmon and increase purchase and shelf space of canned salmon and expand the consumer market for fresh/frozen salmon.

ALASKA SALMON RECOVERY: European Promotion

Due to the total embargo of one-half pound American canned salmon in Great Britain as well as the negative repercussion in surrounding European markets, our international marketing effort is one of the most serious and challenging aspects of the recovery program.

Preliminary research has revealed that the problem in the United Kingdom can be interpreted as presently being serious, with a high consumer awareness level. The Alaska seafood industry to date has gathered a large number of front page stories which herald the Belgian botulism death and warn consumers not to eat American canned salmon. While further investigation is required as to the cost of research as well as a consumer and trade recovery promotional effort, it is recommended that 25% of the \$10 million be dedicated to an international canned salmon recovery program.

RECOMMENDATIONS FOR IMPROVING THE QUALITY
OF FROZEN AND CANNED SALMON

Report of
Salmon Quality Control Study Group

Committee Members

James Poor	Harold Hansen
Bill Hall	Roy Alley
Bob Blake	Bob Ditman
Armin Koernig	Bruce Crow
Knute Johnson	Henry Wiese
Lewis Hasbrouck	Wallace H. Noerenberg
Jack Werner	

Senator Jay Kerttula, Chairman

Resource Persons

John Doyle
Allan Otness
Walter Yonker

January, 1981



Official Business

Alaska State Legislature

Senate

Office of the President

January 15, 1981

Pouch V
State Capitol
Juneau, Alaska 99811

TO: Legislative Council
FROM: Senator Jalmar Kerttula
SUBJECT: Report of the Salmon Quality Control
Study Committee

This is a report of the Prince William Sound voluntary quality control compliance pilot project set up by the Salmon Quality Control Study Committee.

The recommendations of the Committee are to continue the pilot project for one more season and to implement a statewide quality control education program.

The Prince William Sound Quality Control Standards were implemented as a pilot project to analyze the quality of fishholds in a relatively moderate area of the State of Alaska, assuming that the appreciation of quality was highest in Southeastern and deteriorated as one progressed westward.

One has to accept that this pilot project was disrupted by the fact that there was no early gillnet season, which did not lend itself to the project, and that the early, unexpectedly high volume pink salmon seine season created a crash mobilization of the fleet which also detracted from cooperation and compliance.

On the whole, with consideration of the problems, I feel it was a very successful experiment. The local processors and the fishermen's organization worked together on this project with enthusiasm prior to the seasons, which displayed the mutual concern for improving or proving the quality of Prince William Sound salmon, and eventually salmon from Alaska.

If this pilot project is carried over to the 1981 season, I feel that significantly better compliance with the program will be seen. Both processors and fishermen will be more aware and prepared for the inspection and timing to create an atmosphere for more and better inspections.

The results of the Prince William Sound inspection program were as follows:

Whitney Fidalgo Fisheries Inc.	inspected 14 boats
Chugach Alaska Fisheries	inspected a questionable number of boats-no report was forwarded to the CAMA office.
Alaska Packers Association	inspected 60 boats
Morpac, Inc.	inspected 42 boats
North Pacific Processors	inspected 38 boats
St. Elias Ocean Products	inspected 82 boats
Miscellaneous Processors	inspected 5 boats
An unknown number of boats were inspected in Valdez	

This totals 241 boats in aggregate which were inspected, approximately 35 per cent of the entire Prince William Sound fleet,

Of that: 84 were seine boats
 12 were tenders
 145 were gillnet boats

A construction breakdown on these boats:

 6 steel construction
 1 cement construction
 51 wood construction
 183 fiberglass construction

Of the fiberglass construction, glass over wood was considered fiberglass as the outer hold and deck coating was most pertinent to the project we are concerned with. Only a small percentage of the fiberglass boats listed are of glass over wood construction.

Of the boats inspected, 197 met the preferred standards while only 44 qualified for minimum standards. In analyzing the inspection forms, I ran across a problem with Alaska Packers Association inspections where they disqualified bowpickers for lack of engine room insulation. Since the engines in bowpickers are far removed from the fishholds, I arbitrarily changed those to preferred qualifications. Predominantly all wood boats only met minimum standards.

Overall, considering it was a first-time pilot project, I would say the Prince William Sound project was an immense success. Personally, I would like to give it one more season to accurately evaluate its success or failure as a voluntary program. In the interim, the Salmon Quality Control educational project will have time to at least reach the areas of the state that are least attuned to quality control.

Over the past season I personally observed both in Prince William Sound and Bristol Bay real and sincere attempts to improve the quality of Alaska salmon, both on the part of the processor and the fishermen. In these days of exorbitantly high interest rates and double digit inflation, I would at least hope that we don't push an extremely costly program on the industry unless it is absolutely necessary. I feel we should make an honest effort to make the industry aware that quality control on a mandatory basis is pending if reasonable steps to keep improving quality are not continued. However, I also feel that we must keep in mind the state of the industry's financial health in anything we mandate.

If this committee feels legislation on fishhold improvement is necessary, then I would recommend only basic necessities for the first year of implementation as follows:

1. Ability to pump hold dry.
2. Eliminate heat transfer from engine to fishhold.
3. Ability to keep fish covered.
4. Watertight bulkheads - to keep oil and gas off of fish.
5. Fishholds that can be cleaned and sanitized.

