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OMAN FISHERIES DEVELOPMENT AND MANAGEMENT PROJECT

EVALUATION OF OMAN'S QUALITY CONTROL

AND

INSPECTION PRACTICES

*

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SUBMITTED TO:

DIRECTORATE GENERAL OF FISHERIES RESOURCES
MINISTRY OF AGRICULTURE AND FISHERIES
SULTANATE OF OMAN

AND

OMANI-AMERICAN JOINT COMMISSION
FOR ECONOMIC & TECHNICAL COOPERATION

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مشروع تنمية وادارة الثروة السمكية في عمان
FDMP *Oman Fisheries Development and Management Project*

April 26, 1994

Dr. Michael Cremer
Project Officer, Oman FDMP
Omani-American Joint Commission
PO Box 3001 Ruwi 112
Sultanate of Oman

Reference: *Evaluation of Oman's Seafood Quality Control and Inspection Practices*

Dear Dr. Cremer:

Attached please find Joseph W. Slavin's report, *Evaluation of Oman's Seafood Quality Control and Inspection Practices*. This is the final draft of this document.

Sincerely yours,

Dr. John A. Dorr III
Chief of Party

Attachment

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س.ت : ١/٣٤١٥١/٠ - هاتف : ٦٠٠٣٧٦ / ٦٠٠٤٩١ / ٦٠٠٣٩٧ - فاكس : ٦٠٠٤٤٧
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مشروع تنمية وادارة الثروة السمكية في عمان
FDMP *Oman Fisheries Development and Management Project*

April 26, 1994

H.E. Sheikh Abdullah bin Ali Bakathir
Director General
Directorate General of Fisheries Resources
Ministry of Agriculture and Fisheries
Al Khuwair

Reference: *Evaluation of Oman's Seafood Quality Control and Inspection Practices*

After compliments:

I am pleased to attach Joseph W. Slavin's report *Evaluation of Oman's Seafood Quality Control and Inspection Practices*. This document was prepared as part of the FDMP sponsored consultancy on quality control assessment (FDMP Activity DFR 1a and 1b).

If you should have any questions or comments concerning this document, please do not hesitate to contact me.

After final compliments,

Dr. John A. Dorr III
Chief of Party

Attachments

cc: Mr. Hamad bin Hamdan al-Yahyai, Project Coordinator, DGFR

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EXECUTIVE SUMMARY

The quality control practices in Oman were evaluated from November 13 to December 17, 1993. The objective of this evaluation was 1) to determine the extent to which procedures for quality control are currently employed by the government and industrial/ commercial and traditional fishing sectors in Oman and 2) to design and recommend measures for implementation of suitable quality control programs based on international standards, including an evaluation of social and economic feasibility.

Meetings were held with representatives of the Ministries of Agriculture and Fisheries, Commerce and Industry, Regional Municipalities and Environment, Health, and the Muscat Municipality to determine the role of the various government agencies. Site visits were made to major fishing ports, 16 fish processing plants and six fish souks to evaluate quality control practices. A two-day seminar was held with representatives from the public and private sectors to discuss quality control systems and to obtain comments on the preliminary findings of the survey.

Considerable amounts of fish are wasted in Oman because of low quality. Oman does not have a national quality control and inspection program, or standards for ensuring the production and consumption or export of safe and quality fish products that meet internationally recognized country standards. Many of the plants surveyed would have difficulty in meeting U.S. and other international standards.

Development of a sound quality control and inspection program, with short-range economic incentives, is necessary to ensure growth of Oman's fishing industry and continued acceptance of Oman's fish products in foreign markets. Failure to take immediate action could result in serious economic problems for the industry.

It is recommended that immediate steps be taken by the Directorate General of Fisheries Resources (DGFR) to develop and implement a quality control program. Specific steps are as follows:

1. **Establish a regulatory framework and inspection capability to implement a National Fish Quality Control and Inspection Program.** Elements of this program include

   - A Ministerial Decree on National Fish Quality;
   - An Omani Fish Quality Export Act and Standards;
   - Fish establishment sanitation and hygienic standards;
   - Fish product standards;
   - Standards for production, transportation, and handling of fish;
   - Standards for fish souks;
   - Development of a quality control and inspection capability in the Ministry of Agriculture and Fisheries, including the hiring of a chief inspector and

an assistant in the Department of Fisheries Resources, DGFR;

- Use of an internationally recognized fish inspection organization to assist the DGFR in auditing fish establishments;
- Expansion of staff at the Central Laboratory, Ministry of Commerce and Industry, to allow more attention to analysis of fishery products and plant inspections;
- Institution of a comprehensive training program to cover all elements of quality control for public and private sectors; and
- Development of a quality control and inspection training capability at Sultan Qaboos University.

2. **Develop a program of incentives to encourage improved handling of fish and shellfish.** This program would include

- Financial incentives to increase the supply of ice;
- Financial incentives to encourage greater use of ice in fisheries and on vessels/boats;
- Creation of a demonstration project to show fishermen the benefits from increased use of ice;
- A national program to improve fish souks, including the construction and operation of a model fish souk; and
- Review by the DGFR of the design and construction of fish souks.

3. **Develop a program to educate fishermen and fish handlers in the proper icing and handling of fish.** This program would consist of

- Development of audio-visual and educational material on quality control;
- Education of the industry in quality control practices; this should be a priority for DGFR extension activities; and
- Fisheries quality control education grants to private or public organizations.

4. **Review intensively both establishments and products of new firms, and plants producing product for export, to insure that there are no public health or food safety problems.**

It is recommended that a task force be established by the DGFR to review and take action on the recommendations of this report. A draft Omani Fish Quality Export Act and Standards has been prepared for consideration by this task force.

A schedule and estimated cost of the proposed quality control program are contained in this report. The cost of specific plant and product inspections can be borne partially or completely by the private sector.

EVALUATION OF OMAN'S SEAFOOD QUALITY CONTROL AND INSPECTION PRACTICES

I. BACKGROUND

The Oman government, with the assistance of the Omani-American Joint Commission for Economic and Technical Cooperation, is engaged in a program to strengthen government institutions/structures concerned with fisheries and to increase the contribution of the fishing sector to the national economy. Oman has a substantial fishing industry, containing both traditional and commercial fisheries, which in 1992 produced landings of 112,000 tonnes for a value of 326 million Omani Riyals. The traditional fisheries contributed 80 percent of the value of the catch.

The principal species consist of demersal fish, i.e. groupers and sea bream; large pelagics, i.e. king fish, yellowfin tuna and shark; small pelagics, primarily sardines; and shellfish, i.e., lobster, shrimp and abalone.

In 1992, the number of fishermen in industrial and traditional fisheries totaled 20,570, of whom 864 worked on commercial fishing vessels and the remaining 19,706 worked as artisanal fishermen. Traditional fishermen use fishing boats varying from 3-10 meters in length which use outboard engines and are not designed to carry ice. Over 11,000 fishing boats are used in the fisheries, of which 70 percent are fiberglass. The number of commercial fishing vessels totalled 37 in 1992, of which 29 were longliners and eight were trawlers. The catch landed by the commercial fleet consisted of 15,268 tonnes. Longliners produced 1805.4 tonnes and trawlers 13,463 tonnes.

There are more than 20 companies with different capabilities and activities dealing with fisheries. Some own fishing vessels, others cold storage and processing plants. These firms are distributed along the coast with the majority being located in the Muscat, Masirah, and Al-Wusta regions. Most of the firms export fish.

Oman exports fish and shellfish products to the major importing countries in the world including the United States, Japan, Korea, Italy, France, and many others. The quantity of fish exported during the year 1992 amounted to 24,471 tonnes valued at RO 22.7 million, a slight decline over the previous year. In the main, though, exports have more than doubled in quantity and value during the past 10 years. The highest value export products consist of tuna, demersal fish, lobster, shrimp, abalone, and cuttlefish.

The major seafood producing and importing countries are implementing stricter quality control and inspection regulations and procedures that could restrict seafood exports from Oman. The U.S. Food and Drug Administration (FDA), which sets minimum requirements

to ensure product safety, is tightening its seafood program to provide for application of a more systematic approach based on the hazards analysis critical control point (HACCP)[1] concept that requires that seafood producers have a plan in place to ensure that seafood for export to the United States is produced in a safe and wholesome manner. The European

[1] HACCP is a manufacturing quality control system developed in the United States. It identifies critical points in food handling and processing, and, by monitoring each step where failure can occur, allows accurate and efficient identification of problems.

Community (EC) has adopted very specific directives for quality control in fish processing establishments and vessels, which apply to countries exporting to Europe. These tighter inspection and quality control procedures are being, or have already been, incorporated into the laws of many European countries. Canada has recently implemented a program called the Quality Management Program, which is similar to the HACCP concept, and calls for tighter quality controls on seafood exported to Canada. Japan has strict quality requirements. Many other countries are tightening their fish quality control and inspection requirements.

The Omani fishing industry could be severely affected if it produces and exports products that do not meet the quality standards of importing countries, and if it gets tarnished with an international reputation for producing low quality products. It is essential for the Omani government and industry to be aware of these new developments and to apply quality control and inspection procedures that will ensure growth of its fisheries and continued acceptance of its seafood products in world markets.

II. PURPOSE/OBJECTIVES

The overall purpose of this consultancy is to (1) determine the extent to which procedures for quality control are currently employed by the government as well as by the industrial/commercial and traditional fishing sectors in Oman, and (2) design and recommend measures for implementation of suitable quality control programs, based on international standards and practices, including an evaluation of social and economic feasibility.

Specific objectives of the consultancy were to

- meet with government agencies to determine their responsibilities in seafood quality control and inspection;
- visit industry plants to evaluate sanitation and fish handling practices;
- survey fish handling practices used on vessels, at handling sites, and in distribution;
- evaluate and make recommendations for improvements for quality control practices used by large, medium, and small scale companies exporting fish from Oman;
- develop a plan setting forth the elements of a quality control program with specific recommendations on government and industry actions needed to implement the program, including information on estimated cost, personnel and training needed for implementation; and
- conduct meetings to discuss project findings with the industry and present seminars over a two-to-three day period to discuss the hazards analysis critical control point concept and other programs where appropriate (i.e., ISO 9000[2] and Canada's Quality Management Program), and discuss the possible impact on Oman's exports of the FDA's mandatory inspection program, the EC fishery product quality directives program, and other programs.

The consultant's itinerary is contained in Appendix A of this report.

[2] ISO 9000 is a European quality control system with more emphasis on the finished product than on the steps of production.

III. EVALUATION

A. Fish Handling

1. Economic Loss

There is considerable economic waste because of poor quality fish. In handling fish on the vessel, in the market place, in processing plant, and in distribution, lack of ice and sanitary handling result in a major economic loss from a valuable economic resource. It is difficult to quantify the exact magnitude of this loss, but it is significant. Some processors estimate that 20-30 per cent or more of the fish they consider for purchase is of bad quality. Some officials connected with the Ministry of Regional Municipalities and Environment (hereafter referred to as Municipalities) estimate at least two percent of the fish in the fish souks is condemned because of poor quality. In some cases, landings of large quantities of valuable fish, such as tuna have been observed with very little or no use of ice, resulting in spoilage of much of the catch. The market place is also responding to the poor image and quality of Omani fish products. Exporters reported that products exported from Oman do not have as good a market as those from other countries and usually receive a lower price. The Directorate General of Fisheries Resources (DGFR) in the Ministry of Agriculture and Fisheries estimates that the value of Omani lobster export alone is about one-half that of Australian exports of the same amount—a loss of RO 7 million.

It is quite difficult to quantify the magnitude of the economic loss from poor quality fish, but some knowledgeable people in the DGFR estimate it could exceed 30 percent of the value of the landings. If this figure is true, in 1992 the total economic loss from poor quality products in seafood could have easily exceeded RO 10 million, or almost one-half the value of Oman's exports.

2. Use of Ice by Fishermen

Large quantities of fish are landed spoiled because ice is not generally used for the smaller boats of 3 to 10 meters in the traditional fisheries that stay out for longer than 4-6 hours or for some of the larger *dhows*. Most of the smaller boats in the traditional fishery do not use ice. For those boats that stay out for 4 to 6 hours, ice may not be needed if the fish are covered and kept from the sun. Some fish, especially sardines, landed after being on the boat for 3 to 4 hours were still alive when landed.

Those boats that stay out longer than 4-6 hours and do not use ice are the principal problem. The small boats do have space for carrying ice but the fishermen appear to have little incentive with the present market system to purchase ice at a cost of RO 20 per tonne. Also, ice is not usually available.

The larger traditional *dhows* are equipped with a box for carrying ice, but in a number of cases they do not carry it. It is not uncommon to find large catches of fish such as tuna or shark being brought in without ice, with much of the fish being spoiled.

Ice is not readily available to many fishermen, and there are no regulations requiring its use by fishermen.

3. *Ice Supply*

The supply of ice is inadequate. There are fewer than 30 ice plants along the coast of Oman producing ice available for use in production, processing, and transportation of fish. Most ice plants are operated by fish processing factories, for their own purposes or to supply fishermen who are fishing for them. There are many areas along the coast where ice is not available to the fishermen or to those transporting fish in iceboxes. For example the one ice plant in Sohar at the Al Arkan trading company produces 15 tonnes of ice per day. It is the only plant along the coast from Muttrah to Aswad except for a small one at Seeb, but has only about five tonnes a day available to truckers and fishermen because the processor at Al Arkan uses the rest. The distance involved also makes it impossible to use ice from this plant even if it were available.

4. *Transportation and Distribution of Fish*

There is no system to ensure the transportation and distribution of quality fish. At present, fish landed by the fishermen go directly to the adjacent souk, are trucked to a souk, or are purchased by buyers who transport the product to a processing plant, out of the country, or to local inland markets. Fish destined for export appear to be cared for best because it is usually transported in iceboxes, with ice, if available. The icebox program operated by the Directorate General of Fisheries Resources seems to be having a beneficial impact on improving the transport of fish for export.

Fish destined for local inland markets may be transported in iceboxes or even in open trucks without any ice. Practices used for transporting fish from the vessel to the processing plant varied widely. In some cases processors send a truck with ice to pick up the fish. In other cases the fish are just loaded into dirty trucks, kept in the hot sun for several hours, and then transported to the processing plant with no ice.

5. *Conditions in Fish Souks*

Fish souks are poorly designed and would not meet international standards; fish there are not handled in accordance with hygienic principles.[3] The consultant visited souks at Muttrah, Seeb, Sohar, Barka, Sur, and Salalah, all of which are of open construction. In many cases wall partitions and floors were of tile, but there were no doors that could be closed to seal off the market as is required by EC standards. Where there was a separate fish cleaning area, as at Muttrah, it was not properly designed. The fish cleaning area was open, did not have walls that could be easily cleaned, and cutting was done on the floor. Dirty wooden cutting boards which promote bacteria growth were used for cutting fish at all the souks, and fish were sold from the floor or from a elevated area off the floor. Ice is seldom used. (I saw it used only once and that was on shrimp). In many souks the sellers were not licensed, and little attention seemed to be given to proper handling of the fish. The municipality of Salalah now requires a license and health certificate. The person there concerned with the fish souk had some positive suggestions concerning the building of a new souk that would be fully enclosed, where sellers would be licensed and encouraged to have a fish box. There is no uniform policy for operation of souks or specifications that are applied nationally. The souks at Sur, Seeb, and Barka did not have a supply of ice that was

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[3] A checklist of general requirements for fish souks is contained in Appendix B of this report.

readily available. The souk at Salalah had a 10 tonne "mobile" ice supply right across the street. The souks at Sohar and Muttrah had ice available in limited quantities because the ice plant was at the fish factory, which has first priority for use of this ice.

B. Government of Oman Standards

1. Current Regulations Concerning Fish Products

There are no specific government standards or regulations to ensure the production, processing and transportation of safe and wholesome fish and fishery products in Oman or to promote quality exports. The Ministry of Health has the responsibility of ensuring that food is safe, but they act mainly in an advisory capacity and have no specific standards for fish. They also check the quality of water supply, conduct fish product analysis and issue health certificates required by foreign governments or industry.

The Department of Animal Wealth, MAF, inspects products and issues certificates of each shipment of fish, as required, but there are no standards for products or establishments. The DGFR requires licensing of individuals or organizations that transport fish, and requires use of approved fish boxes with ice, but this program is only applied to exports and is not widely enforced. Municipalities and the Muscat Municipality inspect fish establishments, food souks, and fish products at the market place and check fish processing plants primarily for workers' health certificates and for pollution, but they do not check the sanitation of fish plants or draw samples of product for testing. The Ministry of Commerce and Industry has, in cooperation with other agencies, developed 80 Omani standards for food products, but there are no Omani standards for fishery products. The Ministry has adopted Gulf Standard 21/1984 *HYGIENIC REGULATIONS FOR FOOD PLANTS AND THEIR PERSONNEL*,[4] but this standard is not applied to fish processing establishments. The Ministry does carry out product analysis at the request of foreign governments or industry.

2. Quality Control Expertise

Professional capability for fishery products quality control in the government and private sector is extremely limited. The Director of the Department of Fisheries Resources, DGFR, has a general knowledge of quality control and administers a quality control section. Three people of the section are in training at universities in Egypt to receive advanced degrees in quality control. The remaining personnel in the section are not trained professionally in quality control, but are familiar with the general principles of fish handling and quality, and encourage fishermen and the industry to use ice and improve the handling of fish. Other personnel in the market information and extension sector are generally familiar with the quality aspects of seafood. The Department of Fisheries Resources administers the program for licensing of fish boxes and their handlers. Specific expertise in inspection program administration and operation, standards development, fish preservation technology, plant hygiene, and product analysis and sampling is lacking.

The private sector has some experienced people, primarily from India, Pakistan, or other countries, who are entrusted with some specific quality functions in checking fish quality and in maintaining plant sanitation. Most of these people did not appear to be broadly trained,

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[4] This Gulf standard (No. 21/1894), is included here in its entirety in Appendix C.

however, or familiar with quality control as practiced in the United States or Europe. A number of companies, some quite large, did not even have a designated person responsible for quality control.

The College of Agriculture, Sultan Qaboos University, has a Marine Science and Fishery Technology Department, but no specific program on quality control for food or fishery products. The Department of Animal Science has a fish processing course. The College plans to establish a Food Science Department, which would give some attention to quality control in food.

C. Meeting International Standards

1. Major Sanitation Problems

Few, if any, of the fish processing establishments would meet U.S. or international hygienic standards. Many would require major changes to meet these standards. A total of 16 fish processing establishments were visited and surveyed for plant sanitation, with special attention to product quality. A checklist used by the U.S. Department of Commerce in the Voluntary Seafood Inspection Program was used as a guide in determining the ability of the plants to meet U.S. requirements or international standards. Detailed information on the findings for each plant visited are given in Appendix D, and notes on visits to company offices and other entities are contained in Appendix E.

The major sanitation problems consisted of the following:

1. Poor facility design and construction causing dirt and dust to enter and contaminate the facility.

2. Use of equipment that is rusty, or made of materials such as wood that cannot be sanitized.

3. Lights over the product were not protected, making it possible for broken glass to drop on the product.

4. Processing or food handling personnel do not maintain a high degree of personal cleanliness: aprons, hats or hair nets were seldom found in use. In a number of cases, hand washing and hand sanitizing stations were not present or were inconveniently located.

5. Ice was not handled or used in a sanitary manner. In all cases but two, workers were walking with dirty boots into the ice storage, thoroughly contaminating the ice. This can be solved by construction of the room designed to store the ice on a floor above the walk-in area or by a chlorine foot dip in front of the entrance to the ice storage area.

6. Pest control was inadequate. In a number of plants there were no fly screens in the fish receiving or processing areas.

7. Back flow preventive devices required in the U.S. to prevent siphoning of

contaminated water into the water supply were not used in all cases.

8. Many of the personnel did not seem to be knowledgeable about the basic requirements for plant sanitation and quality control. A sanitation checklist or log was not kept by most plants.

It is estimated that all 16 plants visited would require some changes to meet U.S. requirements. Nine would not require major modifications, but seven would.

2. Hazards Analysis Critical Control Point (HACCP)

Plant management or those assigned responsibilities for quality were not aware of the HACCP system and would presently have difficulty in meeting HACCP requirements. As mentioned in the introduction of this report, the FDA plans to establish a mandatory HACCP program for domestic producers and exporters to the U.S. market. The EC, in Article 6 of Council Directive 91/493 on Health Conditions for the Production and the Placing on the Market of Fishery Products, sets forth a mandatory requirement for a HACCP type system that would apply to countries exporting to the EC Implementation of this article has been delayed to enable countries to develop a HACCP type program.