These five basics for fishholds are the most significant and the most important for a first step at this time. This should be all that is required. As the program progresses and as the awareness develops through education, we can, at a later date, expand this program.

Funding Information
General Fund \$170,000
Other Funds -0-
\$170,000

Introduced: 1/21/81
Referred: Resources and
Finance

1 IN THE SENATE

BY KERTTULA

2 SENATE BILL NO. 103

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making a special appropriation to the Legis-
7 lative Council for a salmon quality control education
8 program; and providing for an effective date."

9 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

10 * Section 1. The sum of \$170,000 is appropriated from the general fund
11 to the Legislative Council for the salmon quality control education program
12 recommended by the education subcommittee of the Senate committee on quality
13 assurance in the salmon fishing industry.

14 * Sec. 2. The unexpended and unobligated portion of the appropriation
15 made by this Act lapses into the general fund June 30, 1982.

16 * Sec. 3. This Act takes effect immediately in accordance with AS 01.10.-
17 070(c).

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REPORT OF THE ALASKA SENATE COMMITTEE ON QUALITY

ASSURANCE IN THE SALMON FISHING INDUSTRY

BY THE SUBCOMMITTEE ON EDUCATION

Background and Need

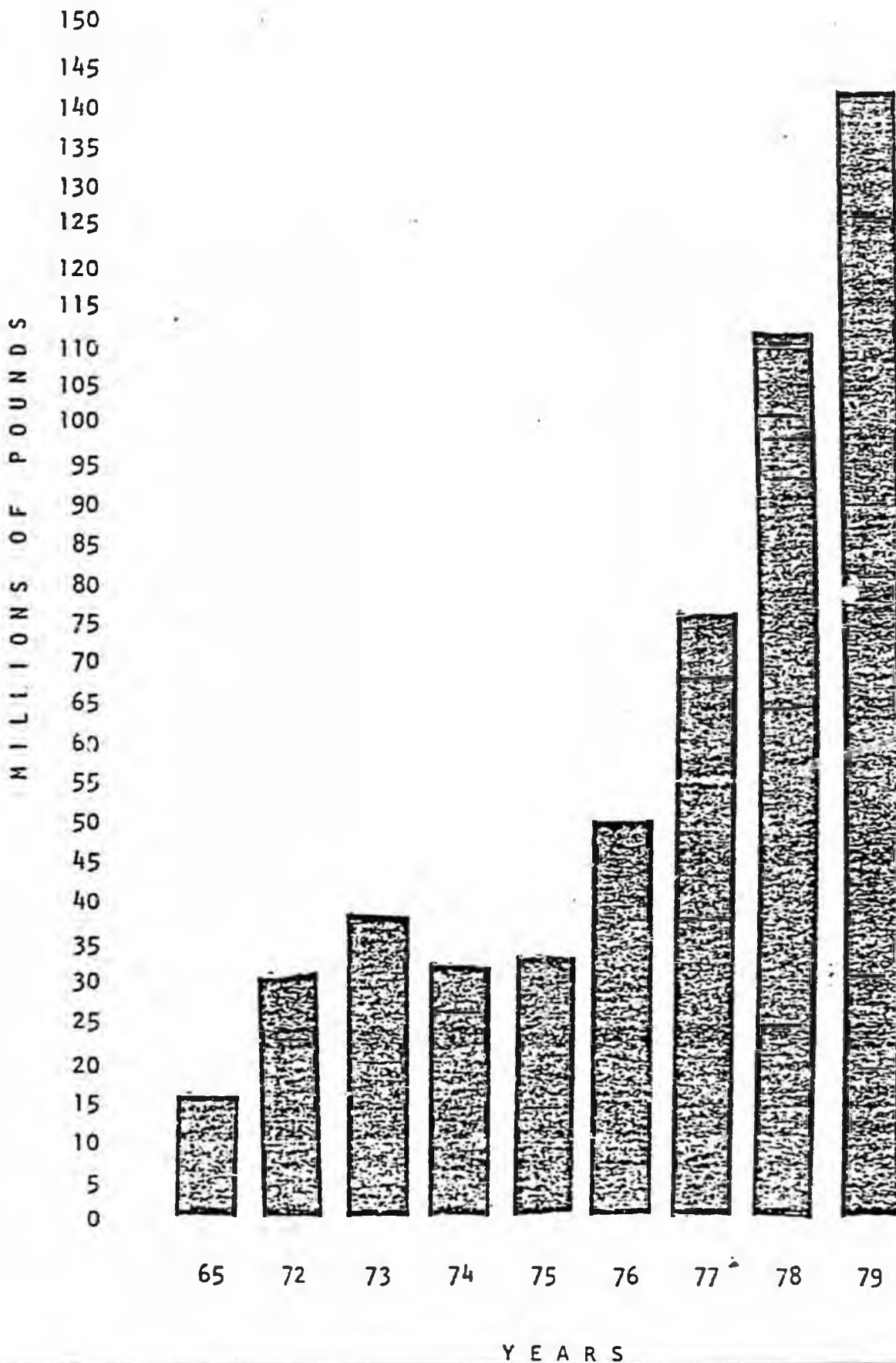
The Alaska salmon industry has undergone a major change in the last ten years. This change consisted of a shift from a primary emphasis on canned salmon to a heavy emphasis on fresh and frozen salmon processing (Fig. 1). This shift is as dramatic as, and is economically more significant than the development of the tanner crab fishery.

Traditionally, the fresh and frozen salmon markets were supplied by troll-caught salmon from Southeast Alaska and the Pacific Northwest. These were high-quality silver and king salmon, bled and dressed immediately after capture and iced within a short period of time. The supply was supplemented by gillnet-caught salmon, again principally silvers and kings.

As the market for fresh and frozen salmon expanded, it had to be filled with net-caught salmon. This move was accompanied by an increase in cold storage capacity in the Gulf of Alaska and air shipments from Bristol Bay and the AYK district.

During the last four years the growth has been dramatic (Fig. 1). In 1979 over 100 million pounds of salmon, including sockeye, chums and pinks that would previously have gone into the can, went to the frozen market. This is accomplished

ALASKA FROZEN SALMON PRODUCTION



by "high grading" at the plant, which has resulted in an overall lowering of quality in both the canned and frozen product.

Many of the fishermen and processors who are now producing for the fresh and frozen market formerly canned all of their product. Therefore, they are not familiar with the proper methods of handling fish to attain a high quality frozen product.

In Japan and Europe the devaluation of the U.S. dollar has put salmon within the buying range of more people. The Japanese market is for high quality dressed salmon with the head on, which are sold whole on the retail market. In Europe, the demand is for frozen salmon which are thawed and split for mild curing and smoking. Both markets demand a quality fish with no external or internal blemishes or visible flaws. North America, too, is experiencing a shift toward fresh and frozen salmon for use as steaks and fillets and, to a lesser extent, the mild cure and smoking market.

European and Asian markets are looking to our competition for a high quality product. This includes Canada and Norway, both of whom have high quality standards set by government regulation.

Processors in Europe complain about bruises, soft flesh, belly burn, rancidity and poor butchering of the product they receive from the U.S., including Alaska. These are all caused by improper handling and processing.

Problem

The Alaska fish are as good as any when they come from the water, but several million pounds of frozen salmon were condemned by state and federal inspectors after the 1979 season. Quality loss occurs in the hands of humans.

The problem of salmon quality is statewide, but is more critical in areas where the production of frozen salmon is a relatively new form of processing.

Goals and Objectives

The goal of this project is to "Raise the quality of Alaska frozen salmon to a level that will meet or exceed that of any other country's product competing on a world market."

Our immediate objective is to improve the overall quality of Alaska salmon. Clearly, efforts need to be made in assisting the industry to improve the quality of salmon submitted to the world markets. Education is needed in proper techniques for handling salmon.

A committee has been appointed to determine these educational needs and the kinds of educational efforts the state should support. A broad-based educational program, directed at fishermen, tendermen and fish processors, is recommended by the committee.

Approach

A broad-based education program will be developed. This program must be delivered to the largest number of industry members possible. The project will reach fishermen, tendermen, processors and shippers of salmon; i.e., all segments of the industry. In order to reach most of the industry, a number of different audio and visual educational techniques will be employed. These will include, but not be limited to: .

1. Seminars, workshops and conferences
2. Consultation services
3. Public service radio spots
4. "How-to" fact sheets
5. Slide series on handling salmon
6. 16-mm educational film on salmon handling and processing methods
7. Salmon handler's manual

In order to provide these educational services it will be necessary to employ a full-time specialist in the care, handling and processing of frozen salmon. This will need to be a long-term project. Current practices are ingrained and will take a number of years to change.

Outline of Education Activities

1. Seminars, workshops and conferences. Seminars and workshops will be conducted in fishing ports throughout the

state. These will be directed at fishermen and processing personnel. This mechanism is helpful in making industry members aware of the problem and will offer solutions to specific problems of each fishery and region. This has been demonstrated to be one of the best methods for provoking a desirable change.

A conference will be held to bring together the leaders of the fishermen's organizations with the objective of informing them of the problems poor quality has caused in the marketplace; to obtain their ideas for a long-range solution; and to enlist their support. A second conference will be held with the quality assurance personnel in the processing plants to inform them of the problems that occur in plants and to provide them with information and materials for training their in-plant workers.

2. Consultation services. In order to improve the quality of fish landed it will be necessary to do conversion work on many of the salmon vessels presently in use. This will include the installation of slush ice, refrigeration systems, or other types of cooling systems on the vessel. In some areas of the state the older or smaller vessels are not lined. Fish lay in the bilge or against hot engineroom bulkheads. In some cases boxing may be justified. The specialist would be available to provide technical information on these and other specific problems. In many cases, the

fishermen or processors could make the necessary changes themselves with technical assistance made available through this program.

3. Public service radio announcements (PSA's). All radio stations make time available for public service announcements. Several stations have been contacted and have expressed a willingness to air educational spots relating to good handling practices for salmon. A series of PSA's will be produced and distributed to all radio stations in coastal communities. The PSA's will contain "how-to" tips as well as what not to do. They will each contain an educational message; however, their prime function will be to raise the general awareness of the necessity for good handling practices. Through personal contact with participating radio stations it is expected that the PSA's will be aired at a time most fishermen listen to the broadcast band--at the time of the marine weather forecast.