Locally, few plant management personnel or those assigned responsibility for quality, when asked in the course of this investigation, were aware of the HACCP system. All of the plants keep receiving records and transfer or shipping records, but do not keep product quality records. A number of plants were keeping records of cold storage and freezer temperatures. In many cases the plants did use a date code on the final product package which could identify the date and plant for freezing or packing. The present record system with some modification could accommodate the type of information needed for a HACCP program, using the following type of records:

a. Modify receiving record to include a space for quality assessment and amount of rejects.

b. Establish a cooking log to record time in, time out, and temperature for each batch.

c. Establish a log for freezers' time and temperature and for cold storage temperature.

d. Establish a temperature log to periodically record product storage temperature during plant handling.

e. Have laboratory analysis conducted on a periodic basis. Check for plant cleanliness, product bacterial decomposition, filth, plus histamine and heavy metals for pelagic fish.

IV. RECOMMENDATIONS

A. National Fish Quality Control Inspection Program

Establish a regulatory framework and inspection capability to implement a National Fish Quality Control and Inspection Program. High priority needs to be given to these recommendations. If prompt action is not taken, Oman could face serious economic consequences because of the production and export of low quality products that could present health problems. Specific actions would include:

1. ***A National Fish Quality Decree issued by the Minister of Agriculture and Fisheries and other appropriate ministries.*** This Ministerial Decree would emphasize the importance of achieving the maximum quality from Omani fish for the benefit of the consuming public and for economic return to the country. It would urge the government and the private sector to work together to establish a comprehensive five-year program to maximize the quality of fish and fishery products. Responsibility would be vested in the Minister of Agriculture and Fisheries.

2. ***An Omani Fish Quality Export Act and Standards that sets forth specific authorities and procedures for ensuring production, processing, and export of quality fish and shellfish (see Appendix F).*** The Act and Standards should provide for the following:

   a. Authority and procedures for inspection, registration and certification of fish establishments and inspection and certification of product

   b. Fish establishment sanitation and hygienic standards

   c. Fish product standards for chilled fish, frozen fish, lobster and other products

   d. Standards for production, transporting and handling fish

   e. Standards for fish souks

3. ***A quality control and inspection capability developed in the Ministry of Agriculture and Fisheries.*** A group of six professionals, experienced in fish inspection and quality control, should be formed to develop and carry out the quality control program. This group would liaise with other agencies and industry and oversee inspection of fish products, establishments, and transportation facilities to ensure that Omani standards are met.

   In addition, the Director of the Department of Fisheries Resources, DGFR, should hire a chief inspector and an assistant experienced in administering and implementing fish inspection and quality control programs. The inspector should be retained for three to five years for the express purpose of developing and carrying out the inspection program. Without such a focal point, it would not be possible to implement an effective program.

4. ***An internationally recognized inspection organization engaged to audit establishments, inspect product and provide independent reports to the government.*** The services of an internationally recognized firm such as Société Generale de Surveillance (SGS) should be secured to assist the DGFR in implementing a seafood inspection program. For more information on SGS, see Appendix E, page 121, and Appendix G of this report.

5. ***Staff at the Central Laboratory, Ministry of Commerce and Industry, expanded by two professionals to give special attention to laboratory analysis of fishery products.***

6. ***A comprehensive training program in quality control and inspection developed and carried out:***

   a. The program should provide training in fish product standards, sanitation and hygienic techniques, fish product sampling, inspection and certification procedures, advanced inspection systems of HACCP and ISO 9000, laboratory analytical methods, and fish inspection system administration and operation.

   b. The program should include a mix of in-country training through workshops and hands-on consultancy inspections, and temporary-duty, on-the-job training in the United States and in other countries with advanced inspection systems.

7. ***A quality control and inspection training capability developed at the Sultan Qaboos University that could be used as a focal point for training of government and industry in Oman.*** The program would include:

   a. A short term consultancy to assist the university in developing a training program;

   b. Special courses in quality control and inspection for students, government and industry established by the University; and

   c. Financial grants to SQU and graduate students to encourage them to carry out investigations on fish technology, fish inspection and quality control and to establish special courses for the public and private sectors in quality control and inspection.

B. Program to Encourage Improvement in Product Quality Control

Concurrent with activities outlined in Section A above, incentives and short-term actions should be undertaken to encourage to improved handling of fish and shellfish and quality at every stage of operation. Actions would include the following:

1. ***Development of a program for increasing the supply of ice by providing no interest loans and subsidies, if required, to the private sector to build ice plants in areas where there is a shortage of ice supply.***

2. ***Encouragement of the increased use of ice on fishery boats and vessels by providing a greater financial subsidy for purchase of boats equipped to carry ice.*** One approach would be to decrease to 40-50 percent the regular subsidy provided to vessels and to provide 65 percent subsidy only to boats equipped to carry ice and that do, in fact, carry ice. The subsidy could be revoked if fishermen do not use ice, if it is available.

3. ***Demonstration project designed and carried out with cooperative fishermen to demonstrate benefits from the use of ice on in-shore boats.***

4. ***Development of a national program to improve fish souks.***

   a. Develop and conduct a demonstration project on the design, construction and operation of a model fish souk that meets hygienic standards. The services of a consulting organization experienced in the design of fish markets in Europe or other areas should be retained to design a model fish souk.

   b. Investigate the construction and operation of fish souks by the public sector. In the U.S. and other countries many fish market areas are operated by the public sector who lease space to sellers under terms agreed to by the government.

   c. Require that design and construction of fish souks be reviewed by the DGFR to ensure that it will facilitate proper care and treatment of fish.

C. Education

A comprehensive education program should be developed to educate fishermen and fish handlers in the proper icing and handling of fish. Although consumer education is necessary to facilitate better handling and quality, and to assist industry in meeting regulatory requirements, it alone, without a regulatory framework, will not result in any significant improvement in quality.

1. ***Develop audio-visual programs and educational materials on quality control that can be widely used by the government and the private sector to educate people in the proper handling of fish.*** These educational programs would be based on principles set forth in the FAO codes of practices as applied to Oman's fisheries.

2. ***Make education in the proper handling of fish an important part of the extension activities of the DGFR.*** Many employees in the extension organization are knowledgeable in the proper handling of fish, but there is no formal program in quality control.

3. ***Provide grants to private or other organizations for education of fishermen and industry in the proper handling of fish.***

D. Interim Inspection of New Firms

Prior to establishment of suitable regulations for quality control, new firms starting in the production and export of fishery products should be subject to intensive review of sanitation and product handling practices, as well as product inspection to ensure that exported products are of satisfactory quality. Even though there are at present no fish standards, the firms and government agencies attending the seminars to discuss the preliminary findings of this consultancy recommended that immediate action be taken to prevent unqualified producers from entering the export market.

V. IMPLEMENTATION OF RECOMMENDATIONS

A. Support by Government and Industry

A seminar, under the sponsorship of the DGFR, was conducted by the consultant to discuss major issues in quality control and the preliminary findings and recommendations of this project. The agenda for the seminar is shown in Appendix H.

The seminar was attended by representatives of 1) the Ministries of Agriculture and Fisheries, Health, Commerce and Industry, Regional Municipalities and Environment, and of Muscat Municipality; 2) the commercial fishing industry; and 3) the Sultan Qaboos University. Over 35 people attended.

The consensus was that action should be taken to ensure that Omani fish products are of satisfactory quality to ensure that the economic position of the fishing industry will not be adversely affected. The group thought that consumer education, although important, was not sufficient, and it supported the preliminary findings recommending the need to develop and implement quality control standards.

During the course of the consultancy, on-site visits and individual discussions with representatives of both public and private sectors supported the need for national fish standards and action to improve the quality of Omani fish.

B. Strategy for Action

The task of developing and implementing an internationally recognized quality control program is significant, and could take three to five years, even under the most favorable conditions. The government agencies and industry look to the DGFR to lead the development of this program, but the Directorate does not presently have staff qualified to carry out the program. Training is essential, but it will take time.

Oman cannot afford to delay implementation of a program for several years while training is conducted. Some of the conditions seen could result in a major health problem that could seriously affect Oman's fisheries economy.

To expedite implementation of a internationally recognized quality control and inspection program, the following actions are recommended:

1. ***The DGFR should give high priority to the program.***

2. ***The DGFR should form a task force to lead development and implementation of the program.*** The task force should be comprised of representatives from the following:

   - Ministry of Agriculture and Fisheries,
     Directorate General of Fisheries Resources (Chairman)
     Department of Animal Wealth
   - Ministry of Health,
     Department of Environmental Health and Malaria Eradication

- Ministry of Regional Municipalities and Environment
  Directorate General of Health Control
- Ministry of Muscat and Dhofar Municipalities
- Ministry of Commerce and Industry
  Department of Laboratories
  Department of Specifications and Quality Control
- Several leaders from the fish processing industry
- Several prominent fishermen

3. ***Initiate actions immediately to hire a chief inspector and an assistant to lead the Inspection and Quality Control Programs as outlined in recommendations on pages 9 and 10 of this report.***

   Since it may not be possible at this time to obtain Omani professionals qualified to perform these duties, approval should be obtained to hire foreign nationals for three to five years to design and implement the program.

C. Role of Public and Private Sectors

The following activities are suggested for the public and private sectors to facilitate application of a quality control and inspection program. The task force recommendations above would review and determine the appropriate functions for the public and private sectors, based on the program set forth by the government. Additional information is given in the Table, Implementation and Program Cost Schedule, on page 17 of this report.

1. Public Sector

The Quality Control and Inspection Program should be a cooperative effort between the Ministries of Agriculture and Fisheries, Regional Municipalities and Environment, Commerce and Industry, and Health. The suggested role for the various ministries are as follows.

- **Ministry of Agriculture and Fisheries** Since this ministry has knowledge of both the industry and the product, it should hire and develop a small nucleus of about six competent quality control and inspection staff. This group would undertake the following:

  a. Leadership in developing national standards. This group would work with the consultant in developing the appropriate standards and with the Department of Specifications and Quality Control to publish the standards.

  b. Administration of the fish establishment inspection program and issue licenses for compliance with requirements. Fisheries staff would involve appropriate personnel from the Ministries of Commerce and Industry in the inspections so that inspection and licensing could be done on a collaborative basis.

  c. Licensing of municipality inspectors in key regions to carry out icebox inspections and provide appropriate reports to the DGFR.

  d. Consultation with the industry on improvement of quality.

- **Ministry of Regional Municipalities and Environment, and the Muscat Municipality** These agencies are concerned with fish souks and inspection of all food establishments, primarily for pollution and general conditions. They would undertake the following:

  a. Assist the Ministry of Agriculture and Fisheries in carrying out the fish box program and in inspection of fish establishments.

  b. Request advice from the Ministry of Agriculture and Fisheries on design of fish souks and work closely with them in a program to improve hygienic conditions of fish souks.

  c. In cooperation with the Ministry of Agriculture and Fisheries, initiate a program to license all fish sellers, requiring them to use ice where available and use boxes for selling the fish.

  d. Be responsible for seeing that national standards are applied to fishery products on boats, at souks, in distribution, and for domestic consumption. This would be done in cooperation with the Ministry of Agriculture and Fisheries.

  e. Undertake a program for training municipality inspectors in fishing products quality.

- **Ministry of Commerce and Industry** This agency would undertake the following:

  a. Inspect and certify products at the request of industry or other parties for a fee basis.

  b. Expand laboratory facilities to provide one or two persons trained in quality control and laboratory analysis to assist the Ministry of Agriculture and Fisheries in carrying out plant and product inspection.

  c. Develop a program that would utilize the services of private organizations where needed to supplement existing laboratory capability.

- **Ministry of Health** At the present time this Ministry issues *Health Certificates for Export* when requested by a foreign government. It has laboratories that conduct microbiological and chemical analysis. This Ministry would undertake the following:

  a. Continue to conduct these analysis of product or refer them to the Minister of Commerce and Industry.

  b. Inspect export products in accordance with the National Standard.

  c. Because it has ultimate responsible for the safety of fish and fishing products, this Ministry could audit the inspection and quality control program once every two to three years.

2. *Private Sector*

- **Fish Establishments** Industry plants and firms providing product for export would be required to meet plant and product standards and to have the necessary product laboratory analysis and plant hygiene inspection carried out by either government or a qualified private organization. Plants would be registered and certified by the Ministry of Agriculture and Fisheries. The industry would undertake training and obtain qualified quality control staff to assist in product analysis and inspections. The government's role would be to inspect and certify both plant and product, and to audit the industry to ensure adherence to standards.

- **Fish Sellers** Fish sellers would be required to use ice, where available, and to employ hygienic methods, including boxing or partitioning of the fish. They would need the same health certificate as those transporting fish. They would be required to obtain a license that could be revoked for not meeting the standard.

- **Fish Box Users and Fishermen** Fish box users would be licensed as is now done by the Ministry of Agriculture and Fisheries, but would be inspected more often because of active participation by Municipalities.

  Fishermen staying out longer than 8 hours would be required to carry ice where available or to provide a means of cooling the fish. They would receive additional financial assistance from the government for purchasing boats that are designed to carry ice, or for purchasing ice storage containers for existing boats.

- **General Industry** The industry would be encouraged to build ice plants in accordance with a plan developed by the government.

D. Implementation and Cost Schedule

The following table contains a suggested schedule for application of the quality control and inspection program. An estimated cost breakdown for the program is also included.

The inspection program may be made self-sufficient or potentially self-sufficient by charging industry for the required inspectors of establishments and product. This charge would be set at a hourly rate for time and for travel expenses or laboratory analyses required. The number of annual inspections would vary according to each plant's ability to meet established sanitation requirements and product standards—those having difficulty meeting requirements would be inspected more often, and those meeting requirements would be inspected less often. The inspection would be done in accordance with a schedule developed by the DGFR, and a financial analysis would be required to determine the hourly rate based on the inspections required.

Table. Implementation and Cost Schedule

RECOMMENDATION	AGENCY	SPECIFIC ACTION	IMPLEMENTATION SCHEDULE 1994 1995 1996	COST ESTIMATE (RO)
1. Establish regulatory framework	Municipalities, Ministries of Agriculture & Fisheries, Commerce & Industry, Health	– Task force led by DGFR		24,000 – 30,000 Most can be done within existing capability and by short–term consultancies
2. Formulate & promulgate Ministerial Decree	DGFR & MAF			
3. Omani Fish Quality Export Act & Standards (see IV. A.2.a–e, page 9 of this report)	DGFR & Ministry of Commerce & Industry	– Review draft Fish Quality Export Act and Standards (see Appendix D of this report) – Issue draft Standards – Issue final Standards – Implement Standards		
4. Develop quality Control (QC) capability	DGFR	– Develop QC & inspection organization – Investigate funding alternatives – Secure funding		
5. Hire chief inspector and assistant	DGFR	– Prepare description of duties 1. Seek applicants internationally 2. Engage personnel		60,000 per year
6. Engage services of international inspection organization	DGFR	– Request proposal from candidates – Review proposals – Secure initial funding & act on proposal – Engage services		40,000 (first year) Make program partially self–sufficient by charging industry in other years
7. Expand staff at the Central Laboratory, Ministry of Commerce and Industry	Ministry of Commerce & Industry	– Hire 2 professionals to carry out laboratory analyses and assist in plant and product inspections		6,000 – 8,000 per year
8. Comprehensive training program	DGFR	– Attachment training, USA – In–country training (Oman)		40,000 – 60,000 (for program)
9. Develop training capability at SQU	SQU	– Consultancy to develop program Program implementation by SQU		
10. Develop a program of incentives	DGFR Ministry of Commerce & Industry	– Appoint working group to develop a specific program – Review recommendations of this report – Prepare plan		No additional cost (in–house)
11. Provide financial incentives for ice production	DGFR Ministry of Commerce & Industry			Apply commercial no–interest loans; give program high priority
12. Provide financial incentives for ice use	DGFR	– Revise vessel subsidy program to give greater assistance to boats that can carry ice		No additional cost; re–orient existing subsidy
13. Demonstration program: use of ice on inshore boats	DGFR	– Develop scope of work – Retain consultant; implement work		40,000
14. National program to improve fish souks	Muscat Municipality & Ministry of Regional Municipality and Environment			Obtain estimate from municipalities
15. Demonstration project		– Retain consultant and develop plan – Design, construct model fish souk – Demonstrate souk operations		
16. Study operation of fish souks by private sector	municipalities	– Retain consultant to investigate different approaches		20,000
17. License sellers at fish souks	municipalities	– Develop regulation procedures – Implement regulation		No additional cost Can be done within existing programs
18. Require review of fish souk construction by DGFR	DGFR	– Memorandum of agreement – Assignment of staff		
19. Comprehensive eduction program on CQ	DGFR	– Consultant to develop program scope		Initially 30,000 Subsequently 20,000 – 30,000 per year
20. Audio visual and other materials	DGFR	– Retain firm to develop materials		Initially 40,000 Subsequently 20,000 per year
21. Integrate quality control education in extension activities	DGFR	– Develop plan – Implement program		No additional cost Can be done within existing program
22. Provide grants for education in quality control	DGFR Ministry of Commerce & Industry	– Develop grant program and priorities – Implement program		40,000 per year
23. Subject new firms entering export market to intensive review	Ministry of Agriculture and Fisheries/ Ministry of Commerce and Industry/ municipalities	– Inspect plant and product in accordance with proposed draft export standard or equivalent	*	Cost to be paid by private sector

* Omani Fish Quality Export Act and Standards to be implemented

VI. CONCLUSION

The European Community, and the United States and other countries, require that countries supplying product have quality control systems in place to insure production and export of safe and quality fish products. There is no national quality control and inspection program for fish in Oman, however. The absence of such a program could have serious adverse economic consequences, particularly in meeting foreign market requirements.

This report recommends establishment and implementation of a fish quality control and inspection program, and training and financial incentives to accelerate implementation of this program. A survey of Oman fishing industry and government fisheries officials indicate that such a program would be economically feasible and would receive wide support.