4. "How-to" fact sheets. A series of "how-to" fact sheets will be written. They will be developed for each fishery by region. It is necessary to develop them by fishery and region because of the differences in the harvesting methods employed and the different conditions existing in each region. Fact sheets will also be developed for in-plant handling. Subjects to be covered will include, but

not be limited to, effects of temperature; sanitation; use of ice; refrigeration; etc. These fact sheets will be given broad distribution to fishermen and processors and be used in workshops and seminars.

5. Slide series on salmon handling and processing.

A series of slides is presently being assembled that shows the effect of poor handling and butchering practices. This series will be expanded to show proper methods. The series will be duplicated for use in workshops and seminars and will be available for fish processors to use in their own in-plant training sessions. These slides must be considered as a tool rather than standing on their own as an educational program.

6. 16-mm movie film/television tape on salmon handling and processing methods. A 16-mm educational movie film will be developed showing proper handling and icing and the processing of frozen salmon in the plant. Television tape copies of this film will be made available for circulation to schools and educational TV, and will be used in workshops, seminars, etc. A film will not be a complete educational program but will augment the other educational efforts.

7. Salmon handler's manual. The fact sheets will be completed and supplemented with additional materials to produce a salmon handler's manual. This manual will in-

clude the why as well as the how to. The major use of this manual will be for in-plant training by company personnel. It will also be used to train new quality control people in the plants.

Interactions

It is necessary that this project interact with present education efforts in salmon quality enhancement in both the private and public sectors. This would include the University of Alaska, the National Food Processors Association, fishermen's associations, and the state legislature.

It is recommended that a permanent advisory committee be appointed to monitor the program. This committee should meet on a quarterly basis to review progress and to identify problem areas.

Salmon Quality Education

BUDGET

SALARIES

Instructor 12 mo @ \$3000 mo	\$ 36,000	
Clerical assistance 1/2 time 12 mo	<u>8,000</u>	
	44,000	
Staff benefits @ 20.5%	<u>9,020</u>	
TOTAL .		\$ 53,020

EQUIPMENT

Office equipment	1,500	
Audio Visual	<u>950</u>	
TOTAL		2,450

EXPENDABLE SUPPLIES

Recording tape	480	
35-mm film	120	
Office supplies	<u>200</u>	
TOTAL		800

TRAVEL

7,800

CONTRACTUAL SERVICES

16-mm movie	40,000	
Printing (fact sheets, manual)	13,200	
Postage	1,100	
Communications	3,000	
Xerox and drafting	2,000	
Video tapes	400	
Reproduction of slide sets	500	
Subcommittee travel and per diem	<u>10,000</u>	
TOTAL		<u>70,200</u>

TOTAL DIRECT		134,270
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TOTAL INDIRECT @ 50.8% of S & W		<u>22,352</u>
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GRAND TOTAL		\$156,622
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Canned salmon

*file
Comm.
Fish*



Once, not so very long ago, salmon was a widely harvested and seemingly inexhaustible food source. It was so plentiful in parts of the world that it was considered a dish for the lower classes. Indeed, history records an occasion when apprentices of the London guilds petitioned their masters to limit the provision of salmon for apprentice fare to no more than five meals a week. The apprentices were sick of salmon.

But subsequent history—marked by river pollution and hydropower expansion—has grossly interfered with the life cycle of the salmon and greatly enhanced its esteem. Easy hauls from the Thames and other low-water river mouths of Europe and eastern North America are no longer thinkable. Scottish and Nova Scotia salmon are too highly prized as gourmet foods to be canned on a large scale. Even the splendid Columbia River salmon runs from the Pacific have waned to a trickle, unable to support a canning

industry. Thus, almost all the canned salmon sold in the U.S. comes from the Pacific North-Northwest—more specifically, from fisheries that dot the shores of Bristol Bay in Alaska.

Pacific salmon spend several years feeding in rich northern seas, gathering and husbanding strength for a final imperative—a desperate journey upstream against spring torrents in search of the headwater lakes and rivulets where they first hatched. Once they leave the sea, they never eat again; they exist only to spawn and die. But as they throng the bays and sounds, gathering at the mouths of their mother rivers, they present the salmon fishing fleet with an annual harvest in near-peak condition.

The red salmon, also called sockeye or blueback salmon, is usually harvested at about seven pounds. Its deep orange-pink flesh is firm, separating into medium-sized flakes. It retains an oily moistness that yields a rich aroma in hot dishes.

More plentiful—and generally less valued—are pink salmon. In their short two-year lifespan, they grow to about 4½ pounds. Their lighter-colored flesh separates into smaller and drier flakes than the flesh of red salmon. It's well suited for casseroles and sandwich fillings.

In many parts of the country, red and pink salmon are what you find on supermarket store shelves (King salmon, or chinook, the reddest and rarest of canned salmon, is usually marketed as a specialty gourmet item.) But in some areas, especially the South, you can also find chum. Chum, or keta, is the lightest in color and the least expensive of the canned salmon. It's appropriate for fried patties, chowders, and loaves.

CU shoppers searched the stores in 15 cities around the country to help us determine what salmon is on the market. They found 80 different brands. (Many independent distributors buy from the Alaskan canneries and sell under their

Five were
very good



own labels.) From those brands, we selected for testing 33 widely distributed brands: 17 of red salmon, 12 of pink salmon, and 4 of chum.

After a fresh start

The salmon's provident way of life—saving everything for the children, as it were—should reward the fisheries with a crop in its plump prime. The fishing boats usually work close enough to shore to put salmon on cannery docks before deterioration sets in. The fish of each species are so uniform in size that machines can be used to trim heads, fins, and viscera in fast, sanitary conditions. After washing and inspection, the carcasses pass to other machines that cut them into sections according to can height or mold the sections into cans.

The cans are vacuum-sealed and passed into high-pressure steam retorts that "poach" the salmon inside the can in its own juices. In view of such favorable processing conditions, the wonder is that we found a wide range of quality in the brands of salmon we bought.

One indication of a salmon's quality is its color—characteristically pink-orange in a range of shades—which develops as a consequence of crustaceans in the diet. The color, concentrated in the unsaturated fish oils, signifies stored energy that will sustain the salmon when it stops eat-

ing. A deficiency of normal color may indicate that the fish's recent diet had been meager, or that the fish had already stopped eating and was living off its fat.

Some hauls may contain such weakened specimens, through no fault of the fisheries. As salmon approach their rivers of origin, they hesitate offshore, perhaps to mill around for days, before forging upstream. Fish caught late in the run are apt to show less color than those plucked fresh from the feeding grounds. And salmon, flesh becomes paler and more watery still as the migration nears its conclusion.

Fish oils change character quickly when they are exposed to air and warmth. The first noticeable change is a briny, or "seawater," aroma that develops within hours. In its early stages, the briny fragrance is not unpleasant; it's generally regarded as an indicator that the fish is still fresh. Salting can enhance the fragrance.

Given further exposure to the air, raw salmon flesh begins to exude a "fishy" smell, a sign of further oxidation of the delicate fish oils. The smell, and its associated flavor, can become quite strong if the fish spend too much time in a ship's hold or piled on the cannery docks. If left longer yet uncanned, the fish tend to sour and spoil.

On reaching the can, though, even the

finest, freshest salmon is at the mercy of the cooking process. It takes careful control to cook a retort full of stacked cans with high-pressure steam and have all the fish come out evenly done. We found no hard bones and raw flesh to indicate undercooked fish, but we detected signs of various degrees of overcooking. Overcooking accentuates staleness defects and can also bring out a medicinal taste from the natural iodine in the fish.

In search of good taste

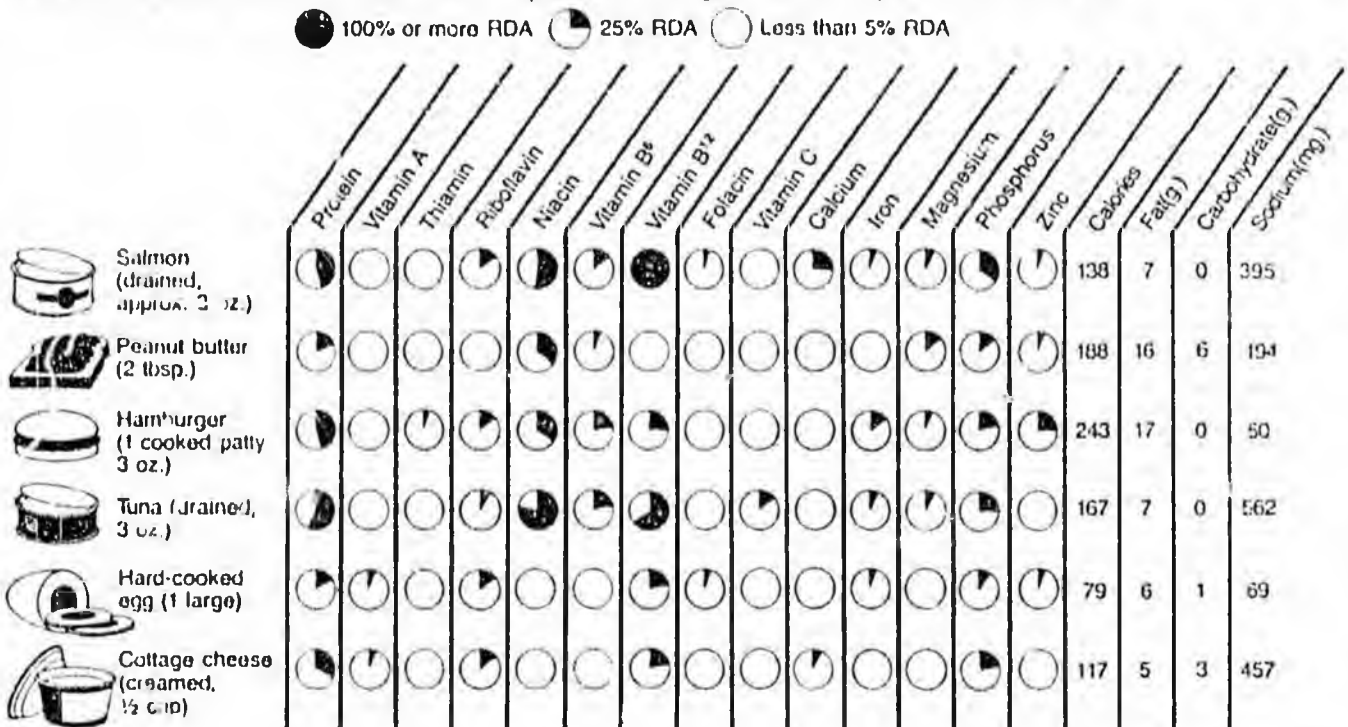
Poached fresh salmon was established by CU's sensory consultants as the "ideal" standard. Such a salmon should have the intense color of prime fish caught early in the run. The distinctive flavor should be pleasant and slightly sweet. The aroma should be rich. The texture should be initially moist—but firm, not wet or soggy.