LIST OF APPENDICES

APPENDIX A

ITINERARY OF THE CONSULTANT

APPENDIX A. ITINERARY OF THE CONSULTANT

Date	Activity	Purpose
Saturday November 13, 1993	Meeting with: John Dorr,Chemonics Ken Randolph, Michael Cremer, OAJC Sheikh H.E. Abdullah bin Ali Bakathir, Director General of Fisheries Resources DGFR Staff Khamis Salem Saleh and others, DFR	To discuss project To arrange schedule for visits
Sunday November 14, 1993	Visit to Ministry of Regional Municipalities & Environment (contact: Dr. Muscati) Visit to Oman Fisheries Company office and plant (contacts: M.M. al-Alawi, General Manager and A.N. Kumal, Sales Manager) Visit to fish souk, fishing boats, Muttrah	To discuss this ministry's responsibilities in food inspection and quality control
Monday November 15, 1993	Visit to Department of Animal Wealth, MAF (contacts: Dr. Nasser al-Mauly, Director of Animal Wealth and Dr. Rashid al-Suleimany, Deputy Director of Animal Health) Visit to Ministry of Regional Municipalities, Department of Health Control, Ruwi (contact: Said Darweesh al-Alawy, DG of Health Control Visit to Offices of Protein Products International, Muttrah. Meeting with Jose J. Villavanthana, Commercial Manager Talk with Mr. Michael J. Mannion, Manager, Société General de Surveillance (SGS) at Holiday Inn	To discuss responsibilities of this department in inspection and quality control, and export and import controls To discuss hygienic controls for food and seafood To discuss the work that SGS does in inspection and quality assessment in Oman
Tuesday November 16, 1993	Continuation of visit to Protein Products International, meeting with J.J. Vallavanthana and Ebrahim bin Said al-Azry, General Manager Visit to Oman Sea Co, Ruwi. Meeting with R. Prabhu, Manager and J.P. Isaac, Operations Manager	To continue visit of previous day and to visit to processing plant
Wednesday November 17, 1993	Visits to Director General of Fisheries Extension and Engine Service; M. Hassen al-Balushi, Head, Port Extension, DGFR; Muttrah fish souk Visit to office of Gulf of Oman Fishing International, Ruwi; Auston John Moronha, Cold Stores Manager Visit to office of Korea Overseas Fisheries Co. Ltd., Ruwi; fishing trawler in port, Muttrah. Meeting with Dae Young Hur, Executive Director; Fum Bai Kim, Manager Visit to home of Master Fisherman, Ali-Darwish al-Butashi Visit to office of Al-Hamadi Fisheries Co., Muttrah. Meeting with Flynn M.V. de Lima, Manager Visit to office of Al-Majali Trading, Muttrah. Meeting with Saddiq ali Ahmed, Manager	To observe fish handling practices and to talk with fishermen and M. al-Balushi To discuss his plans to build an ice plant, to explore the attitude of local fishermen on icing of fish To see some product in cold storage
Thursday November 18, 1993	Work on Report	

Appendix A. Itinerary of the Consultant (cont'd)

Date	Activity	Purpose
Saturday November 20, 1993	Visit to fish souks in Seeb and Barka	
	Visit to Ahmed Saeed al-Ansari, Manager, Department of Fisheries Wealth, Sohar	
	Visit to plant of Al-Arkan Trading Co. LLC, Sohar. Meeting with K.Surendranath, Manager	
Sunday November 21, 1993	Visit to fish souk in Sohar, and return travel to Muscat	
	Meeting with Rashid al-Barwani, Director, DFR	
Monday November 22, 1993	Visit to Central Laboratory, Ministry of Commerce and Industry, Wadi Kabir. Meeting with Aida Riyami, Director, and Mahmood al-Zadjali, Acting Director for Specifications and Quality Control	
	Meeting with Mike Mannion, SGS Manager, and Rashid al-Barwani, Director of Fisheries Resources	
Tuesday November 23, 1993	Visit to plant of Gulf of Oman Fishing International in Duqm. Meeting with John Jackson, Plant Manager	
Wednesday November 24, 1993	Travel to Al-Khaluf	
	Visit to plant of Al-Majali Trading Co. Meeting with Hamad & Sultan al-Majali (owner's sons), Jassim Mohamath, Plant Manager, and Pius Fernando, Accountant	
Thursday November 25, 1993	Travel to Sur	
Friday November 26, 1993	Visit to fish souk and harbor	
	Visit to large-pelagic plant in Sur. Meeting with Hamed al-Ghalin, owner	
Saturday November 27, 1993	Return travel to Muscat	
Sunday November 28, 1993	Work on Report	
Monday November 29, 1993	Travel to Masirah Island	
	Visit to plant of Oman Fisheries Company; meeting with Abdullah Hassan, Plant Manager	
Tuesday November 30, 1993	Visit to Al-Majali Trading Co. Meeting with Ahmad Hassan al-Badry, Plant Manager	
	Visit to Al-Marsees; meeting with Maria Martinez, Office Manager	
	Visit to Masirah Fish; meeting with sales manager	
	Visit to Al-Hamadi Co.; meeting with Mr. Varghese, Food Technologist	
	Meeting with local staff of DGFR	

Appendix A. Itinerary of Consultant (cont'd)

Date	Activity	Purpose
Wednesday December 1, 1993	Return travel to Muscat	
Thursday December 2, 1993	Work on report	
Friday December 3, 1993	Travel to Salalah	
Saturday December 4, 1993	Meeting with the Director, Department of Fisheries, Dhofar Region, and his staff	
	Visit to plant of Oman Fisheries Company; meeting with S. Bhushan, Maintenance Engineer	
	Visit to the mobile plant of Abu Alwi Ice Company	
	Visit to Sadah Marine Products LLC; meeting with Saeed Masoud Maraikh, General Manager	
	Observation of drying of sardine-like fish	
Sunday December 5, 1993	Visit to Al-Hamadi Fisheries Co. LLC, Mirbat; meeting with Ahmed Aqeel, Manager, and Alex D'Souza	
	Visit to Oman Sea Products LLC, Sadh; meeting with Mr. Thomas, NS Plant Supervisor	
Monday December 6, 1993	Visit to Department of Animal Wealth, Salalah; conversation with Dr. Mustafa, Kahhila, Veterinary Officer	
	Work on reports	
Tuesday December 7, 1993	Visit to dairy factory of Dhofar Cattle Feed Co., Salalah; meeting with Omer Alwi, General Manager	To observe sanitation
	Visit to Ministry of Municipality, Salalah; meeting with M. Abdullah, who is concerned with the fish souk	
	Return travel to Muscat	
Wednesday December 8, 1993	Visit to the Public Authority for Marketing Agriculture Produce; meeting with Nasser M. al-Hadnvamy, Director of Training, and his associates	
	Work on Report	
Saturday December 11, 1993	Visit to Sultan Qaboos University; meeting with Dr. Craig Kensler, Head, Department of Marine Science and Fisheries Technology, and Dr. Christopher Lu, Dean of the College of Agriculture	
	Seminar Preparation	
Sunday December 12, 1993	Visit to Ministry of Health, Muttrah; meeting with Dr. Abdullah Rashid al-Mandhry, Director, Environmental Health and Malaria Eradication, and his staff	
	Visit to plant of Protein Products International, Muttrah; meeting with Jose Vallavanthara, Commercial Manager	To observe fish handling

Appendix A. Itinerary of the Consultant (cont'd)

Date	Activity	Purpose
	Visit to plant of Al-Hamadi Fisheries Co., Seeb; meeting with plant manager	
	Seminar Preparation	
Monday December 13, 1993	Seminar Preparation	
Tuesday December 14, 1993	Lead seminar on Quality Control	
Wednesday December 15, 1993	Lead seminar on Quality Control	
Friday December 17, 1993	Travel to the United States	

APPENDIX B

GENERAL REQUIREMENTS

FOR

FISH SOUKS

APPENDIX B. GENERAL REQUIREMENTS FOR FISH SOUKS[5]

- Must be covered, and have walls which are easy to clean.
- Have waterproof, preferably tile, flooring which is easy to wash and disinfect.
- Must have drains in floors, which are laid in such a way as to facilitate water drainage.
- Must have a hygienic waste disposal system.
- Must be equipped with sanitary facilities with wash basins and lavatories.
- Must have a separate area, other than selling area, for cutting fish. This area must be enclosed and constructed of walls and floors that are easily cleaned and floors with suitable waste drainage. Fish should be cut on tables, not on the floor, and waste storage bins should be covered. Wood boards should not be used for cutting fish.
- Must have a supply of ice at or readily accessible adjacent to the souk.
- Must have adequate supply of potable water.
- Must be enclosed, capable of keeping out insects and pests, and air conditioned if possible.
- Must be cleaned regularly, and after each sale, boxes must be cleaned with potable water before reuse and, where required, sanitized.
- Persons selling the fish shall have a health certificate and must be licensed in accordance with requirements set forth by the Ministry of Agriculture and Fisheries.

[5] Based on EC requirements, and evaluations in Oman

APPENDIX C

HYGIENIC REGULATIONS FOR FOOD PLANTS AND THEIR PERSONNEL

Gulf Standard No. 21/1984

GULF STANDARD
NO. 21/1894

Hygienic Regulations for Food Plants and their Personnel

Standardization & Metrology Organization For G.C.C Countries

Standardization & Metrology Org.
for G.C.C. Countries
P.O. Box 85245 RIYADH 11691

Hygienic Regulations for Food Plants and their Personnel

UDC 613.261.29

This Standard has been issued based on the decision of the Board of Directors in accordance to the decision of the Higher Council of the G.C.C. Countries in its Third Session held in Bahrain on 1403-01-23 (corresponding to 1982-11-09).

Date of Board of Directors' Approval

18-10-1404-AH Corresponding to 17-07-1984-AD

Date of Publication in the Official Gazette

12/5/1405 AH Corresponding to 2/2/1985 AD

Date of Enforcement

16/11/1405 AH Corresponding to 2/8/1985 AD

HYGIENIC REGULATIONS FOR FOOD PLANTS AND THEIR PERSONNEL

1- SCOPE AND FIELD OF APPLICATION

This standard is concerned with hygienic regulations required for food plants and their personnel.

2- COMPLEMENTARY REFERENCES

Gulf standard concerned with bottled and unbottled drinking water to be approved by Standardization and Metrology Organization for G.C.C.

3- DEFINITIONS

3.1 Food Plant: The building or buildings collectively or separated or parts thereof, used for the production, operation, processing, packaging, handling and storage of its materials and products, including the surrounding area which is under plant control.

3.2 Contamination: Arrival or addition of any harmful and objectionable matter, directly or indirectly, to the product, or the presence of such matter originally in the product.

3.3 Disinfection: The reduction of microbial load, by means of hygienic chemical or physical agents, to a level that will not lead to harmful contamination of food or for humans.

3.4 Food hygiene: Following the means necessary to ensure the safety, wholesomeness, and soundness of food at all stages of its preparation, production, processing, handling, storage and shipping.

3.5 Food handling: Any process included in production, preparation, operation, packaging, storage, transportation, distribution and sale of foods.

3.6 Plant wastes:

3.6.1 Sewages: The wastes of humans and animals, including liquids and suspended solid materials in sewerage system.

3.6.2 Plant losses

3.6.2.1 Water, liquids and solid materials residual from processing operations.

3.6.2.2 Fumes and gases produced from processing operations.

3.7 Pest control: The different means used in protection or fight against all pests and insects, their secretions or their parts; and exterminating them by appropriate hygienic methods.

3.8 Hygienic control program: The assurance of adopting hygienic regulations in each of the following processes:

- Inspection and control of raw materials.
- Scheduling the succession of equipment operations.
- Inspection and control of the finished product.
- Shipping and storage control.
- Examination and training of personnel for sound hygienic manners.

3.9 Acceptance levels: The number of samples - taken from the lot which indicate the maximum number of defective permitted samples in the lot, in order to consider it as meeting the requirements of the standads approved by Standardization and Metrology Organization for G.C.C.

4- MATERIALS, DESIGN, PROCESSING AND REQUIREMENTS

4.1 Hygienic requirements for equipment and utensils:

The following shall be met in the equipment and utensils:

4.1.1 Materials:

4.1.1.1 All surfaces in contact with foods shall be non-toxic, not producing an objectionable odour or taste, corrosion-resistant, enduring frequent wash and disinfection, smooth, free from pits, crevices and loose scales, unaffected by foodstuffs and non-absorbent unless the use of other surfaces as wood might be necessary due to the nature of work.

4.1.1.2 Galvanized iron shall not be used for the surface contacting foods in the food processing equipment.

4.1.1.3 Alloys containing lead or antimony or cadmium platings shall not be used for the surfaces contacting foods in the food processing equipment.

4.1.1.4 Equipment made of copper or its alloys shall be plated with tin so that foods shall not come in direct contact with the metal.

4.1.1.5 Plastics or glass used in manufacturing food processing equipments shall be abrasion resistant and shall not contain phenols or free formaldehyde or any other substances affecting the characteristics of the food with which it comes into contact.

4.1.1.6 Steam boilers and packing materials shall be non-porous and non-absorbent and shall not react with the product. Joints between boilers shall be accessible for cleaning.

4.1.1.7 Canvass belts used in food plants shall be made of suitable material, easy to be cleaned and non-absorbent to food juices.

4.1.2 Sanitary design:

4.1.2.1 Equipment and utensils shall be designed and fixed in such a way to prevent hygienic hazard and to be easily cleaned and sterilized.

4.1.2.2 Industrial safety and protection means shall be provided for sharp ended equipment and utensils.

4.1.2.3 No drops or condensation shall appear over processing lines.

4.2 Hygienic requirements for buildings:

The following hygienic requirements shall be met in food plant:

4.2.1 Location:

4.2.1.1 The building shall be far away from objectionable odours, smoke, dust, or other contaminants and shall not be in an area subjected to floating wherever is its source.

4.2.1.2 Size:

The building shall be vast and designed in a size sufficient for the purpose intended, without crowding of equipments, personnel or materials. It shall include sufficient space for storage of both raw materials and finished product.

4.2.1.3 Roads and courtyards:

Roads and courtyards serving the plant and located in plant area shall be suitable for cars traffic.

4.2.1.4 Design:

The plant design shall easily allow for sufficient maintenance and cleaning operations and for sound hygienic control at all the stages of production:

4.2.1.4.1 The building shall be sound and perfect.

4.2.1.4.2 The building shall be so designed as to prevent the entrance and harbouring of pests, insects, birds and environment contaminants such as smoke and dust.

4.2.1.4.3 The plant shall be so designed as to apply hygienic operations in a regulated flow in the process lines, from the arrival of raw materials to the complete processing of the finished product, and to lead to suitable conditions for processing.

4.2.1.4.4 Floors:

They shall be made of water-proof and non-absorbent materials. They shall also be washable and cleanable, non-slippery, non-toxic and free from crevices and pits, and shall not be affected by weak acids, alkalines and steam. They shall slope to the drainage system.

4.2.1.4.5 Walls:

They shall be built of heat-insulating bricks, be smooth, water-proof, non-absorbent, washable, easily cleaned and preferably painted with a harmless paint of a light colour and be free from crevices.

4.2.1.4.6 Ceilings:

They shall be so constructed as to prevent the accumulation of dirt, condensation and mold development, and can be easily cleaned.

4.2.1.4.7 Stairs lifts, and additional installations (such as pavements, portable stairs and slopers):

They shall be designed or constructed so as to avoid contamination of food and to facilitate the process of cleaning them frequently.

4.2.1.4.8 Doors:

They shall have smooth and non-absorbent surfaces, and shall be designed in such a way as to be tightly self-closed.

4.2.1.4.9 Windows and other openings:

They shall be so constructed as to avoid accumulation of dirt. Openable windows shall be provided with suitable net screens made of non-corrosive materials (to prevent entrance of flies, insects and rodents) and designed in such a way as to facilitate their cleaning and maintenance. They shall have smooth and non-absorbent surfaces. Internal window-sills-if any-shall be sloping so that they may not be used as shelves. Windows shall be tightly self-closed.

4.2.1.4.10 Ventilation:

Adequate ventilation shall be provided to prevent excessive heat, steam condensation and dust, and to remove contaminated air. The direction of air flow shall never be from contaminated areas to clean areas. Processing spaces and rooms shall be provided with internal ventilation means.

4.2.1.4.11 Lighting:

Natural or artificial lighting, shall be so sufficient to avoid discolouration. Electric bulbs fixed and suspended over process lines - at all the stages of production - shall be of the safe type and maintained in a way that prevents contamination of food in case they are broken. Shadows and strong glare shall be avoided.

4.2.1.4.12 Dressing rooms and bath rooms:

- Dressing rooms: To change their clothes, personnel shall have suitable rooms provided with special wardrobes to keep their clothes in. The work overalls shall be clean and dry.

- Bath rooms: Personnel shall have bathrooms provided with sufficient hot and cold water. Bath rooms shall not directly open into food handling places. They shall usually be kept clean and provided with suitable cleaning materials. The walls of bathrooms shall be lined with glazed ceramic tiles to be easily cleaned, preferably painted with a harmless paint of a light colour and be free from crevices.

The number of bathrooms shall not be less than the following:

Number of personnel in a shift	Number of bathrooms
From 1 to 10	2
From 11 to 20	4
From 21 to 40	6
From 41 to 60	8
From 61 to 80	10
From 81 to 100	12
More than 100	One bathroom for every additional 10 persons

4.2.1.4.13 Toilet rooms:

They shall be constructed in such a way to facilitate elimination of wastes under hygienic conditions and shall be provided with self-closing doors, well lighted and ventilated. They shall not open directly into food handling areas, shall usually be kept in a sanitary condition, equipped with siphon and suitable cooling and heating systems, and provided with hand washing and drying facilities as mentioned in 4.2.1.4.14.

Notes shall be posted requiring personnel to wash their hands with soap and detergents after using the toilet.

The number of toilet rooms shall not be less than the following:

Number of personnel in a shift	Number of toilets	Number of hand washings
From 1 to 10	2	2
From 11 to 20	4	4
From 21 to 40	6	6
From 41 to 60	8	8
From 61 to 80	10	10
From 81 to 100	12	12
More than 100	one toilet room for every additional 10 persons	one hand washing for every additional 10 persons

4.2.1.4.14 Hand-washing facilities:

Adequate and convenient facilities for personnel to wash and dry their hands, shall be provided wherever necessary, being in full view of the working places. Disposable towels are recommended. Such facilities shall always be kept in a sanitary condition.

4.2.1.4.15 Waste disposal:

Disposal of waste shall be carried out in such a manner to avoid contamination of potable water sources and foods. The plumbing lines and waste disposals shall be approved by the official hygienic authorities. They shall be covered so as to prevent the diffusion-odours and the appearance of pests and insects.

4.2.1.4.16 Water supplies:

- Potable water:
  It shall be provided in sufficient amounts and suitably protected against contamination. It shall conform to the Gulf standard concerned with «Bottled and unbottled Drinking Water» to be approved by Standardization and Metrology Organization for G.C.C. Disposable cups shall only be used.

- Non-potable water:
  It shall conform to hygienic regulations approved by official hygienic authorities, and be free from microbiological contaminants. It shall contain not more than 4 per 100 ml of coliform bacteria.

4.2.1.4.17 Collection and disposal of spoiled materials and foods equipment:

Means necessary to collect spoiled materials and foods and transport them to specific areas outside the plant shall be provided.

4.3 Hygienic processing requirements

The following shall be met during processing:

4.3.1 Raw materials handling :

4.3.1.1 The raw materials shall not be accepted if it originally contains decomposed toxic or extraneous substances which will not be removed to acceptable levels by normal plant procedures of sorting, preparation or processing.

4.3.1.2 Raw materials shall be stored in the plant premises under conditions that will protect them against contamination and infestation and quick deterioration. Stores and their doors and windows shall be constructed so as to prevent entrance of rodents. If rodents are present, stores shall be completely emptied and disinfected from rodents and then tightly closed to prevent their re-entrance.

4.3.1.3 Water used for conveying raw materials, shall comply with the Gulf standard concerned with «Bottled and unbottled Drinking Water» approved by Standardization and Metrology Organization for G.C.C. Sea water used for transporting fish and other marine products shall only be allowed by the permission of the official concerned hygienic authorities, and shall be subjected to periodical examination.

4.3.2 Inspection and sorting:

Prior to introduction into the processing line, or at a convenient point within it, raw materials shall be inspected, sorted and selected as required to remove unsuitable materials. Such steps shall be carried out under hygienic conditions, so that only sound and clean raw materials shall be processed.

4.3.3 Washing or other preparatory operations:

Raw materials shall be washed as needed to remove dust or other contaminants. Water used for such purposes shall not be recirculated unless suitably treated to maintain it nonhazardous for public health.

4.3.4 Preparation and processing:

Preparatory operations leading to the finished product and the packaging operations shall be so timed as to permit expeditions handling of consecutive units in production under conditions which would prevent contamination, deterioration, spoilage, or the development of pathogenic microorganisms or toxicity. Random samples shall be drawn from processing line and from the finished product to assure safety of production.

4.3.5 Methods of packaging and preservation of the finished product:
The following shall be met in packaging and preservation of the product:

4.3.5.1 Type of packaging material:

- Packaging materials shall not contain any substance causing objectionable organoleptic changes in the product, and shall be treated by a way that does not cause toxicity or affect the foods with which they come into contact.

- Packaging materials shall be non-absobent, tasteless and odourless and shall assure convenient protection of the product against contamination.

4.3.5.2 Packaging and preservation techniques:

- Packaging shall be carried out under suitable hygienic conditions.
- Methods of preservation shall be such as to protect the product against contamination, infestation, disease communication and any development hazardous to public health.

4.3.6 Finished product coding:

Processed products prepared for sale or those distributed during processing or packagmg shall be coded to enable identication of lots and their production date, so that, when necessary, a specified food lot which may have become contaminated or unfit for the purpose of its use shall be segragated.

4.3.7 Storage and transportation of the finished product:

4.3.7.1 The finished product shall be stored and transported under such conditions as to preclude its contamination or proliferation of microorganisms. The product shall be protected against deterioration or containers damage.

4.3.7.2 During storage, periodic inspection shall be carried out on the finished product to ensure that the food is fit for human consumption and that it complies with the standard specifications of the finished product.

4.3.7.3 Store rooms shall be moisture free and air conditioned and refrigerated and shall be rodent-proof.

4.4 Hygienic requirements for personnel:

The following shall be taken into consideration:

4.4.1 The food handling persons shall be medically examined, before their appointment, by the responsible official medical authorities according to the requirements stated by the concerned department in the Ministry of Health. This medical examination shall be carried out periodically on those persons, after their appointment, once or more every year as need may arise, to ensure that they are medically fit and free from communicable diseases.