Canning introduces its own characteristic flavors, but they weren't regarded as defects unless they had escalated into distinctly tinny or briny flavors (and associated aromas). In theory, there could have been canned salmon judged excellent; in fact, only five products earned scores as high as very good.

Our sensory judges tasted six samples of each product. Products were down-rated partly on the number of defects that appeared in the multiple samples,

Salmon vs. other sandwich and salad foods

The table shows how much of a woman's Recommended Daily Allowance (RDA) for a number of nutrients is provided by a typical portion of canned salmon and by common portions of other sandwich fillings and salad staples. RDA's are those set by the National Academy of Sciences/National Research Council. Nutrient values are derived from CU tests, U.S. Department of Agriculture data, and other sources.



but most severely on the intensity of their worst defect:

The variations between one can and another of a given product were easily noted by our taste experts, but the variations between brands were even greater. So we were able to establish a Ratings order based on sensory judgments. (Only the *Sea Trader Pink* salmon was so variable that we couldn't fit it into a quality-judgment niche in the Ratings.)

For salmon lovers, the variations mean that you can't expect every can of salmon to taste just like the one before. But, if you stick with the highest-rated brands, just about every can should be—well, very good.

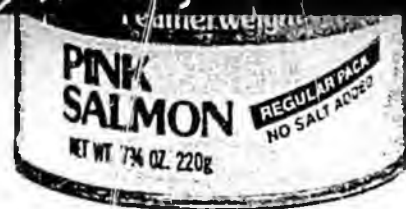
Salmon are canned with the skin and bones, so we didn't downgrade because of

the mere presence of these parts. Salmon bones, when they are softened by cooking, are perfectly edible.

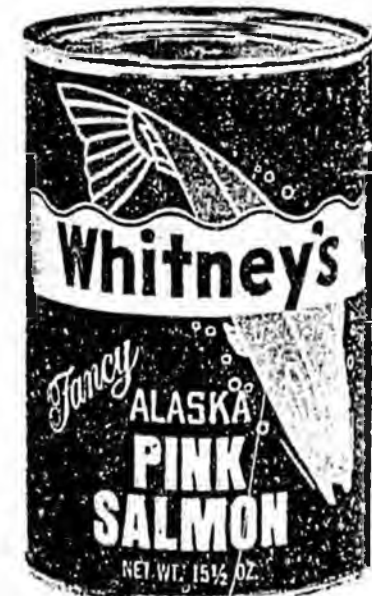
Sorting out the contents

Canned salmon serves very well as a meat course in a balanced diet. As the nutrition chart on the facing page shows, salmon supplies adequate protein without excessive fat, and could easily replace canned tuna or cottage cheese in a calorie-counter's regimen. It's also a rich source of vitamin B-12 and, usually, calcium. (Meat is normally a poor source of calcium.) Canned salmon is a good source if you eat the bones.)

Although salt appears to have been added in the canning (except to *Featherweight Pink*, the sodium content of all



Six of those judged good



How to make good canned salmon better

Like all canned foods, salmon suffers from defects incurred in the canning process itself. But salmon has distinctive natural taste characteristics that can be enhanced in a hot dish, while other ingredients in the recipe will suppress the objectionable tinny, briny, and salty flavors introduced during processing. Following are recipes for hot dishes that were cooked by U.S. food consultants, using canned salmon rated very good or good. Their evaluation: In each case, the salmon was significantly improved by the dish as a whole.

Salmon cakes

- 1 15 1/2-oz. can salmon, drained
- 1 1/2 cups bread crumbs
- 1/2 tsp. pepper
- 2 eggs

Discard skin from salmon, separate into small flakes, and crush bones with back of fork. Mix with the other ingredients. Shape into patties and fry on both sides in vegetable oil until lightly browned. Serve with lemon wedges. Yields about four portions.

Salmon pie

- 1 15 1/2-oz. can salmon, drained
- 2 cups milk
- 2 tbsp. butter
- 2 tbsp. flour
- 1 small onion, diced fine
- 1 cup frozen peas (or frozen peas and carrots)
- 1/2 tsp. cayenne
- 1 9-in. pastry shell and top crust

Discard skin from salmon, separate into large flakes, and crush bones with back of fork. Make a medium-thick white sauce from the butter, flour, and milk.* Add salmon to white sauce along with onion, peas, and cayenne. Pour mix into

pastry shell. Cover with top crust, crimp the two pastry edges together, and pierce or slash top. Bake in 350°F oven for 30 minutes or until crust is golden brown. Serves four to six.

Salmon soufflé

- 1 15 1/2-oz. can salmon, drained
- 2 tbsp. butter
- 2 tbsp. flour
- 2 cups milk
- 1/4 tsp. cayenne
- 1 tsp. lemon juice
- 1 small onion, chopped fine
- 3 eggs, separated

Discard skin from salmon, separate into small flakes, and crush bones with back of fork. Make a medium-thick white sauce from the butter, flour, and milk.* Add salmon to white sauce along with the cayenne, lemon juice, and onion. Mix, at medium mixer speed, for one minute. Add the three egg yolks and continue mixing for one to two minutes. Cool. In another bowl, beat the egg whites to a stiff peak. Fold them into mix. Place mix gently into a two-quart buttered soufflé dish, and bake in 400°F oven for 45 minutes to one hour. Serve immediately. Yields four to six portions.

* To make the traditional glossy white sauce beloved by French chefs, you start by preparing the roux—a butter-flour mixture. Barely melt the butter in a pot or pan, add the flour, and stir briskly over moderate heat until the mixture appears golden and lightly frothing and exudes a toasty or fresh-bread aroma (signs that the flour has been thoroughly cooked). Proceeding along traditional lines, you add the milk and continue stirring over heat until the sauce thickens. Or, to avoid any chance of lumps, try completing the sauce with this modern method: Add the roux to the milk in a blender, blend at puree setting until the sauce is creamy, and return it to the pot to thicken. Voilà!

the products proved to be moderate for a processed food. It averaged out to less than 400 milligrams of sodium per serving. However, to our testers' trained palates, even some ordinarily moderate amounts of salt were too high for optimum taste. A too-salty taste was one of the most frequently cited defects.

Our tests for lead levels showed about what we'd expect in canned foods—around 0.3 parts per million. Lead content at that level is regarded as no cause for concern by the National Academy of Sciences/National Research Council. But some samples contained lead at lev-

els two to three times the average—as high as 0.9 parts per million.

That's still not enough to cause concern to an adult who occasionally eats salmon, but it could amount to as much as 80 percent of the recommended daily lead limit for very young children. And since the body unavoidably receives lead from the air and other sources in the environment, it's a good idea to minimize lead intake from sources that are avoidable—particularly with very young children, who are especially susceptible to lead poisoning.

In tests for other forms of contamina-

tion, canned salmon proved to be unusually clean for a processed food. That speaks well of sanitary conditions in the Alaskan canneries.

Recommendations

The prices that our shoppers came across varied widely from store to store, and most stores had a limited selection of brands and can sizes. You may have to shop around to find a high-rated brand at a favorable price. The Ratings give the average of the prices we found for the stated can size.

We found three predominant sizes of

Ratings

Canned salmon

Listed in quality groups; within groups, listed in order of estimated overall quality based on sensory judgments by CU's consultants.

Portion sizes were obtained by dividing drained contents of cans into equal portions: 4 per 15½-oz. can, 2 per 7½-oz. can, and 1 per

3½-oz. can; portions averaged approx. 3 oz. Prices are average paid by CU shoppers (in fall of 1980) for can size given.

Product	Per portion							Sensory defects
	Size purchased (oz.)	Average price paid	Average cost	Protein (g.)	Calories	Sodium (mg.)	Color	
Very good								
RUBENSTEIN'S SOCKEYE BLUEBACK RED SALMON STEAK	7½	\$2.10	\$1.05	19.0	167	410	Light pink-orange	C,E,N
SEA TRADER RED SOCKEYE	15½	3.07	.77	21.3	131	371	Light pink-orange	B,D,E
S&W BLUEBACK	7½	2.48	1.24	21.1	188	440	Light pink-orange	A,C,E,I,N
FOOD CLUB RED SOCKEYE	15½	2.88	.72	19.5	158	321	Light pink-orange	B,D,E,N
GILL NETTERS BEST RED SOCKEYE	15½	3.25	.81	21.0	134	320	Light pink-orange	B,D,E,M,P
Good								
FEATHERY EIGHT PINK (no salt)	7½	2.40	1.20	19.8	134	106	Light beige	A,G,N,P
A&P ALASKA SOCKEYE RED	7½	1.87	.94	20.5	151	318	Light pink-orange	A,C,I,N,P
WHITNEY'S PINK	15½	2.16	.54	19.9	125	475	Pink-beige	B,C,H,N,P
SEASON BRAND BLUEBACK	7½	2.22	1.11	21.1	174	442	Medium pink-orange	B,D,H,J,N,P
S&W RED SOCKEYE	7½	2.16	1.08	20.2	142	451	Dark pink-orange	A,C,E,G,P
BUMBLE BEE BLUEBACK	7½	2.28	1.14	20.4	154	430	Light pink-orange	A,C,E,J,N,P
RUBENSTEIN'S BLUEBACK RED	15½	3.01	.75	22.1	148	430	Light pink-orange	A,E,H,L,P
GILL NETTERS BEST RED SOCKEYE BLUEBACK	7½	1.92	.96	19.2	149	446	Light pink-orange	A,E,H,I,N,P
RUBENSTEIN'S PINK	15½	2.32	.58	21.1	125	454	Pink-beige	B,C,E,I,O,P
GILL NETTERS BEST PINK	15½	2.31	.58	19.4	126	369	Dark beige	B,C,E,I,L,N,P
A&P PINK	7½	1.28	.64	19.5	126	241	Pink-beige	A,C,H,I,N,P
FOOD CLUB PINK	15½	2.19	.55	20.4	146	498	Light beige	B,C,F,H,J,L,O,Q
ROYAL PINK	7½	1.28	.64	20.0	107	452	Pink beige/light beige	B,C,E,G,J,N,P
DEL MONTE SOCKEYE RED	15½	2.95	.74	21.6	148	356	Light pink-orange	B,C,H,L,N,P

can: 3¼ ounces, 7¼ ounces, and 15½ ounces. That made it convenient for us to figure portions. Regardless of brand, if we assigned one portion for the small can, two for the medium-sized can, and four for the large can, we invariably ended up with almost exactly three ounces of drained salmon per portion. The prices per portion listed in the Ratings were assigned accordingly.