4.4.2 Personnel who have infected wounds, sores or any communicable disease shall be isolated till their recovery.

4.4.3 Personnel of perishable foods preservation plants shall take a bath before and after processing operations. Also they shall wear masks on their mouthes and noses to prevent contamination of foods.

4.4.4 Personnel shall keep their nails short and clean and wash their hands with soap and water or detergents before the start of work. All kinds of jewelery shall not be worn to avoid their contact with food products.

4.4.5 Personnel shall be provided with clean uniforms, clean and sound gloves, and clean caps where necessary. No clothes shall be hung in the processing rooms.

4.4.6 Eating, drinking, spitting, nose cleaning, chewing of gum and the use of snuff, tobacco in any form shall be prohibited during the manufacturing, handling and packaging processes and in the storage area of the plant.

4.4.7 During the manufacturing processes, the worker shall not apply his finger to his mouth, eyes, ears, nose or scalp, and also shall not cough or sneeze near any food.

4.4.8 Personnel shall not sleep or lie in a processing or handling areas or in food stores.

4.4.9 Precautions shall be taken to prevent food contamination by visitors during handling.

5- PEST CONTROL

The following shall be considered:

5.1 All outside pest breeding places, as well as all inside harbouring and hibernating spots, shall be under periodic control.

5.2 Floors, walls, bucket elevators, and conveyors shall be frequently inspected for detecting the presence of insect secretions and eggs in crevices.

5.3 Pest resisting substances shall be highly effective for rodents. They shall be used in a manner not leading to contamination of foods, and their toxicity shall be low for humans.

5.4 After application of pesticides, contaminated equipment and utensils shall be thoroughly cleaned to remove residues. Cleaner must be completely soluble, non-corrosive for metal surfaces, of good wetting or penetrating action, with an emulsifying action on fat and dissolving action on food residues and having germicidal action.

5.5 Pesticides shall be stored in locked rooms used only for that purpose and dispensed and handled by authorization, and through properly trained personnel. Extreme care shall be taken to avoid food contamination.

6- HYGIENIC CONTROL PROGRAM

The following shall be considered:

6.1 Each plant shall designate a single individual responsible for the cleanliness of the plant, whose duties are preferably separated from production.

6.2 This individual shall have assistant personnel, well trained on the use of special cleaning tools, and their assembling. They shall be aware of the hazards of contamination.

6.3 Critical area, equipment and materials shall be kept under special attention and care.

7- LABORATORY CONTROL METHODS

The following shall be considered:

7.1 Each plant shall have a special laboratory to carry out tests necessary to assure the safety of the products.

7.2 Official authorities, each according to its duties and functions, shall periodically take samples representative of the production for analysis purpose, to assure the safety of the product and its compliance with the standards.

8- HYGIENIC TRAINING FOR PERSONNEL

8.1 Personnel shall be informed of the hygienic rules necessary to be applied during food processing and of contamination prohibition.

8.2 Information programs prepared for plant personnel (seminars-films-lectures-posters...) shall be introduced to emphasize the importance of food handling under hygienic conditions and precautions necessary to prevent contamination of foods.

APPENDIX D

INDUSTRY PLANT SITE VISITS

AND

SYSTEMS AUDITS

(CONFIDENTIAL)

1. *Summaries of Industrial Plant Site Visits*

2. *Systems Audits*

APPENDIX D: INDUSTRY PLANT SITE VISITS AND SYSTEMS AUDITS (CONFIDENTIAL)

1. *Summaries of Industry Plant Site Visits*

Al Arkan Trading Company, LLC, Sohar This business was started in Oman in 1989. About 90 percent of the product for export is fresh tuna, mainly to Europe and the United States. Total production is about 1,000 tonnes of fish per year. The company buys fish from landing areas in the South as they are limited in what they can buy in Sohar by disruptions in local supply.

The plant is clean, and staff appears to handle fish properly. Fish are dressed, and shipped fresh with ice in 55-kilo styrofoam boxes, having been chilled in slush ice in fiber glass tanks before shipment. Very little ice is used in the shipment; more ice should be used. Fish are dressed in an open dock area with roof and no fly screens. Flies were not noticeable.

The management of Al Arkan was not familiar with HACCP, but they were keeping most of the records that would be required for an HACCP program. The sanitation of the plant could meet U.S. requirements with only minor changes. Personnel should wear proper head gear and aprons, and have access to a foot dip before entering the ice room. They have microbiological, mercury, and lead analysis, conducted on lots about once a month. They do not, however, have histamine analysis conducted on tuna, shark and king fish. They should have this done in the future.

The ice plant has a capacity of 15 tonnes per day. About two-thirds of the ice supply is used by the company; the rest is used by truckers with iceboxes and by fishermen.

Gulf of Oman International Fishing Company (GOIFC), Duqm Plant GOIFC, Duqm, produces about 1,000 tonnes per year, of which 62 are lobster. Two-thirds of the fish are sold to the domestic market, and the rest are for export. Upon arrival at the plant, fish are thrown from the truck bin to the box. They are dressed on wooden cutting boards in an open area with no fly screening, and then stored in ice slush in large fiber glass tanks. There are about 50 to 70 employees during lobster season. The employee who checks fish is responsible for quality control. Records are kept of incoming fish weights and fish are checked for condition. Bad quality fish are rejected before the transporter is paid.

Records are kept of fish rejected after receipt and processing. The company also keep records, called *A Note of Shipment*, which contains information on species, weight, and size of each shipment. Staff members were not familiar with HACCP but were keeping some of the fish handling records needed to comply with HACCP. To do so would require additional records: cold storage and freezing temperature, and quality and condition of fish upon receipt.

The general handling practices need to be improved. Fish were being thrown from the fish box on the truck to the box on the dock, and in many cases were missing the box and going on the dirty dock. Wooden tables were used for cutting fish which were being dressed, gutted or headed outside with no fly screens. The general sanitation needed improvement. No sanitation log was kept.

Shields need to be provided over lights, wooden cutting boards need to be replaced with plastic, screens are needed, and a foot dip should be installed before the ice bin entrance to prevent contaminating the ice. Hand washing facilities are required.

Water supply is a problem. Salt water, which is tested periodically, is used to wash fish.

A desalination plant is planned. It would cost about RO 50,000 for a capacity of 3,000 gallons per day. Management thought that a national standard for export would be desirable. They asked what is required for sanitation and record keeping, and said they would do their best to meet the standards. They have not had any advice in sanitation and hygiene. Municipalities has had a local inspector in the area for one year, but he is mainly interested in pollution. He does not check sanitation of the plant.

If there were national standards for export, this company would look to the Ministry of Agriculture and Fisheries for advice and assistance on needed improvements. The manager appeared to seek specific guidance to know what to do.

Some major improvements in sanitation and handling would be required to meet U.S. requirements.

Al Hamadi Company, LLC, Masirah Island The plant produces about 1,000 to 1,500 tonnes of product per year. Most of it is for the military with a small amount for the local market in Muscat. The person I talked to was the food technologist in quality control, Mr. Varghese, who had started work about a month previously, and was from Cochin, India. No ice was used on the truck transporting fish from the fishermen, even though the fish were in the sun for about two hours on the truck, nor was ice being used by the fishermen. Despite this, some of the fish were alive, and they appeared to be in good shape. The plant was not very clean, and it was quite open with no screening. Ice was not used in storing the fish prior to processing. Fish for freezing were washed in a tank of water that was not recirculated. Lights were not protected, and there were no hand wash stations or a hand dip station. The ice could be contaminated by people walking directly into the ice room. Foot dips should be used. Wooden cutting boards were used.

Records were not kept on quality, and the technologist was not aware of the HACCP system. The plant would require major changes to meet U.S. requirements.

Al Hamadi Fisheries Company, LLC, Mirbat The plant processes lobster, during the season, and fish most of the year. About 65 or 70 tonnes of lobster may be produced in a season and as much as 100 tonnes of fish per month. The plant is about one and one-half years old and well-designed. It has a cooking area, not enclosed fully, but the rest of the facility is enclosed with tile walls and floors. The plant has a chill room, ice making capacity of six tonnes per day, two blast freezers, and a frozen storage room.

The general layout and design facilitate cleaning. An air curtain is used over the main entrance, lights are covered with protective shields, a plastic shovel is used for handling the ice, and there are several fly killing devices. Personnel wear aprons and gloves, but no hair nets. Personnel also walk into the ice storage area. No hot water is not available in the plant. There are sinks for washing hands in the plant processing area and across from the toilets, but they do not appear to be used that much. The general sanitation could be improved by installing a foot dip before the ice bins to prevent contamination of the ice, use

of hand dips, closing in and screening the cooking area, installing backflow prevention devices and making hot water available for plant cleaning. More attention needs to be given to good housekeeping.

Management was not familiar with HACCP. They were buying product by quality and had established schedules for cooking different size lobsters. They also have a cooking system which traces the product back to the day of packing and freezing. Records were not being kept of quality checks or cooking times. Engineering logs were kept on storage and freezer temperatures. They had a food technologist from India on staff. They could apply the HACCP concept with some training. The plant could meet U.S. requirements without making major modifications.

Al Hamadi Fisheries Company, LLC, Seeb The plant produces fish and fish fillets, and handles and repacks lobster from other plants they own. Product is mainly for export to Germany and France. The general layout of the factory is good, with cutting done in a separate room which has an ice room off the room. The packing room is separate and next to the processing room. The blast freezer, cold storage room, and cooler have door entrances off the packing room. Wooden cutting boards were not used, and the plant hygiene was good. Signs were displayed stating the need to keep things clean and not to smoke. The plant had a foot dip at the entrance. Protective covers for the lights, a wash basin and hand dip, a foot dip in front of the ice bin, and a backflow preventive device need to be installed. The plant could meet U.S. standards with only minor modifications.

Large Pelagic Plant, Sur The plant has been operating for only several months and is still being equipped. Management seemed to be quite aware of the need for good sanitation and quality control. The plant was not operating during my visit.

The plant has enclosed fish cutting and salting areas, chill room, freezer, and two cold storage rooms. The layout and general construction are in accordance with good sanitation practices. Management indicated that they planned to install hand and foot dips at the entrance to the plant, and plastic cutting boards on the tables. We also discussed the records that should be kept for an HACCP system and how to develop a sanitation check list.

The plant, with the modifications suggested, could meet U.S. standards with little difficulty.

Al Majali Trading, Al Khaluf Plant This plant produces about 942 tonnes per year, 37 or more of shrimp, 75 of lobster and the rest mixed fish. Most of the product is for export. Their major exports are to Italy, but they also export to France, Greece, Japan, and Gulf countries.

The plant was built in 1987 and much of it is fully enclosed, except for the fish receiving area. It has a roof, walls and, tile floor, but a lot of openings. Even though it was quite open, we did not observe any flies. The cutting area is used mainly for dressing and gutting the fish, but some product is filleted also.

Receiving records are kept, but no record of the amount not purchased because of poor quality. Management thought this would be a good idea. They do keep a record of shipments with weight and date of packing and freezing.

They did not have any records of storage or freezing temperatures. They pride themselves on inspection of fish upon receipt, and have a plant supervisor responsible for quality as well as for buying fish. They have a size grade on the frozen shrimp package. The month and year of freezing and an expiration date of one year from freezing date are on the fish fillets package. The package of frozen head-on shrimp is attractive.

Water is obtained by tanker truck from Muscat. The cost of water is about RO 9 for 500 gallons. Some of the sanitation improvements needed include plastic to replace wooden cutting boards and tables where fish are cut, plastic shields over lights, and hand washing and hand dip basins at the entrance to the fish cutting area. It would also be desirable to screen in the area where fillets are cut or move the fillet cutting to an enclosed area. A foot dip should be located at the entrance to the ice bin, so that workers do not track dirt into that area. The shovel for handling ice should be plastic or have a steel handle to replace the wood. Wood is to be avoided.

The plant management was not aware of what needs to be done for proper sanitation. They indicated they would be responsive to specific suggestions, and money was not a problem in making improvements.

They indicated that a national standard for export would be good and could help Omani exports. The plant, with the modifications suggested, could meet U.S. standards with little difficulty.

Al Majali Trading, Masirah Island The plant produces about 1,100 tonnes of product per year for export, mainly to Greece, Italy, France, and other Gulf countries. Some buyers from foreign countries have been to the plant to inspect it. The company provides ice and bait to some of the fishermen fishing on a contract basis.

There is a small ice plant of only 2 tonnes, but the company can obtain extra ice from OFC, if they have it available. Ice supply can be a problem, particularly if OFC has an equipment problem.

The plant was well designed, and all the processing was done indoors. Curtains were used to minimize flies at the entrance to the various rooms. The plant had tile walls and good sewage drains with pitched floors. Personnel cutting the fish had aprons and gloves on. Hair nets should also be used. Some other things we discussed for improvements were to cover lights with plastic shields, replace wooden cutting boards with plastic, replace wooden pallets with plastic, install hand washing and dip stations at the entrance to processing area, and box the fish with ice after being cut. The fish after filleting were washed quite thoroughly and then stored in slush ice in a tank before freezing.

We discussed the need for recording the quality of fish being received, keeping a log of freezer and storage temperatures, and stamping a date of freezing code on the final package to allow tracing of the product if there is a problem. The management seemed quite interested in making the necessary improvements. The plant could meet U.S. requirements without difficulty by making the changes suggested above.

Al Marsees Trading, Masirah Island The plant produces about 900 tonnes of fish per year, mostly for export to Greece. They produce a lot of shark and were processing shark during my visit. The plant is only slightly over a year old. It has a problem in design in

that people drive through the building with the processing and packing areas one side and the cold storage and freezer rooms on the other. This causes serious problems because the cars bring in dirt and fumes which then go into the processing and storage areas. The shark to be filleted were in a pile on the floor with no ice. I mentioned the concern about histamine poisoning, and the management indicated they check the fish after storage overnight for green bellies and discard those that are problems. Histamine tests are not conducted. They discard about 40 percent of their fish because of poor quality. Management did not seem familiar with how to maintain good sanitation or quality. Foreign countries have been requiring health certificates which are issued by the Ministry of Health Laboratory in Muscat. The export license is issued by customs police in Muscat.

The plant does not have an employee responsible for quality control. They do not keep any records of quality and do not date code the product. They plan to build an ice plant.

The plant is poorly designed and attention is not given to sanitation or personal hygiene. The shark are not iced, presenting a potential for serious health problems. The plant would require major changes to meet U.S. requirements.

Masirah Fish, Masirah Island This company produces about 1,200 tonnes of fish per year; major markets are France, Holland, and Saudi Arabia. Countries are requesting health certificates more frequently. To conduct this analysis, the Ministry of Health charges RO 5 for two tonnes or less, and RO 15 for 72 tonnes. The plant is about three and a half years old. There is no one employed for quality control. There is a 5-tonne capacity ice plant and plans for expansion. The company will pay fishermen 25 baisas more for fish and also will give them free ice if they will ice the fish. Fishermen don't think the price is enough. They feel that the industry should get together and offer fishermen an incentive to carry ice, and should provide the it free. Assistance by the Ministry in subsidizing the ice cost would be helpful.

The plant is washed down every day and detergent is used every two days. The general sanitation and housekeeping needs improvement. There was no evidence of pest control. Lights need to be covered, and hand wash and sanitizing stations need to be installed. Foot dip stations are needed to prevent ice contamination.

The plant would require major changes to meet U.S. requirements.

Oman Fisheries Company (OFC), Muscat The principal production of OFC is bulk sea-frozen fish; production is about 9,000 tonnes of fish per year of which about 95 percent is whole frozen. The rest consists of processed product.

This company employs about 150 people. The processing plant is old and needs improvements, but the firm plans to build a new plant in two to three years. The present plant would need a number of sanitation improvements to meet U.S. requirements. Much of the exported fish is frozen at sea, going directly to cold storage and export.

The firm does not have a quality control employee, and management does appear to be familiar with HACCP and sanitation inspection requirements. If a certificate is required for export, the current procedure is to have the lot inspected by the Department of Commerce

and Industry.

The general manager thought that a national standard for export, the regulations of which all firms would be required to follow, might be useful. He thought that there was inadequate use of ice by the fishermen, and that there were little or no incentives for the fishermen to use ice.

Oman Fisheries Company (OFC), Masirah Island The plant is about 15 years old and has two large chill rooms, five freezers, a large cold storage room, and a room for processing raw lobster tails. The plant has a 25 tonne ice making capacity and about 80 tonnes of frozen storage capacity. Ice is sold at RO 20 per or RO 1 per bag. The plant produces about 2,000 tonness of product per year. The whole fish goes to the plant in Muscat where it is thawed and reprocessed. Most of the production is for export.

Fish are trucked in from the ports, usually with ice, and placed on the cooler floor and covered with ice. There did not appear to be any inspection of fish for quality upon receipt. The cooler floor is quite dirty, insufficient ice is used, and is dirty from the fish. Fish, without any washing, are then placed in plastic wrap on trays and frozen. The usual receiving record is kept, with weight and species, but there are no records of quality assessment. Management was not familiar with HACCP.

Management is constructing a sea water well to supply more water to the plant. General sanitation needs to be improved. The chill rooms used for storing fish, and the packing area need cleaning, and the equipment was very rusty. Light bulbs need protective shields. Hand washing facilities need to be installed in the processing areas and workers need to give more attention to personal hygiene.

In addition, animals such as camels and goats were roaming the grounds right next to the freezer and fish receiving area, eating garbage from the waste bins, and leaving their own wastes.

The plant would require major modifications to meet U.S. requirements. The management should employ someone knowledgeable in quality control work at the plant to see that sanitation practices are followed.

Oman Fisheries Company (OFC), Salalah The plant was not operating when we visited it. They produce 80 to 90 tonnes of product per month, mostly fish and some lobster. The plant has three blast freezers, a cold store that will hold 20 tonnes of frozen product, and a 10 tonne ice making capacity. They sell ice at RO 1 per 50 kilogram bag. They supply ice to two trawlers that fish for them. Lobsters are produced as whole raw, whole cooked, or raw tails. Local municipality officials visit the plant once or twice a year to check general conditions.

The entire plant was quite open with no evidence of pest control. The receiving area was open. There was no hand washing or hand dip station, and people were walking into the ice bin with their boots on. A foot dip would help protect the ice from contamination. The lights need to be covered, and personnel need to give more attention to personal hygiene by wearing clean aprons and hair nets. There was no apparent sanitation program in effect.

Records of the purchase of the fish are kept, but none concerned with quality. The product

is shipped to Muscat where it is repacked. The plant was said to be cleaned every day when used. The plant would require major modifications to meet U.S. requirements.

Oman Sea Products LLC (OSP), Sadh The plant is about four years old. It was not operating during our visit.

Production consists entirely of fish for export, about 350 tonnes per year. The fish receiving area is in the open. After receipt, fish are stored with ice in three tile-lined storage bins, then transferred to the processing and packing area which consists of a large room with tile walls and cement floors. The plant has a large chill room, an ice plant with 10 tonnes per day capacity, a blast freezer, and a cold storage room.

The general layout of the plant does not really facilitate orderly product handling. The processing area should have a screen door or air curtain and hand wash and hand dip stations. Floor drains which go above ground outside should be covered with screens to prevent rodents from entering. Protective covers need to be installed over the lights, and the ice bin should have a foot dip at the entrance to prevent contamination of the ice. Since the plant was not in operation, it was not possible to evaluate personnel hygienic controls.

The record keeping consists primarily of a purchasing invoice and a product transfer form. Management was not familiar with HACCP, and records of quality or temperature of freezing and storage were not being kept. The plant could meet U.S. requirements without making major modifications.

Protein Products International (P.P.I.), Muttrah The principal product of P.P.I. is tuna, marketed as chilled or frozen for export. This company has four longline vessels which spend about six days at a time at sea. Fish are also supplies by local markets. P.P.I. exports chilled tuna to U.S. and other markets. A 55-kilo styrofoam container is used for shipment of fish. About 20-30 percent ice is used in each shipment.

Management is familiar with ISO 9000, but not with HACCP, and indicated it would be useful to have a national standard for export of Omani fish. They feel that at present a lower price is received because the product is Omani, and that any quality control program must be supported by all companies and government agencies.

P.P.I. has its own standard for fresh tuna that covering three grades. They are in contact daily with a large buyer in the U.S. with whom they agree on the number of products received in different grades. They keep a record of grades for export. They have 15 staff members, but no one person especially for quality control.