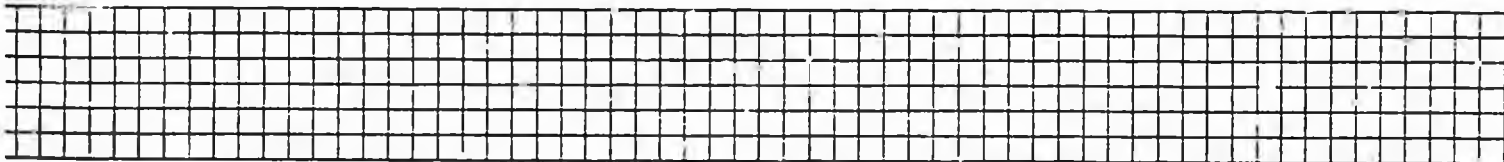
The average cost of red salmon worked out to 91 cents per portion, a price in the same league with the better cuts of beef. Even so, there were bargains to be found, particularly among some reds packed in

the large cans. *Food Club Red*, for instance, was rated in the top quality group and averaged only 72 cents per portion. That price competes favorably with the price of the better grades of canned tuna.

Although the red salmon cost on average half again as much as the pink salmon, it wasn't necessarily better. True, only red (including blueback) salmon are among the five products in the top Ratings group. But the other 12 products of red scatter down through the Ratings among the pink salmon and the chum, which are much cheaper.

The pink salmon didn't vary so much in price as the red, although it did vary quite a bit in quality. The highest-rated pink, the \$1.20-per-portion *Featherweight*, cost more than most of the red salmon rated above it—too much, in our judgment, except perhaps for salmon lovers on stringently salt-restricted diets. *Whitney's Pink*, at 54 cents a portion, looks like a much better buy; it was rated above most of the reds.

Whitney's Chum was the cheapest chum, at 50 cents a portion, and also the best. It rated above several brands of red and pink salmon.



Product	Per portion							Sensory defects
	Size purchased (oz.)	Average price paid	Average cost	Protein (g.)	Colorites	Sodium (mg.)	Color	
DEMING'S PINK	15½	\$2.14	\$.54	19.7	112	370	Pink-beige	B,C,H,I,N,P
WHITNEY'S CHUM	15½	2.00	.50	21.4	118	425	Light beige	A,C,F,H,I,N,P
Fair								
TUXEDO CHUM	15½	2.07	.52	20.8	109	448	Light beige	A,C,E,F,H,I,N,P
GILL NETTERS BEST FANCY BLUEBACK	3¼	1.20	1.20	19.9	138	416	Medium pink-orange	D,E,F,H,N,P
DEL MONTE PINK	15½	2.22	.56	20.3	109	384	Light beige	B,C,F,I,N,P
ROYAL RED	15½	2.99	.75	19.7	159	334	Light pink-orange	A,D,E,F,I,N,P
BUMBLE BEE ALASKA SOCKEYE RED	15½	2.86	.72	20.9	143	328	Light pink-orange	B,C,F,H,N,P
DEMING'S RED SOCKEYE	15½	2.70	.68	20.5	149	351	Light pink-orange	A,C,F,H,N,P
ANN PAGE CHUM	15½	2.05	.51	21.1	123	461	Light beige	B,D,F,H,J,N,P
BUMBLE BEE PINK	15½	2.34	.59	18.3	120	492	Dark beige	B,D,H,K,L,N,P
LIBBY'S SOCKEYE RED	15½	3.47	.87	20.5	139	186	Light pink-orange	B,C,H,I,L,N,P
Poor								
SCOTCH BUY CHUM	15½	2.22	.56	21.0	130	435	Light beige	B,K,N,P,R
LIBBY'S PINK	7¼	1.31	.66	18.0	117	438	Pink-beige	A,C,H,J,L,N,Q
Variable (poor to good)								
SEA TRADER PINK	15½	2.09	.52	19.0	152	528	Light beige	B,C,H,I,L,N,P

KEY TO SENSORY EFFECTS

- A - Slight tinny flavor.
- B - Somewhat tinny flavor.
- C - Slightly briny aroma.
- D - Somewhat briny aroma.
- E - Slight fishy flavor.
- F - Slight spoiled-fish flavor.

- G - Slightly too-watery texture.
- H - Slightly too-oily texture.
- I - Somewhat salty flavor.
- J - Strong salty flavor.
- K - Very strong salty flavor.
- L - Slight burnt flavor.

- M - Slight medicinal flavor.
- N - Slight sour flavor.
- O - Somewhat sour flavor.
- P - Slight bitter flavor.
- Q - Somewhat bitter flavor.
- R - Slight marine-oil flavor.