Analysis conducted on fish by the Ministry of Commerce and Industry, available to buyers on request, includes mercury analysis on frozen fish, which are smaller fish, but not on fresh which are larger. Mercury and histamine analyses should be done on fresh fish also. The company has not had any problems.

Even though not aware of HACCP, P.P.I. keeps many of the records that would be required for a HACCP program. The plant is small but clean and could meet U.S. requirements with some improvements in sanitation. To do so, protective shields need to be installed over the lights, personal hygiene must be improved by personnel wearing clean aprons and hair nets,

and wash sinks and hand dips must be installed at the entrance to the fish cutting area.

Sadah Marine Product LLC, Salalah The company exports to France, United States, Japan, United Kingdom, Singapore, and other countries. The main products are tuna, king fish, demersal fish, and lobster. The company sells ice to fishermen for about two bags for RO 1. Two *dhows* supplying product use ice because they must stay at sea for about two days. The company also buys product from fish buying stations, using agents. The lack of suppliers is a major problem. It is especially difficult for lobster, because the individual truck buyers will always pay a higher price.

The company has three cold stores, with a capacity of 150 tonnes of storage, and an ice making capacity of 30 tonnes per day. Production has fallen far short of the plant's capacity of about 12 tonnes of product per 24 hour day. They have a supervisor from India who gives attention to quality control.

Management was not familiar with the HACCP system. They were keeping records of product purchasing, but none of quality. They do, however, buy on three grades: A, B, and reject. They had temperature devices on freezers and cold storage rooms, and the engineer was routinely monitoring the temperatures. They were date coding the master and inner cartons of frozen lobster.

The plant seemed to be quite clean. It is washed with soap four times a day, at 10:00 a.m., 12 noon, 3:00 p.m. and 5:00 p.m. For the last washing, chlorine is used as a sanitizing agent. They had a foot dip before entering the plant and also had a wash station and a chlorine hand dip. Chemicals were stored in a separate area. Ice was clean and off the floor. Some suggestions for improvement include: replace wooden cutting boards and wooden handle shovels with plastic; use boxes that are easier to clean for transporting cooked lobster within the plant; cover the lights and physically separate the cooking area from the raw processing area to prevent any contamination of the cooked product, especially if it is not recooked after thawing. The plant could meet U.S. requirements without making major changes.

2. *Systems Audits*

SYSTEMS AUDIT CHECKLIST (1)	
Name and Address of Facility Audited Al Arkan Trading Co. LLC P.O. Box 12702 Sohar, Oman	
Facility Owner (Company or Individual) K. Surendranath, Manager	**Date (mm/dd/yy)** 11/20/93
Products Concerned: Tuna, sharks (90% tuna), bottom fish	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)			
A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	MAJ	SER	CR
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	MAJ	SER	CR
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation				
1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☐		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☐
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☒	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☐	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.	X		☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/20/93 Al Arkan Trading Co. LLC

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2.1	Processing area is enclosed, but could be a problem leaving door open; fish are gutted in open area; no screens
5.1	People do not wear hats, hair nets. Need more personal hygiene controls
7.2	No backflow prevention devices. This can easily be corrected
8.1	Ice appears to be clean. Should have foot bath for walk in to ice plant so as not to contaminate ice
10.1.2	Some condensation on ceiling in chill room where whole or dressed fish are stored in slush ice in tanks
Other	Have hand washing stations, fly and insect killing devices
	Have daily cleaning sanitation log they maintain
	In general plant could meet U.S. requirements with minor changes
	Although they are not well informed on HACCP, they are keeping many of the records that would be required

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Gulf of Oman Fishing International, Duqm	
Facility Owner (Company or Individual) John Jackson, Plant Manager	**Date (mm/dd/yy)** 11/23/93
Products Concerned: fish and lobster	**Phone Number**
Risk: Substantial X **Low** X (fish)	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility 2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected. 3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary. 3.3.1 Product contact surfaces.		☒	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☒	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls. 5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/23/93 Gulf of Oman Fishing International

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2	Screens or other pest control measures were not used.
2.3	Product contact surfaces for cutting fish cannot be cleaned or sanitized because they are made of wood. Should be made of plastic
3.1	Plastic protective shields need to be installed over lights
3.3	Some of equipment was rusty in need of painting
4.3	Containers and boxes were in fish processing area; needs to be cleaner
5.1	Hair nets and hats and clean outer garments need to be worn by processing personnel
5.3.2	Hand washing and hand sanitizing stations are not in the plant
7.2	Check valves need to be installed on water hose lines to prevent siphonage and contamination of water supply
8.1	Ice was contaminated by walking on it in storage bin; a foot dip should be used to prevent contamination
Other:	Facility cleaning did not appear to be adequate.
	A sanitation log should be daily kept.
	Fish were thrown off track into box causing physical damage.

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Al-Hamadl Fisheries Co. Masirah Island, Oman	
Facility Owner (Company or Individual) Contact: Mr. Baby Varrghese, Technologist	**Date (mm/dd/yy)**
Products Concerned: Fish and some lobster	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☒	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: _____ Al-Hamadl Fisheries Co.

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2	Screens or air curtains should be used to minimize pests
2.3	Plastic cutting board should be used to replace wooden ones
3.1	Plastic shield need to be used over lights
4.3	Litter and extraneous material needs to be removed from plant
5.2	Hats or hair nets need to be worn - more attention to personal hygiene
5.3.2	Hand washing and hand sanitizing stations need to be installed
7.2	Backflow prevention check valves need to be installed to prevent siphonage and possible contamination
8.1	Foot dips need to be installed in front on ice bin to prevent contamination
Other	Ice should be used on the truck when picking up fish from the fishermen
	Water for washing the fish in the plant should be recirculated more frequently to ensure that fish are clean when frozen

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Al Hamadl Fisheries Co. Ltd Mirbat, Oman	
Facility Owner (Company or Individual) Ahmed Aqeel, Manager	**Date (mm/dd/yy)** 12/5/93
Products Concerned: Lobster and fish	**Phone Number**
Risk: Substantial X **Low** ____	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi & Abdullah Al-Mawali	

○ **Substantial Risk Products Must Use This Block.** ☐ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☐		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☐
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.		X	☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☒			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 12/5/93 Al Hamadi Fisheries Co. Ltd.

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2.1	Lobster cooking area needs screening
4.3	Plant had some boxes, miscellaneous items laying around; could have been cleaner
5.1	Personnel should wear hair nets
5.3.2	Hand washing station located in corner, not used. The one opposite the toilet needs cleaning. Hand dip stations need to be installed
7.2	Backflow devices need to be used to prevent possibility of siphonage and contamination of water
7.3	Hot water was not present
8.1	A foot dip should be used so walkers do not contaminate ice
Other	The plant was generally well designed. It had protective devices over lights, air curtain over door, a plastic shovel and thought was given to sanitation management could meet U.S. requirement without making major modifications or changes

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Al-Hamadl Fisheries Co. Seeb, Oman	
Facility Owner (Company or Individual) Contact: Mr. Flynn M.V. de Lima	**Date (mm/dd/yy)** 12/11/93
Products Concerned: Lobster and fish	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi & Abdullah Al-Mawali	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☐		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

	MIN	MAJ	SER	CR
2. STRUCTURE AND LAYOUT				
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☐		
3. MAINTENANCE	MIN	MAJ	SER	CR
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	MIN	MAJ	SER	CR
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	MIN	MAJ	SER	CR
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.		X	☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	MIN	MAJ	SER	CR
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	MIN	MAJ	SER	CR
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	MIN	MAJ	SER	CR
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	MIN	MAJ	SER	CR
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

3

Systems Audit
Listing of Observations

Date of Audit: 12/11/93 Al-Hamadl Fisheries Co.

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
3.1	Need protective covers on all lights
5.2	Personnel should wear hair nets. They wore gloves and had clean aprons
5.3.2	Hand washing and sanitizing stations should be installed
7.2	Need backflow prevention check valves in water supply line to prevent siphonage and contamination of water supply
8.1	Need to install a foot dip in front of ice bin
Other	Plant was very well designed and quite clean
	Could meet U.S. requirements without major changes

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Large Pelagic Sur, Oman	
Facility Owner (Company or Individual) Mr. Hamed Al-Ghalin	**Date (mm/dd/yy)** 11/26/93
Products Concerned: Fish (observations limited because plant not operating)	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☐		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☐
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☐
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/26/93 Large Pelagic

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
2.3	Plant should use plastic cutting boards
5.3.2	Hand washing and sanitizing station should be located at plant entrance. Also it would be good to have a foot dip at entrance to plant
7.2	A check valve should be installed in hose water supply lines to prevent siphonage and contamination of water supply
Other:	Plant was well designed and management seemed to be well informed on sanitation practices
	Ice is not produced in the plant. They have plans for an ice machine installation

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Al Majali Trading, Al Khaluf Plant Office P.O. Box 8063 Muttrah, Oman	
Facility Owner (Company or Individual) Hamad Sultan Al-Majali	**Date (mm/dd/yy)** 11/24/93
Products Concerned: Fish and lobster	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☒	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/24/93 Al Majali Trading

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2.1	No screening in general fish cutting area
2.3	Wooden cutting boards were used; need plastic boards
3.1	Lights in packing area and in area for processing not protected; need plastic covers
5.1	Personnel should wear hair nets
5.3.2	Need hand washing and dipping stations, particularly for lobsters
7.2	Check valves need to be used to prevent siphonage of water and possible contamination
8.1	Should have foot dip to prevent contamination of ice; wooden handled shovels should not be used

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Al-Majali Trading Co. Masirah Island	
Facility Owner (Company or Individual) Ahmad Hassan Al-Badry	**Date (mm/dd/yy)** 11/30/93
Products Concerned: Fish and lobster	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☐		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☒	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			

11. WASTE DISPOSAL	MIN	MAJ	SER	CR
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/30/93 Al-Majali Trading Co.

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
2.3	Wooden cutting boards should be replaced with plastic ones
3.1	Plastic covers should be installed over lights
5.2	Hair nets should be worn by personnel
5.3.2	Hand washing and sanitizing stations need to be installed at entrance to processing area
7.2	Check valves need to be installed in water lines to prevent siphonage of contaminated water into water supply system
8.1	A foot dip should be installed before ice bin to prevent contamination
Other	Plant was clean and a sanitation program appeared to be in place

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Al-Marsees Masirah Island, Oman	
Facility Owner (Company or Individual) Marie Martinez	**Date (mm/dd/yy)** 11/30/93
Products Concerned: Shark and other fish	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☒		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☒			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☒		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☒	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☒	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☒
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☒	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☐	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☐
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/30/93 Al-Marsees

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.1	Litter was present in area surrounding plant entrance
1.2	No pest control measures were noted. Plant was open
2.1 2.2	Trucks drive through the building causing dirt and fumes to enter the processing and storage areas
2.3	Wooden cutting boards are used; equipment is rusty
3.1	Plastic coverings need to be installed over lights
4.0	There was no evidence of any cleaning or sanitizing program
4.3	Housekeeping needed improvement to remove litter in plant
5.3.2	Hand washing and hand sanitizing stations need to be installed
7.2	Backflow prevention check valves need to be installed in water supply hose lines to prevent possible siphonage and contamination
Other	Sharks were not iced; this could present a serious health problem because of histamine poisoning
	Plant personnel did not appear to be aware of the need for sanitation and personal hygiene

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Masirah Fish Masirah Island, Oman	
Facility Owner (Company or Individual) Sales Manager	**Date (mm/dd/yy)** 11/30/93
Products Concerned: Fish (observations limited; plant not operating)	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☐		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☒			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

3

Systems Audit
Listing of Observations

Date of Audit: 11/30/93 Masirah Fish

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2.1	Screens or other pest control measures were not used
3.1	Protection devices needed over lights
4.3	Litter should be removed from plant
5.3.2	Hand washing stations need to be installed
7.2	Backflow prevention devices should be installed
7.3	No supply of hot water for washing
8	Foot dips are needed to prevent contamination of the ice
Other	General sanitation of plant needs improvement
	There is no special quality control person

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Oman Fisheries Corp., Muscat, Oman	
Facility Owner (Company or Individual) Mohamed M. Al Alawi, General Manager	**Date (mm/dd/yy)** 11/14/93
Products Concerned: Frozen Tuna, Bottom Fish	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☒		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☒			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☒		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☒	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☒	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☒			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/14/93 Oman Fisheries Corp.

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.1	Stagnant water on plant grounds can lead to contamination
1.2	No screens or air curtains in use can cause contamination by pests
2.1	With open doors, dirt from outside is easily tracked into plant
2.2	Plant is one large room, layout makes cleaning difficult
2.3	Wooden contact surfaces for cutting fish should be replaced with plastic to minimize any contamination
3.1	Lights need to be protected with plastic coverings
4.3	Plant housekeeping needs to be improved
5.1	Personnel should wear hair nets and clean aprons and clothes.
5.3.2	Hand washing and hand sanitizing stations were not in the processing area
6.1	The one toilet was insufficient for the number of workers
7	A check valve needs to be installed on water supply lines to prevent backflow siphonage
8	Ice was dirty
9	The firm did not have a person on the staff experienced in quality control
10	The General Manager indicated that the company plans to build a new plant in a couple of years

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Oman Fisheries Co. Masirah Island, Oman	
Facility Owner (Company or Individual) Mr. Abdullah Hassan, Manager	**Date (mm/dd/yy)** 11/29/93
Products Concerned: Fish	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☒		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☒			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☐		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected. 3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary. 3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☒	○
4.2 Non-product contact surfaces not cleaned before use.		☒		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☒	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☒	☐
5.3 Controls. 5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☒			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/29/93 Oman Fisheries Co.

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.1	There was litter waste and refuse on the grounds which could attract pests
1.2	Openings to the facility could allow pests or vermin to enter
2.1	Dusty road can contribute to facility contamination with open doors in particular
3.1	Lights not protected, air curtain needs replacement
4.1	Product contact surfaces were not clean
4.2	Non-product contact surfaces need to be cleaned
4.3	There was excess clutter in processing/ storage areas
5.1	Personnel should wear clean clothing
5.2	Personnel should wear hats or hair nets
5.3.2	Hand washing and hand sanitizing stations need to be installed
7.2	Backflow and back siphonage check valves need to be installed to prevent possible contamination of the water supply
7.3	Hot water is not available for cleaning
8.1	Ice used for icing the fish was not clean. Ice bin is constructed so as to prevent contamination from walking on the ice

Oman Fisheries Co., continued

Other	Fish should be thoroughly washed before freezing
	Fish were iced on the truck when delivered to the plant
	The plant is installing a seawater supply line which will provide more water for cleaning
	Plant personnel did not appear to be knowledgeable about food plant sanitation requirements

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Oman Fisheries Co. Salalah, Oman	
Facility Owner (Company or Individual) Contact: Mr. Shaski Brushan, Engineer	**Date (mm/dd/yy)** 12/4/93
Products Concerned: Fish and lobster (plant not operating)	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi & Abdullah Al-Mawali	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☒		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐	X		
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☒		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.		X	☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☒			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☒	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☐	
7.3 Inadequate supply of hot water.	☒			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			

11. WASTE DISPOSAL	MIN	MAJ	SER	CR
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 12/4/93 Oman Fisheries Co

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.1	General area around plant was dirty with some refuse; no cement driveway; considerable dust from cars entering plant
1.2.1	Plant is open in receiving and processing areas would be very difficult to screen in or use air curtains
2.1	Dirt from area readily enters plant considerable dirt in plant
2.2.1	Ceilings peeling, general materials cannot be cleaned; needs to be painted
2.2.2	Cooking lobster area next to fish receiving; could be a problem with cross contamination
3.1	No protection on lights, ceilings peeling over cooking area
3.2	A number of lights not operating
3.3	Equipment rusty, freezing pans rusty
3.3.1	Wood cutting boards used
4.3	Housekeeping not good; refuse in area
5.3.2	No hand wash facilities
7.3	No hot water for cleaning
8.1	Walking on ice - foot dips need to be used

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Oman Sea Products LLC Sadh, Oman	
Facility Owner (Company or Individual) Thomas N S Scperuison	**Date (mm/dd/yy)** 12/5/93
Products Concerned: Fish (observations are limited because plant was not operating)	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi & Abdullah Al-Mawali	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☒			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☐	
7.3 Inadequate supply of hot water.	☒			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☒
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			

11. WASTE DISPOSAL	MIN	MAJ	SER	CR
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 12/5/93 Oman Sea Products LLC

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2.1	No screens on door entrance to cutting area. No covering over floor drain. Rodents could easily enter plant
2.3	Product contact surfaces uses wood which creates contamination; should use plastic
3.1	Need shields over lights
4.3	General condition of plant could be improved; too much litter and loose material around
5.0	Plant not operating
5.3	Need hand washing facilities and hand dip station
7.3	No hot water supply
8.1	Need foot dip at entrance to ice storage area to prevent contamination
Other	Plant design could be improved to have packing area flow after cutting. Have one large room for cutting, packing loading into freezer trolleys. A sanitation log would be helpful. Plant could meet U.S. requirement without major modifications

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Protein Products International P.O. Box 1668 Muttrah, Oman	
Facility Owner (Company or Individual) Ebrahim bin Said Al Azry, General Manager Jose J. Vallavanthara, Commercial Manager	**Date (mm/dd/yy)** 11/15/93
Products Concerned: Fresh and frozen tuna	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☒		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☐		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.	X	☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.			☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☒	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☐			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☐
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			
11. WASTE DISPOSAL	**MIN**	**MAJ**	**SER**	**CR**
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 11/15/93 Protein Products International

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
1.2	Absence of screens could be a problem with processing; should be enclosed
3.1	Lights were not protected - used to have shields - took them off to see better
5.1	Personnel should wear hair nets.
5.3.2	Hand washing and hand sanitizing stations need to be included
6.1	Had one restroom for fifteen people - seemed adequate
8.0	Ice seemed quite good, well designed bin off the floor. Can't walk on ice
Other	Municipalities inspectors came twice a year. In general facility is old, but kept clean and well maintained. Could meet U.S. requirements with few changes.
	Should use signs on washing hands, etc.

SYSTEMS AUDIT CHECKLIST (1)

Name and Address of Facility Audited Sadah Marine Products Salalah, Oman	
Facility Owner (Company or Individual) Contact: Mr. Saeed Masoud, General Manager	**Date (mm/dd/yy)** 12/4/93
Products Concerned: Lobster and fish	**Phone Number**
Risk: Substantial _____ **Low** X	
Name Evaluator J. Slavin	
Name and Title of Accompanying Individual Khamis Salim Al-Bulushi & Abdullah Al-Mawali	

○ **Substantial Risk Products Must Use This Block.** ☒ **Low Risk Products Must Use This Block.**

Adherence to HACCP Plan (2)

A. RECORDS	MAJ	SER	CR
1. Records are not up to date.	☐		
2. Records are inaccurate.	☐	☐	☐
3. Records are not available for inspection.			☐
4. Any documents or records are falsified.			☐
B. PROCEDURES	**MAJ**	**SER**	**CR**
1. Preventive Measures not followed.	☐		
2. Monitoring Procedures not followed.		☐	
3. Corrective Action not taken.			☐
C. OTHER	**MAJ**	**SER**	**CR**
1. Modification to HACCP-based plan used without approval.	☐		
2. Modification to critical limits without approval.			☐
3. Certified trained personnel not available.			☐

Facility Sanitation

1. PEST CONTROL	MIN	MAJ	SER	CR
1.1 Harborage and attractant areas present.		☐		
1.2 Pest control measures not effective. 1.2.1 Exclusion.		☐		
1.2.2 Extermination			☐	

(1) Based on forms used by the National Marine Fisheries Service, U.S.

(2) Not applicable because firm is not using the HACCP system.

2. STRUCTURE AND LAYOUT	MIN	MAJ	SER	CR
2.1 Grounds condition can permit contamination to enter the facility.	☐			
2.2 Facility				
2.2.1 Design, layout, or materials used cannot be readily cleaned or sanitized; does not preclude contamination.		☐		
2.2.2 Insufficient separation by space or other means allows product to be adulterated or contaminated.			☐	○
2.3 Equipment and utensils' design, construction, location, or materials cannot be readily cleaned or sanitized; does not preclude product contamination.		☒		
3. MAINTENANCE	**MIN**	**MAJ**	**SER**	**CR**
3.1 Condition of roof, ceilings, walls, floors, or lighting not maintained; lights not protected.				
3.1.1 Areas directly affecting product or primary packaging material.				☒
3.1.2 Other.	☐	○		
3.2 Insufficient lighting.	☐			
3.3 Equipment and utensils not maintained in proper repair or removed when necessary.				
3.3.1 Product contact surfaces.		☐	○	
3.3.2 Other.	☐	○		
4. CLEANING AND SANITIZING	**MIN**	**MAJ**	**SER**	**CR**
4.1 Product contact surfaces not cleaned and sanitized before use.			☐	○
4.2 Non-product contact surfaces not cleaned before use.		☐		
4.3 Inadequate housekeeping.	☐			
5. PERSONNEL	**MIN**	**MAJ**	**SER**	**CR**
5.1 Processing or food handling personnel do not maintain a high degree of personal cleanliness.		☐	☐	
5.2 Processing or food handling personnel do not take necessary precautions to prevent contamination of food.	X		☐	☐
5.3 Controls.				
5.3.1 Facility managment does not have in effect measures to restrict people with known disease from contaminating the product.			☐	
5.3.2 Handwashing and hand sanitizing stations not present or conveniently located.			☐	○
6. RESTROOMS	**MIN**	**MAJ**	**SER**	**CR**
6.1 Insufficient number of functional toilets.	☐			
6.2 Inadequate supplies.		☐		
7. WATER SUPPLY	**MIN**	**MAJ**	**SER**	**CR**
7.1 Unsafe water supply				☐
7.2 No protection against backflow, back-siphonage, or other sources of contamination.			☒	
7.3 Inadequate supply of hot water.	☒			
8. ICE	**MIN**	**MAJ**	**SER**	**CR**
8.1 Not manufactured, handled, or used in a sanitary manner.				☐
9. CHEMICALS	**MIN**	**MAJ**	**SER**	**CR**
9.1 Chemical(s) improperly used or handled.				☐
9.2 Chemical(s) improperly labeled.		☐		
9.3 Chemical(s) improperly stored.			☐	

10. VENTILATION	MIN	MAJ	SER	CR
10.1 Condensation 10.1.1 Areas directly affecting product or packaging material.			☐	○
10.1.2 Other.		☐		
10.2 Adequate air exchange does not exist.	☐			

11. WASTE DISPOSAL	MIN	MAJ	SER	CR
11.1 Improper disposal of: 11.1.1 Sewage.				☐
11.1.2 Processing waste.			☐	

SUMMARY	MIN	MAJ	SER	CR
Total Deficiencies				

Final Facility Rating
Inspector Signature and Date
Supervisor Signature and Date

Systems Audit Frequency Schedule

Facility Rating	Audit Frequency	Number Of Deficiencies			
		Minor	Major	Serious	Critical
Level I	One visit every two months	0-6	0-5	0	0
Level II	One visit per month	≥7	6-10	1-2	0
Level III	Two visits per month	NA*	≥11	3-4	0
Level IV	Daily	NA	NA	≥5	≥1

* NA = Not Applicable

Note: For a facility rating of Level II, no more than 10 combined "Major" and "Serious" deficiencies can exist. If the combination of "Major" and "Serious" deficiencies exceeds "10", then the facility will be rated as a Level III.

Systems Audit
Listing of Observations

Date of Audit: 12/4/93 Sadah Marine Products

List of Deficiency Step and Number	Reason Why Deficiency was Classified Minor/Major/Serious/Critical
2.3	Wood is used for cutting the fish; should use plastic cutting boards
3.1.1	Plastic shields need to be installed over lights
4.0	Plant cleaning seemed to be very good. They wash with soap four time a day and then sanitize; had good clean smell
5.2	People had clean aprons and gloves; should also have hats or hair nets
7.2	Backflow prevention check valves need to be installed
7.3	No supply of hot water
8	Ice storage was properly designed. Ice bin entrance was off the floor so people could not walk into storage room. Should use plastic handled shovels, however.
Other	A sanitation log or check list would be helpful.
	Plant could meet U.S. requirements without major modifications or changes

APPENDIX E

NOTES ON OTHER VISITS

(CONFIDENTIAL)

APPENDIX E. NOTES ON OTHER VISITS (CONFIDENTIAL)

1. Public Agencies (Muscat)

Department of Animal Wealth, Ministry of Agriculture and Fisheries This department has responsibility for controlling exports and imports of agriculture, meat, and fishery products. An export permit is required for each shipment of product. The permit deals mainly with weight and general product condition. If there are Omani Standards for the product, then that product is inspected accordance with the standards. For example, egg imports are inspected in accordance with the Omani standard for eggs.

The Department does not have a laboratory capability available for inspection of fishery products. Their only laboratory is a veterinary laboratory that is used for animal diseases. The Department will refer requests for seafood analysis to the Ministry of Commerce and Industry.

If the EC or other countries request a special certificate for the product or sanitation inspection, the request will go through the Department of Animal Wealth, which will coordinate the request with the Ministry of Commerce and Industry and the health control agency in Municipalities. At present there is only one laboratory, in the Ministry of Commerce and Industry, that is used for food analysis of the type required for seafood. The Director of Animal Wealth indicated that the Department had to reject a request from France for issuance of a certificate of inspection because Oman did not have the resources to do the analysis. In this case the industry could not export the product.

There are Omani standards for over 80 food products and methods. The Director thought codex standards were too general and that Gulf standards might serve as a better foundation. He indicated they would be open to assistance from private or other laboratories in making inspections necessary for providing certificates.

Staff members from the DGFR assist border patrols during the lobster season to help prevent unlawful exports.

Directorate General of Health Control, Ministry of Regional Municipalities and Environment The Directorate General is responsible for food hygiene in food establishments in all areas except for Muscat, Sohar, and Buraimi, which are controlled by the Diwan. Food establishments include retail shops, market places, fish souks, and food and seafood processing plants. The Department issues annual certificates for food establishments. They do not use any written sanitation or hygiene standards for the fish processing plants, but they indicated they may prepare some after a year or two.

Depending on the region, the Department may inspect fish processing plants at least twice a year. There are two laboratories that can do food analysis, Central Laboratory, Ministry of Commerce and Industry, and the Directorate's own public health laboratory. They plan to have a laboratory especially for biological and chemical analysis of food. They have 43 municipalities and about three people in each municipality who deal with food establishments. Most of the problems in food are from contaminated ground water due to pollution from septic tanks. They also have a serious problem with blue fly in the drying of fish. The

Director General can issue a RO 5,000 fine for health violations. If stronger action is required, he must get approval from the Minister. The government has product standards for food products, but none for seafood. There was no evidence of food hygiene standards for application by Municipalities to seafood plants.

Directorate General of Specifications and Measures, Ministry of Commerce and Industry, The food activities are under the jurisdiction of the Department of Laboratories and the Department of Specifications and Quality Control.

Department of Laboratories There are six laboratories, within the Central Laboratory located in Wadi Kabeer, devoted to the following categories: chemical, microbiological, precious metals, physical materials testing, industry control, and meteorological control. The professional staff consists of a total of 30 people. There are six staff members each in the chemical laboratory and the microbiological laboratory, which are the laboratories most concerned with food analysis.

They do a lot of work with fish and shellfish. Upon request by a foreign entity through the Department of Animal Wealth in the Ministry of Agriculture and Fisheries, they take samples from shipments and do microbiological, mercury, and lead analyses. They do not conduct histamine analysis and were not familiar with the method. I indicated that FDA has established histamine levels for tuna. I gave them information on the levels required in the United States and the methods of analysis.

They appear to have limited capability for carrying out a greatly increased work load of analysis. They did indicate that if requests increased, they may be able to hire some technicians from school, provided the funding is made available from the Ministry.

The laboratory does not use private laboratories to help meet heavy demands for work. They do not have standards for private laboratories, but are looking into a system to establish procedures for use by private laboratories.

They have a resources problem in that they can only sample shipments in areas near the airport or the Muttrah area and do not have the staff available for travel to places like Salalah, Sur, Duqm, or Masirah for sampling.

Department of Specifications and Quality Control Although the Department has the responsibility for developing standards and specifications and has the capability to carry out inspection of food manufacturers, most of this is done by Municipalities, which inspects periodically for hygienic practices. The Department of Specifications is developing a plan for inspection of food establishments.

The department has 230 standards, of which 80 are for food items or methods. They do not have any standards for fishery products. They indicated interest in developing standards for fish and were interested in receiving copies of standards they could use as a guide. They are interested in starting a standard for frozen fish, but I indicated that since most frozen fish exports are in bulk form, whole, it might be more desirable to start with a higher value product that has greater chance of safety problems, i.e. lobster, tuna and shrimp. They indicated an interest in meeting further to review some standards on these and other products. They indicated it would take six months to a year to develop an Omani standard.

They have adopted Gulf Standard No. 21/1984, *HYGIENIC REGULATIONS FOR FOOD PLANTS AND THEIR PERSONNEL*. This standard (see Appendix E) is applied only to foods that have an Omani Standard. Since there is no Omani Standard for fishery products, the standard is not applied to fish processing establishments. The Department indicated an interest in obtaining comments on this standard with the view of developing one for fish processing establishments. They also have adopted for Oman's use the Gulf standard for labeling of prepackaged foods and the standard for potable water.

There appears to be very little liaison between the staff of the DGFR and the Department of Specifications and Quality Control. The Department seems to be very cooperative and willing to work with people in the DGFR in developing suitable standards, but at present there is no capability in the DGFR to develop standards.

Directorate of Environmental Health and Malaria Eradication, Ministry of Health The Directorate has authority over food safety, water, and sanitation as they impact on public health. Although having the authority to step in and to take action on any problem concerning public health, the Directorate elects to act in an advisory role and to bring problems to the attention of the agency assigned primary responsibility. Most agencies take advice seriously and correct problems. The Director of Laboratories, Ministry of Health, is responsible for a central laboratory and laboratories associated with the hospitals in each region.

The Director of Environmental Health felt that more attention needed to be given to the safety of fish and fishery products to protect the public. He suggested that a task force of different government agencies and a few industry leaders be formed to develop policies that would help improve fish quality. The DGFR should take the initiative in forming this task force.

The Public Authority for Marketing Agricultural Product The authority was established by Royal Decree No. 97/81 in November 1981 to encourage the Omani farmers to increase production of fruit, vegetables, and other agricultural crops, and to ensure the availability of such products in local markets. They have six distribution centers, 13 collection centers, a banana ripening factory, and a number of retail sales outlets. The authority maintains refrigerated store rooms at the centers and operates a fleet of refrigerated trucks. They are primarily concerned with distribution within Muscat, but they also handle exports and imports of produce.

We met with some of the people from the authority who are concerned with training. They emphasized that training is a major factor in convincing the farmer to take better care of his product.

They indicated that because of the Authority, there has been a significant improvement in the quality of agricultural produce. We discussed fisheries and whether the magnitude of the resource would be sufficient to warrant the exploration of their type of concept. Members of the authority indicated they would attend the seminar held in conjunction with this consultancy on December 14-15, 1993.

2. *Regional Public Agencies & Fish Souks*

DGFR Regional Staff, Masirah Island Ten staff members collect information on boat licensing and also work with the sea turtle protection program and with the industry. They feel a big problem is the lack of use of ice by the fishermen. They do not think fishermen will replace their 25-foot boats in the near future. They suggested that ice be stored on 25-foot boats in an area at the stern, where four or five bags of ice (200-250 kilos) could be carried. This would help considerably in keeping fish. The boat can land as much as two tonness of fish in a good day, but are seldom that full. The schemes for promoting the use of ice include the following:

(a) Plants should provide ice free to fishermen and the plant should pay more, maybe 50 baisas more, for fish with ice. This could benefit the plant because now they end up throwing away 30 percent or more of the fish they buy.

(b) The Government should consider subsidizing the cost of ice and of constructing ice plants or should have an incentive so the plant will provide more ice to fishermen.

(c) Subsidies should be increased for purchase of new vessels that are designed to carry ice and that will ice the fish. These boats should be given a special license that can be revoked if the fishermen do not use ice. EC standards for handling fish on the vessel should be a part of the Oman Fish Quality Export Act and Standards.

Department of Animal Wealth and Fisheries, Directorate General of Agriculture, Animal Wealth, and Fisheries, Batinah Region The Batinah region has only recently undertaken fisheries activities. The Department of Animal Wealth and Fisheries issues certificates showing compliance of truck operators with regulations requiring them to have a box to carry fish in ice. The regulation, issued by the Ministry of Agriculture and Fisheries, requires that all trucked shipments of fish be in a container with ice. Each container has a license number. Although the regulation covers all transportation, it is enforced only for product for export because of resource limitations.

The Director believes that the best way to encourage the use of ice would be to license fish sellers and require them to use ice and to have two boxes: one for storing fish and the other for selling fish. Fisheries extension unit staff and local Municipalities staff at the Sohar fish souk also thought this plan would be beneficial because it would ensure that the seller uses ice. If he doesn't use boxes and ice, then his license would be revoked. Instead of improving the situation, steps have been taken recently to make the situation less controllable. Previously, sellers paid a tax for which they were given a designated space at the souk. The souk was restricted to those sellers in the Sohar area. Now the souk is open to anyone, with no tax payment required.

Department of Animal Wealth, Directorate General of Agriculture, Animal Wealth, and Fisheries, Dhofar Region The veterinary disease group consists of Dr. Mustafa Kahhila, his assistant, and four nonprofessional helpers. Importation of fresh or frozen fish and ice into Oman is illegal. The local office in Salalah may issue 500 to 700 export certificates per year. A certificate is required for every shipment for export. It does not appear that it is possible to give much attention to quality because of the large number of shipments from the

area. Also, there are no standards for quality for the inspection. Fresh sardines exported to Saudi Arabia are a problem because sometimes they may be left in the icebox on the truck, with melting ice, at the border for 10 hours while awaiting completion of import papers from Saudi Arabia.

Dr. Kahhila felt that lack of ice is a major problem and that the Ministry of Agriculture and Fisheries should provide financial support to encourage ice plants, not necessarily attached to a fish factory, but designed to encourage use of ice for collection and transportation to consumption areas. The processors that have ice plants use the ice mainly for their own purposes in collecting fish or to supply fishermen that fish for them.

If a foreign or industry buyer wishes a certificate containing microbiological analysis, the Department of Animal Wealth will refer the fish supplier to three laboratories in the area, two operated by the Ministry of Health and one by the Diwan. The Ministry of Commerce and Industry plans to build a food laboratory in the Dhofar Region.

Ministry of Regional Municipalities and Environment, Duqm Ministry personnel periodically check the plant for pollution, garbage and general cleanliness. The person in charge of checking the plant was not there. They do not have any written standards for checking the plant.

Ministry of Regional Municipalities and Environment, Salalah Ministry personnel check fish processing plants periodically, possibly once a month, or less frequently. They mainly check that workers have a health certificate, and that there is no general pollution. They do not have any plant specifications to check for hygiene. A different section checks the fish souk.

The person we talked to, Mahmoud Abdullah, was concerned with the fish souk in Salalah. He mentioned that they have general standards for judging poor quality fish. He estimates that about one to two percent of the fish in the market is rejected by his group because of spoilage. It has been proposed that the Ministry build a new larger market in place of the existing one. If they cannot get enough funds for this, they will build an additional market in another area. His proposal is to have the market fully enclosed, but if there is not enough money he will require walls with only one entrance and one exit. They have recently required that all sellers have health certificates and are now starting to license sellers. He has made a proposal that sellers should be required to have boxes to ice the fish. He seemed to be quite knowledgeable on proper design of fish souks, but was having difficulty in securing funding for the improvements.

Mahamoud Abdulla wants the Ministry of Agriculture and Fisheries to draw up specifications and also to subsidize the cost of the box to the seller. He also believes the mobile ice plant in Salalah is working well and is glad the private firm is expanding its capacity (10 to 20 tonnes per day) to provide more ice.

Fish Souk, Barka The fish souk at Barka was not used by sellers or fishermen. Even though it is only a few years old, it is already in bad shape, covered with dirt and refuse. The fish are usually sold on the beach, directly on the sand, or in some cases, on canvas or a rug. A simple requirement that fish cannot be sold when lying on the sand would help, but from what I have seen, I question if anyone would enforce it. Municipalities does not

appear to know how to design a fish market to meet sanitation and proper fish handling practices. They should design and construct a fish market that employs good sanitation and handling practices and that will be an example to follow for future fish markets. A group of Municipalities and DGFR staff members should visit fish markets in Europe and the United States. A consultant, experienced in fish market design, should be employed to design the "ideal" fish market; it should be constructed in an area where there is good cooperation from fishermen, sellers, Municipalities, and the DGFR; licenses should be required of sellers in this market.

In this market, there should also be a strict regulation that sellers use ice, and that they must handle fish under hygienic standards or lose their license. The market should be run by an independent person, or perhaps industry, that is responsible for day-to-day policies, i.e. a private authority. Sellers should pay a small fee for use of their space in the market, the same as any other seller.

Fish Souk, Muttrah The fish souk is under the responsibility of Muscat Municipality. Potable water is available. Fish are laid out on tile shelves for sale. Ice is usually not used, but some was being used for shrimp. Municipalities say that fish should not be cleaned or filleted in the general area; there is a special area for cleaning and filleting that has no tile. It is very dirty and has waste bins next to the fish that are being cleaned. Very dirty wooden boards are used for cutting the fish.

Ice can be obtained from OFC, but sometimes it is not available. The ice is purchased in 50 kilo bags at a cost of RO 1 per bag. The cost of tuna fish is RO 1 to 1.500 per fish. All fish are sold on an individual piece cost, not on a per kilogram cost. The quality of fish varies greatly: some look fine, whereas others look quite marginal.

The market is only five years old. It is poorly designed. The cleaning area should be enclosed, refrigerated and meet general hygiene standards. A good supply of ice should be made available, and some arrangements should be made for using boxes or partitions so ice can be used in the selling area. It is clear that in designing the market, specific requirements for fish handling and sanitation were not taken into account.

Fish Souk, Salalah The fish were lying on the floor or on raised areas which were dirty. People were cutting the fish on bloody wooden boards. Ice was not used, and the whole area was quite dirty. Some of the fish looked fair to good, but others looked spoiled with dark brown gills and soft flesh. The regional people from the DGFR have suggested to Municipalities, who operate the market, that fish boxes should be used along with ice, but to date this has not been done.

Fish Souk, Sohar The Sohar fish souk, only several years old, was quite covered with sand from a recent storm. There was no ice used at the souk at the time of our visit. Some of the fishermen did ice the fish in boxes on their boats. Ice is available at Al Arkan Trading Co., which is right across the street from the market. The fish were cut on dirty wooden boards, and there was no evidence of hygienic products or controls. Municipalities has some 30 people at the souk who claim they look at fish and reject poor quality product.

Fish Souk, Sur The market is very dirty. No ice was used, and fish were lying next to discarded fish waste on cement, which was very dirty, or on the ground. The quality of the fish seemed only fair. A new souk is needed that employs hygienic design features.

3. *Others*

Sultan Qaboos University, College of Agriculture The College of Agriculture has the following Departments: Plant Service, Soil and Water, Agriculture Economics, Agriculture Mechanization, Marine Science and Fishery Technology, and Criminal Science. The College plans to add a Food Science Department in 1994.

A course in fish processing and handling is given by the Animal Sciences Department. The new head of the Marine Science and Fishery Technology Department and the Dean of the College of Agriculture are very interested in establishing a course in fisheries quality control. They indicated a strong interest in having a consultant come to the University for two to three months to advise them on the equipment required, design a quality control course, and conduct courses for the industry and the students. They would be willing to provide free housing and transportation, and would, upon completion of this short term assignment, establish and fund a two-year teaching position in fish processing and quality control. We agreed to explore this with the DGFR and the OAJC to see if some initial funding could be secured for the short-term consultancy.

Other Industry Visits (Confidential)

Abu-Alwi Ice Company, Salalah This is a self-contained, mobile ice plant made by Zeegra in Germany. It can make 10 tonnes of ice per day and storage of 18 tonnes capacity. The plant was installed several months ago at a cost of about RO 48,000. The capacity is not sufficient, so they plan to install another 10-tonne unit next February. Most of the ice is purchased by truckers who are transporting ice in iceboxes. The cost of ice is about RO 1.000 per bag. This type of plant could be used in many places along the coast to provide ice to fishermen.

Drying Areas of Sardine-like Fish We saw small pelagic sardine-like fish being dried in the sun in areas adjacent to the beach. The fish are laid on the sand for up to a week to dry and are then used for animal feed. There should be a market for these fish in the frozen form as bait or mink feed or as raw material for processing into canned sardines or canned herring. *A market analysis should be conducted on added value uses for this resource, which is in such large supply. Also some investigations should be made into joint ventures with foreign buyers in testing and using the product.*

Gulf of Oman Fishing International (GOFI) (office) GOFI produces fish and raw and cooked lobster. They have a plant at Duqm which employs about 50 people. They purchase fish and lobster from local fishermen along the coast. They have longliners and trawlers. Exports of product are increasing.

GOFI feels that the quality of trawler and longline caught fish is good because their products are well accepted in the markets. The company stated that it encourages local fishermen to use ice. They indicated that they try to standardize the price with fishermen, but it is a problem because fishermen are not loyal. They believe larger boats, which would enable fishermen to take ice and stay at sea for one or two days, may be helpful in getting better quality product. They estimate that about 10 percent of the local fish they buy has to be discarded because of spoilage, and think that national standards for quality that would be applied by all exporters would be helpful. (See note on visit to plant at Duqm, Appendix B.)

Al-Hamadi Fisheries Co. LLC (office) This firm has factories at Seeb, Mirbat, and Hasik. About 90 percent of their production is for export. Principal products are lobster, shrimp and tuna. Their total exports are about 950 tonnes per year, of which about 47 tonnes are of lobster. Most of their lobster exports go to France. The parent company, having started in fisheries several years ago, is in the import and cold storage business. They supply ice to fishermen at a cost of RO 1 for a bag of 50 kilos. This company would support a subsidy for ice if it would encourage greater use by the fishermen. They believe more needs to be done so companies can buy on a contract basis.

A veterinary inspector from the Department of Animal Wealth issues export certificates for this company. They have not had any quality problems, even in supplying cooked lobster to France, which is very particular about quality.

Korea Overseas Fisheries Co. Ltd. (office and vessel) This company has six stern trawlers that bulk freeze the fish at sea in 20 kilo packs. The fish are exported to Korea and Japan. They produce about 2,000 tonness per ship per year. They believe that regulations that reduce quotas if you discard fish at sea discourages production of quality fish or value added fish fillets.

The firm has not had any problems in selling fish. Normally the Ministry of Commerce and Industry will take a sample of fish for analysis. Management believes that a national standard for exported product would be useful.

We visited one of the company's stern trawlers at Muttrah. The vessel is about 180 feet long and is equipped to block-freeze the fish in a plate freezer. The fish pans, conveying equipment and fish handling area are in very poor condition with dirt, grease and rusty metal surfaces. The EC has adopted standards for vessels. This vessel could not meet these or similar standards.

Master Fisherman, Duqm This fisherman is from Madrakah, south of Duqm. He stated that fishermen there have a serious problem because the plant in Duqm will only take about four species, and they have to throw most of the fish away. Also he complained that the price of fish paid by the plant was too cheap, much below the market price. He said he would use ice if he could get it. But ice is very expensive in Duqm at RO 1.500 per bag, and a lot of time the plant will not sell to fishermen.

Master Fisherman, Muscat: Ali Darwish al-Butashi Ali Darwish indicated that he has been in contact with the Minister of Agriculture and Fisheries for the purpose of building an ice plant at or near Muttrah. He indicated that most of the fishermen

in his area would use ice if it were made available. His plan is to build an ice plant of about 15 tonness and then construct refrigerated storage rooms at locations convenient to fishermen. He believes it would help to encourage the use of ice if the government provided some more financial help for the large-sized boats that have provisions for ice.

He also suggested that much could be done in smaller ports. In addition, the facility areas where fishermen keep their boats could be improved by removing rocks on the shore that damage boats and by extending breakwaters to provide more protection. He showed us the beach near his home and pointed out how the rocks and seas damage the boats in the area. He was quite positive on the use of ice and plans to follow up with the Minister of Agriculture and Fisheries.

Oman Sea Company (OSC) (office) This company produces fish frozen at sea, for export markets, primarily demersal fish. Fish are bulk frozen on 600 vessels and sent to Korea and Japan. They pack the product on the vessel in 22 kilo packs. OSC could expand production but is limited by a quota of about 4,000 tonnes. They have not had any quality problems in exporting fish. OSC did not seem to be aware that the EC is tightening its requirements for vessels. They are interested in expanding.

Société Generale de Surveillance (SGS) SGS is the world's largest control and inspection organization with services for all types of goods at every stage from production to marketing, with 30,000 employees in 145 countries. They have had an office in Oman for six years. Their principal inspection activities in Oman have been for the oil industry, but they have also inspected imports of all vegetable oil into Oman, and have done occasional inspections of fish, including some for the Oman National Fishing Company.

SGS has a frozen seafood inspection service and can prepare a special service based on the clients' standards or specifications. They act independently providing a report of findings to the client so he can take appropriate action.

SGS has expressed an interest in developing a fish inspection program, which might include investment in laboratory facilities and personnel to do inspections for the DGFR, other government agencies, or the industry. SGS could audit industry compliance with government standards and would be in a position to obtain qualified quality control personnel, probably from Europe, to do the inspection in a relatively short period of time. (Additional information on SGS is given in Appendix G).

APPENDIX F

DRAFT

OMANI FISH QUALITY EXPORT

ACT AND STANDARDS

APPENDIX F. DRAFT OMANI FISH QUALITY EXPORT ACT AND STANDARDS[6]

PART I. GENERAL PROVISIONS

1. Purpose of Scope

1.1 This standard is designed to promote Oman's fish exports by ensuring that fish designated for export are produced, processed, and transported under conditions that will result in quality products.

1.2 Exports of fish are prohibited unless the conditions of this standard are complied with.

2. Definitions

For the purposes of this Standard, the following definitions shall apply:

2.1 *Fish or fishery products* means all seawater or freshwater animals or parts thereof, including their roes, excluding aquatic mammals, frogs and other aquatic animals.

2.2 *Chilling* means the process of cooling fishery products to a temperature approaching that of melting ice.

2.3 *Fresh products* means any fishery product whether whole or prepared, including products packaged under vacuum or in a modified atmosphere, that have not undergone any treatment to ensure preservation other than chilling.

2.4 *Prepared products* means any fishery product that has undergone an operation affecting its anatomical wholeness, such as gutting, heading, slicing, filleting, chopping, etc.

2.5 *Processed products* means any fishery product that has undergone a chemical or physical process such as the heating, smoking, salting, dehydration or marinating, etc., of chilled or frozen products, whether or not associated with other foodstuffs, or a combination of these various processes.

2.6 *Frozen products* means any fishery product which has undergone a freezing process to reach a core temperature of —18 degrees centigrade or lower after temperature stabilization.

2.7 *Packaging* means the procedure of protecting fishery products by a wrapper, a container or any other suitable device.

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[6] Based on export and inspection standards for Australia, the European Community, and Canada.

2.8 *Batch* means the quantity of fishery products obtained under practically identical circumstances.

2.9 *Means of transport* means those parts set aside for goods in automobile vehicles, rail vehicles, and aircraft, in the holds of vessels, and in containers for transport by land, sea or air.

2.10 *Establishment* means any premises where fishery products are prepared, processed, chilled, frozen, packaged, or stored. Auction and wholesale markets in which only display and sale by wholesale takes place are not deemed to be establishments.

2.11 *Pest* includes an insect, rodent, bird, or other vermin.

2.12 *Potable water* means water fit for human consumption.

2.13 *Practically free* means that an offending characteristic is not present in fish at levels that would affect the quality or fitness for human consumption of fish.

2.14 *Sound* means free from disease, damage, mold, decay, or deterioration.

2.15 *Minister* means the Minister of Agriculture and Fisheries.

3. Competent Authority

3.1 The Minister of Agriculture and Fisheries is the Authority responsible for ensuring compliance with the provisions of this standard. He shall utilize, to maximum extent possible, the Ministries of Health, Commerce and Industry, and Regional Municipalities and Environment, and the Muscat Municipality and other government agencies, universities and the private sector in carrying out the provisions of this Standard.

3.2 The Minister may issue such regulations as are necessary to implement this Standard.

3.3 The Minister of Agriculture and Fisheries may delegate to the Directorate General of Fisheries Resources all or any of the Minister's powers, other than this power of delegation.

4. Date of application

4.1 The provisions of this Standard shall be applied one year after the date of publication unless otherwise stated.

5. Registration and Licensing

5.1 All establishments used in the processing and storage of fish for export shall be licensed.

5.2 All iceboxes used for transporting fish and the individuals concerned shall be licensed.

5.3 All establishments and iceboxes shall be inspected at least annually in accordance with a schedule developed by the Minister and certified as meeting the requirements of this Standard.

5.4 Product destined for export shall be inspected in accordance with the product standards set forth herein and a certificate of condition issued by the inspection body. The inspection shall be done in accordance with a schedule developed by the Minister.

5.5 A permit for export shall not be issued unless the conditions of this section are certified as being met by the Minister.

PART II. REQUIREMENTS FOR LAND ESTABLISHMENTS

1.0 Approval shall be received from the Minister for construction of each establishment to ensure it is designed in accordance with good hygienic practices and will promote production of quality fish.

1.1 Establishments shall meet requirements set forth in Gulf Standards No. 21/1984 *HYGIENIC REGULATIONS FOR FOOD PLANTS AND THEIR PERSONNEL* with the following amendments:

a. Section 4.2.1.4.2 delete and insert "The building shall be designed with appropriate facilities for protection against pests such as insects, rodents, birds, etc."

b. Section 4.2.1.4.12 after paragraph 2, insert "the following shall be considered".

c. Section 4.2.1.4.13 after paragraph 2, insert "the following shall be considered".

d. Section 4.2.1.4.16 change the title to Water and Ice Supplies and add the following after paragraph two "ice shall be handled and stored under hygienic conditions".

e. Section 6 insert the following before "the following shall be considered" and renumbered 6.1, 6.2 and 6.3 to 6.5, 6.6 and 6.7 respectively.

6.1 Floors, walls and partitions, ceilings or roof linings, equipment, and instruments used for working on fishery products must be kept in a satisfactory state of cleanliness and

repair so that they do not constitute a source of contamination for the product.

A sanitation log which provides information on measures taken to maintain cleanliness in the establishment shall be kept on a daily basis.

6.2 Working area, instruments and working equipment must be used only for work on fishery products unless authorized by the Minister.

6.3 Detergents, disinfectants, and other cleaning compounds must be approved by the Ministry of Commerce and Industry.

f. Add a new section 9 "Sanitation Audit Checklist" and include the following:

A sanitation audit check list shall be developed and used by the Minister to evaluate the condition of land-based establishments and to determine the frequency of Inspection. Establishments receiving the highest ratings will be inspected less than those receiving low ratings, in accordance with a schedule developed by the Minister.

1.2 When freezing is carried out the plants must have freezing equipment sufficiently powerful to achieve a rapid reduction in the temperature of the product so as to maintain quality of the fish.

1.3 Rooms used for storage of frozen fish shall be maintained at a temperature of at least —18 degrees centigrade.

1.4 Cooler rooms employing mechanical refrigeration shall be kept at a temperature not higher than 5 degrees centigrade.

PART III. ICEBOXES

1.0 Iceboxes and their handlers shall be inspected and licensed in accordance with standards established by the Minister.

PART IV. TRADE DESCRIPTION AND LABELING

1.0 The trade description on any immediate and outer container shall include

a. The common name of the fish;
b. The style or form of fish;
c. The method of preservation (except for canning);
d. The net weight of the product;
e. The date of processing expressed in clear or in code;
f. If additives on ingredients are used they should be listed in decreasing

f. If additives on ingredients are used they should be listed in decreasing order of importance;
g. The name and address of the establishment or the head office of the firm; and
h. The trade designation "product of Oman."

PART V. TYPES OF INSPECTION SERVICES

1.0 The inspection services shall consist of individual inspections of establishments, iceboxes and fish handling, processing and transportation practices, and product inspections and certifications in accordance with schedules developed by the Minister. The principle followed in carrying out these inspections will be to provide more attention to those products, establishments or iceboxes that present a higher risk of safety or quality loss as demonstrated by past experience and the nature of the product.

1.2 Certificates of inspection and product condition and inspection audits are to be provided by recognized Government authorities or by private laboratories or bodies certified as to competency by the Minister.

1.3 A hazards analysis critical control point (HACCP), ISO 9000, or other suitable inspection system may be employed at the discretion of the Minster to reduce reliance on end product certification.

PART VI. SAMPLING SCHEDULE

1. General

1.1 Fish shall be marked so as to identify each batch submitted.

1.2 Rejected or unsampled fish shall not be mixed with fish that has been sampled and accepted.

1.3 The required number of sample visits comprising the sample shall be drawn at random from the batch by an authorized officer for comparison with the appropriate standard.

1.4 Samples of fish other than bulk loaded tuna, shall be assessed in accordance with Sampling Plan 1.

1.5 Where a batch is rejected on the basis of an assessment under Sample Plan 1, the batch may be reassessed immediately with a different sample in accordance with Sampling Plan 2. If this done the initial rejection will not be counted unless the fish is again rejected.

1.6 Bulk loaded tuna shall be assessed in accordance with Sampling Plan 3.

2. Acceptance

2.1 A batch is considered as meeting the requirements of the appropriate standard when the number of defective units does not exceed the acceptance number of

the relevant sampling plan and all other requirements of these Standards are complied with.

2.2 A batch will be rejected when

a. the acceptance number is exceeded; or

b. any characteristic or condition of the fish that has rendered or may render the fish unfit for human consumption is detected.

2.3 A rejected batch may be resubmitted for export after the defective units are removed, reprocessed or relabelled.

2.4 A resubmitted batch shall be reassessed in accordance with Sampling Table 1, and rejection shall count as a failure under the Product Monitoring System.

2.5 Any sample unit found defective during inspection shall be rejected whether the batch as a whole is passed or rejected for export.

3. Sampling plans

3.1 The following plans shall be used to sample fish:

Sampling Plan 1

Batch Size (net contents of immediate container)			Number of Samples	Acceptance Number
< 1 kg	1 kg - 4.5 kg	> 4.5 kg		
-	-	* 2-15	2	0
-	* 2-200	16-50	2	0
* 5-2400	201-1200	51-300	3	0
2401-12000	1201-7200	301-1400	6	1
12001-24000	7201-15000	1401-3500	13	2
24001-48000	15001-24000	3501-7200	21	3
48001-84000	24001-42000	7201-15000	29	4
84001-144000	42001-72000	15001-24000	48	6
144001-240000	72001-12000	24001-42000	84	9
over 240000	over 120000	over 4200	126	13

* With lot sizes less than 15 in this sampling table a nondestructive inspection only will be performed unless, at the discretion of an authorized officer, destructive sampling is warranted.

Sampling Plan 2

Batch Size (net contents of immediate container)			Number of Samples	Acceptance Number
< 1 kg	1 kg - 4.5 kg	> 4.5 kg		
-	-	* 2-15	3	0
-	* 2-200	16-50	5	1
* 5-2400	201-1200	51-300	6	1
2401-12000	1201-7200	301-1400	13	2
12001-24000	7201-15000	1401-3500	21	3
24001-48000	15001-24000	3501-7200	29	4
48001-84000	24001-42000	7201-15000	48	6
84001-144000	42001-72000	15001-24000	84	9
144001-240000	72001-12000	24001-42000	126	13
over 240000	over 120000	over 4200	200	19

* With lot sizes less than 15 in this sampling table, destructive sampling shall be done on half the sample, a nondestructive inspection will be carried out on the remainder.

Sampling Plan 3

Batch Size	Number of Samples	Acceptance Number
Less than 1 tonne	3 tuna	0
1-25 tonnes	13 tuna	2
1-50 tonnes	26 tuna	3
over 50 tonnes	52 tuna	7

PART VII. NET CONTENTS

1. For unglazed fish, the net contents shall be determined by measuring and recording the weight of the fish in the package.

2. For glazed product, the net contents shall be determined by weighing the fish after removal of the glaze, using a method developed by the Minister.

3. The average net content of the sample shall not be less than the declared net contents, and no sample unit shall have a net mass less than 95 percent of the declared net mass for that sample unit.

PART VIII. STANDARD FOR CHILLED FISH

1. Scope

This standard is concerned with chilled fish that normally have or do not have scales, and the loins, fillets, steaks, or meat prepared from the species listed in the attachment (Omani species list to be added by the DGFR.)

2. Definitions

2.1 *Chilled Fish* means fish that are refrigerated with ice, cool air, or brine to maintain product quality and are of sound quality.

2.2 *Scale Fish* means fish species that normally have scales.

2.3 *Other Fish* means fish that normally do not have scales.

2.4 *Whole Fish* means fish that may have been bled or unbled and are in sound. condition

2.5 *Headed Fish* means fish that have the head removed, may have also been gutted, and that have been cleaned and are in sound condition.

2.6 Dressed Fish means fish with the head and guts removed, and that have been cleaned and are in sound condition.

2.7 *Fish Fillets, Loins, Steaks or Meat* means cut sections of the meat with skin on or off, that is processed in accordance with good hygienic practices and is in sound condition.

2.8 *Sound Condition* means good quality, with odor, appearance, and texture characteristic of the species.

3. Style of Presentation

3.1 The fish are presented in the form described in 2.4, 2.5, 2.6, and 2.7 with suitable packing to protect the product.

4. Ingredients and Additives

All ingredients and additives must be approved.

5. Product Characteristics

5.1 The product shall be free from dirt, sand, grit, or other contamination. It shall not have parasitic worm or infestation or physical injury.

5.2 The product shall not be from poisonous fish of the following families:

Tebraodontidal, Molidal, Diodontidae, Caanthigasteridae. The product shall not be prepared from fishery products containing biotoxins such as ciguatera toxins or muscle-paralyzing toxins.

5.3 The product shall have the following characteristics:

a. **Eyes** shall be bright, moist and clean.
b. **Gills** shall be clean, free from slime and be a bright red color.
c. **Flesh** shall be firm, of good color and elastic to touch.
d. **Odor** shall be fresh and characteristic of the species.
e. **Gut cavity** shall be clean and smooth with a fresh smell.
f. If **skinned**, the product shall be practically free from skin.

6. Defects

Each sample unit shall be inspected for defects in accordance with standards enumerated below.

Defect	Tolerance
Temperature not within range of 0 degree centigrade to 5 degrees centigrade	none
Abnormal order or color	none
Excessive slime	none
Soft mushy flesh	none
Dull sunken eyes	none
Blood along backbone is dark red, brown, or purple with offensive odor	none
Gut cavity not properly cleaned	none
Out of style	none
Contents less than declared	practically free
Free of pieces of skin (for skinned only)	none
Incorrect labeling	none

7. Testing

7.1 A sample unit that fails to meet one or more of the requirements above shall be defective.

7.2 The number of defective samples allowed shall be as shown in the sampling schedule in part VI.

8. Labeling

8.1 Prepackaged fish shall be labeled in accordance with the requirements mentioned in Omani Standard No. 5811984 (Gulf Standard No. 9/1984 "Labeling of Pre-Packaged Foods") and in accordance with Part IV, Trade Description and Labeling of this Standard.

29. Net contents

The net contents shall be determined as set forth in Part VII, Net Contents.

10. Handling, Processing, Transportation and Storage

The following shall be taken into consideration:

10.1 Fish shall be kept at temperatures as close to 0 degrees centigrade as possible by the use of ice or mechanical refrigeration.

10.2 Fish shall be handled under hygienic conditions and shall be of sound quality.

PART IX. STANDARD FOR FROZEN FISH

1. Scope

This standard is concerned with frozen fish that normally have scales or that do not have scales and are prepared from species in Part XI, Attachment 1.

2. Definitions

2.1 *Frozen Fish* means fish of sound quality that are frozen by accepted commercial practice in blast, contact plate, or brine freezers to an internal temperature of at least —18 degrees centigrade and are stored and transported at —18 degrees centigrade.

2.2 Reference is made to definitions in chilled Fish Standard as they also apply here to the basic forms used. (See Part VIII, Standard for Chilled Fish.)

3. Style of Presentation

3.1 Fish are presented as whole, head off with or without gutting, loins, fillets or steaks or meat, or in other form satisfactory to the Minister.

3.2 Fish are suitably package in bulk or consumer packs with or without glaze, to protect the product.

4. Ingredients and additives

All ingredients and additives shall be approved.

5. Product characteristics

Frozen fish shall have the following characteristics:

a. Sound quality, wholesome and suitable for human consumption
b. Appearance, color and texture typical of the species with no evidence of dehydration
c. Practically free of parasites
d. Practically free of physical damage
e. Practically free from foreign matter

6. Defects

Each sample unit shall be inspected for defects in accordance with the standards enumerated below.

Defect	Tolerance
Temperature not at —18 degrees centigrade	none
Abnormal odor, unwholesome or decomposed product	none
Abnormal appearance or color, including dehydration	none
Physical damage	none
Parasite infestation	practically free
Foreign matter	practically free
Contains unapproved additives	none
Incorrect labeling	none
Contents less than declared net contents	none

7. Testing

7.1 A sample unit that fails to meet one or more of the requirements above shall be defective.

7.2 The number of defective samples allowed shall be as shown in the sampling schedule in Part VI.

8. Labeling

8.1 Prepackaged fish shall be labeled in accordance with the requirements in Omani Standard No. 9/1984 "Labeling of Pre-Packaged Foods" and in accordance with Part IV, Trade Description and Labeling of this Standard.

9. Net Contents

The net contents shall be determined as set forth in Part VII, Net Contents.

10. Handling, Processing, Transportation and Storage

Frozen fish shall be

a. Prepared from fish of sound quality;
b. Handled and processed under hygienic conditions;
c. Frozen to at least —18 degrees centigrade in accordance with good commercial practice;
d. Packaged prior to or after freezing and glazed if necessary to prevent dehydration; and
e. Stored and transported at —18 degrees centigrade.

PART X. STANDARD FOR CHILLED AND FROZEN LOBSTER

1. Scope

This standard is concerned with chilled or frozen rock lobster and tropical and spiny lobster in raw or cooked form prepared from the species listing in Attachment 1 to this Standard (species need to be provided by Fisheries.)

2. Definitions

2.1 *Chilled Lobster* whole, in tail or meat forms, cooked or raw, that are prepared from live animals or those of sound quality in accordance with acceptable commercial practice suitably prepackaged and stirred and transported at temperatures at 0 degrees centigrade to 5 degrees centigrade.

2.2 *Frozen Lobsters* means lobster whole, in tail, or meat forms, cooked or raw, that are prepared from live animals or those of sound quality in accordance with acceptable commercial practice, frozen to at least —18 degrees centigrade, suitably packaged and/or glazed, and stored and transported at —18 degrees centigrade.

3. Style of Presentation

3.1 The lobsters are prepared raw or cooked in the following forms:
a. Whole
b. Whole, split, and head on: divided into 2 equal halves, including shell, but with viscera removed
c. Tails: head removed, shell on
d. Meat: flesh without shell

4. Ingredients and additives

All ingredients and additives must be approved.

5. Product characteristics

a. Sound quality with odor, flavor and color characteristic of the species and suitable for human consumption.
b. Where raw, the flesh shall be white or pink and translucent.
c. Where cooked, the flesh shall be white or pink and not translucent.
d. Where in the shell, the shell shall be firm and undamaged, not soft or mushy.
e. Where in meat form, the meat shall be practically free from shell and intestinal tract and have odor.

6. Defects

Each sample unit shall be inspected for defects in accordance with the standards enumerated in the table below.

Style	Defect	Tolerance
Chilled	Not within temperature of 0 degrees centigrade to 4 degrees centigrade	none
Frozen	Not at temperature of —18 degrees centigrade	none
Frozen cooked	Dehydration translucent	practically free
Whole or tails	Damaged or cracked shell	5 % by number
All	Blackening, Abnormal color	none
All	Contents less than net contents	none
All	Mixed species	none
All	Incorrect labeling	none
Meat	Incomplete removal of shell, blood, and viscera	2 % by weight
Meat	Shell fragments	2 % by weight

7. Testing

7.1 A sample unit that fails to meet one or more of the requirements above shall be defective.

7.2 The number of defective samples allowed shall be as shown in the sampling schedule in Part VI.

8. Labeling

8.1 Prepackaged fish shall be labeled in accordance with the requirements in Omani Standard No. 9/1984 "Labeling of Pre-Packaged Foods" and in accordance with Part IV, Trade Description and Labeling of this Standard.

9. Net Contents

The net contents shall be determined as set forth in Part VII, Net Contents.

10. Handling, Processing, Transportation and Storage

Lobster shall be

a. Prepared from animals that are live or of sound quality;
b. When chilled, stored and transported at temperature of 0 degree centigrade to 4 degrees centigrade and handled under hygienic conditions;
c. When frozen, frozen in accordance with acceptable practice to —18 degrees centigrade and stored and transported at —18 degree centigrade, and handled under hygienic conditions; and
d. Processed in accordance with acceptable commercial practice under hygienic conditions.

APPENDIX G

FROZEN SEAFOOD INSPECTION SERVICES:

SOCIÉTÉ GENERALE DE SURVEILLANCE (SGS)

FROZEN SEAFOOD INSPECTION SERVICES

SGS FROZEN SEAFOOD INSPECTION SERVICES

TABLE OF CONTENTS

1. FISH AND SHELLFISH INSPECTION SERVICES

Société Générale de Surveillance (SGS), the world's largest inspection and testing company, offers you a proven expertise in the field of seafood inspections. SGS has the personnel and facilities to perform a full range of quantity and quality checks for seafood processors, exporters, importers, brokers, ships and agencies.

Specific fish inspections services provided are :

- Quality certification.
- Weight certification.
- Grade, size and packaging certification.
- Product sampling and analysis.
- Quality control audits.

Fish and shellfish inspected include in particular : tuna, herring, cod, hake,haddock, squid, cuttlefish, crab, lobster, shrimp, scallop, clam, mackerel, salmon, etc, whether fresh, frozen, dried or canned.

Because we function in an independent capacity, our reports and certificates may be used as the basis for financial settlements between buyers and sellers.

2. AIM

Our aim is to reduce as much as possible the risks associated with importing fish and shellfish.

The objective of our inspections is to monitor/inspect the correct execution of the client's purchase order and to ensure that the goods match the specifications provided.

3. INSPECTION PROCEDURE

Our services are adapted to client's needs and requirements and can be provided in most countries.

These services are usually divided into three categories :

- Pre-shipment inspection :
  Final random inspection and supervision of loading into container
- Laboratory analyses
- Factory surveys

3-1 PRE-SHIPMENT INSPECTION

Our pre-shipment inspection services include generally the following items.

PRE-SHIPMENT INSPECTION

1) FINAL RANDOM INSPECTION

A) lot identification

. number of cartons per product type/size
. packing/marking/labelling ascertainment

B) sampling

C) sample examination (external quality checking)

. gross frozen weight
. net frozen weight
. net thawed weight
. sizing / counting
. organoleptical appraisal
  - colour
  - odour
. product appearance

2) SUPERVISION OF LOADING INTO CONTAINER

. temperature of cartons and container
. number of cartons
. random check of contents

3-1-1 FINAL RANDOM INSPECTION (FRI)

The FRI takes place on supplier's premises after your merchandise has been fully produced.

3-1-2 SAMPLING

In order to perform sampling and testing of the sample rapidly and inexpensively, the sample must consist of a small quantity of product in relationship to the size of the lot being sampled.
In this respect, the most efficient technique used in statistical quality control of individual lots is acceptance sampling. Lots are sampled randomly and based on the analysis of the sample, the lot is either accepted or rejected.

One of the initial considerations in the development of an acceptance sampling plan is the selection of an Acceptable Quality Level or AQL which is defined as the maximum defective units in the lots that will be accepted most of the time.

The AQL will usually be specified by the client; when AQL sampling is not practically feasible, the following simplified sampling procedure is generally utilized :

. External quality checking

For each type and size of products, sampling frequency is normally the following :

One percent of the master cartons are opened and one packing unit (one block or bag) taken from each opened carton for checking, with a minimum of two units always checked.

For example, if you have a consignment of PUD shrimp as follows (ex: e. g. 12 X 2 lbs net per carton)

	Size 31/40	-	50	cartons
	" 41/50	-	283	"
	" 51/60	-	667	"
	Total	-	1'000	cartons
We would draw :	Size 31/40	-	2	units
	" 41/50	-	3	"
	" 51/60	-	7	"
	Total	-	12	units

The samples thus taken are examined on the premises of the supplier

. Bacteriological / chemical checking

Sampling frequency depends on the clients stipulations, otherwise sampling is made on a basis of two composite samples per container.

3-1-3 SUPERVISION OF LOADING INTO CONTAINER

Provided goods are of acceptable quality, the inspector supervises the loading of the consignment at the supplier's premises. Cartons are tallied either when they are loaded into the container itself or when loaded onto trucks for transport to the container yard whenever feasible the inspector accompanying the truck (s). At time of loading about 5% of cartons are opened as a random check on contents to ensure that goods previously inspected are in fact the ones shipped.

3-2 LABORATORY ANALYSES

These include essentially chemical and bacteriological analyses, which are carried out according to internationally recognized methods such as AOAC and USFDA.

ANALYSES			
1) CHEMICAL	methods	2) BACTERIOLOGICAL	methods
. TVBN	FAO	. aerobic plate count	USFDA
. indole	AOAC	. coliform	USFDA
. histamine	AOAC	. escherichia coli	USFDA
. salt	AOAC	. salmonella	USFDA
. sulphur dioxide	-	. staphylococcus aureus	USFDA
. polyphosphate	-	. vibrio cholerae	USFDA
. mercury	AOAC	3) OTHERS	
. cadmium	AOAC	. filth	USFDA
		. decomposition	USFDA

3 - 3 FACTORY SURVEYS

Such surveys can be organised in view of the examination of the supplier's quality assurance programme or his ability to deliver the quantities and the qualities required by the client.

A report is prepared with reference to the sanitary conditions of the premises, the standards of hygiene practised by the staff, the condition of the processing equipment and the methods of processing employed.

4. COMMUNICATION & REPORTING PROCEDURE

- The client transmits the relevant contractual documents such as purchase order, L/C and product specifications to SGS.
- The client informs his supplier of the SGS intervention.
- SGS liaises with the supplier to schedule the inspection.
- SGS reports the inspection results by telex to client.
- SGS issues an Inspection Certificate or an Actual Findings Report.

5. RESPONSIBILITY / LIABILITY

5 - 1 CONTRACTUAL CLAUSE FOR YOUR PROTECTION

In order for you to benefit fully from the protection provided by SGS, it is important that you stipulate the SGS intervention in your Purchase Order and in your Letter of Credit.

We recommend the following clauses :

a. Purchase Order

"The consignment has to be inspected before shipment by the Société Générale de Surveillance S.A., Geneva or their recognized correspondents. This does not release sellers/manufacturers from their contractual liabilities and responsibilities for their products."

b. Letter of Credit

"Inspection Certificate from Société Générale de Surveillance S.A. Geneva or their recognized correspondents, certifying that the goods inspected conform to the contractual specifications and/or type sample".

Thus the SGS Certificate of Inspection becomes a compulsory banking document,namely a condition for the payment of the Letter of Credit.

5 - 2 STANDARD GENERAL CONDITIONS

All our interventions are governed by our Standard General Conditions 1984. A copy is attached for your information.

6. INTERNATIONAL FEE QUOTATION

The inspection costs for final random inspection and loading supervision vary with the scope of inspection, the type of product and the country of intervention. Analyses are charged separately.

Our detailed fees for inspection and laboratory services for each country are available upon request.

NOTE:

1. The following are invoiced to the client at cost

   . Travel if outside the urban area of the SGS executing office.
   . Telex and postal costs including sample despatch.

2. Re-inspection costs remain the liability of the client unless agreed by the client with the supplier that it is for the suppliers' account.

3. Fees for intervention shall be payable regardless whether goods are accepted or rejected, shipped or unshipped.

7. WHOM TO CONTACT

For more information please write or call the office of our correspondents nearest to you.

or our headquarters :

SOCIETE GENERALE DE SURVEILLANCE S.A.
1, Place des Alpes
B.P 898

CH 1211 GENEVE 1
SWITZERLAND

TEL 22/ 399 111
TLX 422 140 54
FAX 22/ 399 629

CONTACT: Mr. M. BOUSSIERES

FOOD DEPT. / MBS / pt / 02.05.88

APPENDIX

STANDARD GENERAL CONDITIONS 1984

SGS Standard General Conditions 1984

1. Unless otherwise specifically agreed in writing the Company undertakes services in accordance with these general conditions and accordingly all offers or tenders of service are made subject to the same.

   All resulting contracts, agreements or other arrangements will in all respects be governed by these conditions, except only to the extent that the law of the place where such arrangements or contracts are made or carried out shall preclude any of the conditions and in such case the said local law shall prevail wherever, but only to the extent that, it is at variance with these conditions.

2. The Company is a business enterprise engaged in the trade of inspection. As such, it:

   (a) carries out inspections, verifications, examinations, tests, samplings, measurements, and similar operations;

   (b) issues reports and certificates relating to the aforesaid operations;

   (c) renders advisory services in connection with such matters.

3. The Company acts for the persons or bodies from whom the instructions to act have originated (hereinafter called "the Principal"). No other party is entitled to give instructions, particularly on the scope of inspection or delivery of report or certificate, unless so authorised by the Principal.

   The Company will however be deemed irrevocably authorised to deliver at its discretion the report or the certificate to a third party if following instructions by the Principal a promise in this sense had been given to this third party or such a promise implicitly follows from circumstances, trade custom, usage or practice.

4. The Company will provide services in accordance with:

   (a) the Principal's specific instructions as confirmed by the Company;

   (b) terms of the Company's Standard Order Form and/or Standard Specification Sheet if used;

   (c) any relevant trade custom, usage or practice;

   (d) such methods as the Company shall consider suitable on technical and/or financial grounds.

5. Documents reflecting engagements contracted between the Principal and third parties, such as copies of contracts of sale, letters of credit, bills of lading, etc. are (if received by the Company) considered to be for information only, without extending or restricting the Company's mission and obligations.

6. The Company's standard services are as follows:

   (a) quantitative and/or qualitative inspection;

   (b) inspection of condition of goods, packing, containers and transportation;

   (c) inspection of loading or discharging;

   (d) sampling;

   (e) Laboratory analysis or other testing.

7. Special services where the same exceed the scope of standard services as referred to in paragraph 6 will only be undertaken by the Company by particular arrangement.

   Such special services are illustratively not exhaustively:

   (a) qualitative and/or quantitative guarantees;

   (b) grouped services including concurrent and consequent

8. Subject to the Principal's instructions, the Company will issue reports and certificates of inspection which reflect statements of opinions made with due care within the limitation of instructions received but the Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

9. The Principal agrees that he will:

   (a) ensure that instructions to the Company are given in due time to enable the required services to be performed effectively;

   (b) procure all necessary access for the Company's Representatives to goods, premises, installations and transport;

   (c) supply, if required, any special instrument necessary for the performance of the required services;

   (d) ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of services and will not rely, in this respect, on the Company's advice whether required or not;

   (e) take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services;

   (f) fully exercise all his rights and discharge all his liabilities under the contract of sale whether or not a report or certificate has been issued by the Company failing which the Company shall be under no obligation to the Principal.

10. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only for gross negligence proven by Principals.

    The liability of the Company to the Principal in respect of any claims for loss, damage or expense of whatsoever nature and howsoever arising shall in no circumstances exceed a total aggregate sum equal to ten times the amount of the fee or commission payable in respect of the specific service required under the particular contract which gives rise to such claims. Where the fee or commission payable relates to a number of services and a claim arises in respect of one of those services the fee or commission shall be apportioned for the purposes of this paragraph by reference to the estimated time involved in the performance of each service.

11. The Principal shall guarantee, hold harmless and indemnify the Company and its servants, agents or subcontractors against all claims made by any third party for loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance, of any services to the extent that the aggregate of any such claims relating to any one service exceed the limit mantioned in paragraph 10.

12. The Principal will punctually pay not later than 30 days after the relevant invoice date or in such other manner as may have been agreed in writing all proper charges rendered by the Company failing which interest will become due at the rate of two per cent per month from the date of invoice.

13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company's control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company

    (a) the amount of all abortive expenditure actually made or incurred.

    (b) a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually carried out;

APPENDIX H

SEMINAR AGENDA

SEMINAR ON QUALITY CONTROL
Ministry of Agriculture and Fisheries
Directorate General of Fisheries Resources

AGENDA

9:00 A.M. TUESDAY, DECEMBER 14, 1993

- Opening Remarks: H.E. Abdulla A. Bakathir, D.G. of Fisheries Resources
- Introduction to the Seminar: Rashid al-Barwani, Director, Dept. of Fisheries Resources
- Purpose of Seminar: Joseph W. Slavin, Discussion Leader, Joseph W. Slavin and Associates, Annandale, Virginia, USA
- International Developments in Seafood Inspection and Quality Control
- Some Basics in Fish Handling
- Plant Sanitation and Hygiene
  - Australia
  - E.C.
  - Comments, Ministry of Health
  - Video
  - U.S. Checklist
  - Video
- Fish Standards
- Specifications for Handling Fish on Land

9:00 A.M. WEDNESDAY, DECEMBER 15, 1993

- Requirements for Importing Seafood into the U.S.
- The HACCP System of Seafood Inspection
- Video on HACCP
- Other Advanced Seafood Inspection Systems
- Findings and Recommendations Concerning Quality Control in Oman

1:00 P.M. - Adjournment: Closing speech by Rashid al-Barwani

مشروع تنمية وادارة الثروة السمكية فى عمان

تقييم ضبط الجودة واجراءات التفتيش فى سلطنة عمان

*

اعداد:
جوزيف سلافن

كيمونيكس - قسم الاستشارات الدولية
هيئة التنمية العالمية

مشروع رقم ٢٧٢ -٠١٠٦ - سى ١٠٠١ -٠٠
عقد رقم بى اى او/ تى ٢٧٢ -٠١٠٦ - ٣ - ٠٠٠٥

يرفع الى :

المديرية العامة للثروة السمكية
وزارة الزراعة والثروة السمكية
سلطنة عمان

و

اللجنة العمانية الامريكية المشتركة
للتعاون الاقتصادى والفنى

١٨ يناير ١٩٩٤

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اعداد :

جوزيف سلافن
جوزيف سلافن وشركاه
مستشارون فى الصناعات الغذائية
اخصائى فى صناعة الاطعمة البحرية
8203 Excalibur Court
Annandale, Verginia 22003
USA

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مشروع تنمية وادارة الثروة السمكية في عمان
FDMP Oman Fisheries Development and Management Project

بسم الله الرحمن الرحيم

التاريخ : ٢٦ ابريل ١٩٩٤

سعادة الشيخ عبد الله بن على باكثير المحترم
المدير العام
المديرية العامة للثروة السمكية
وزارة الزراعة والثروة السمكية
الخوير
سلطنة عمان

المرجع : *تقييم ضبط جودة الاطعمة البحرية العمانية واجراءات التفتيش*

تحية طيبة وبعد ،،،

يسعدنى ان ابعث اليكم تقرير المستر جوزيف سلافن : *تقييم ضبط جودة الاطعمة البحرية العمانية واجراءات التفتيش* • وقد اعدت الوثيقة ضمن الاستشارة التى مولها المشروع حول تقييم ضبط الجودة (النشاط د ث س ١أ و ١ب) •

ارجو الا تترددوا فى الاتصال بى اذا ما طرأت لديكم اى ملاحظات او استفسارات على الوثيقة •

وتفضلوا بقبول فائق الاحترام ،

دكتور جون دور
رئيس الفريق

المرفقات :

نسخة الى /
الفاضل / حمد بن حمدان اليحيائى ، منسق المشروع

Chemonics Industries Incorporated (Muscat Branch)
P.O. Box : 259 - 118, Al Harthy Complex, Sultanate of Oman
C.R. No. 1/34151/0 - Tel.: 600376 / 600491 / 600397 - Fax : 600447
Madinat Qaboos Office Tel.: 603129 / 603078 - Fax : 602989
Marine Science Fisheries Center Tel.: 739513/ 739527 - Fax : 739522

كيمونيكس اندستريز انكوربوريتد (فرع مسقط)
ص.ب : ٢٥٩ - الرمز البريدي : ١١٨ - مجمع الحارثي - سلطنة عمان
س.ت : ١/٣٤١٥١/٠ - هاتف : ٦٠٠٣٧٦ / ٦٠٠٤٩١ / ٦٠٠٣٩٧ - فاكس : ٦٠٠٤٤٧
مكتب مدينة قابوس هاتف : ٦٠٣١٢٩ / ٦٠٣٠٧٨ - فاكس : ٦٠٢٩٨٩
مركز العلوم البحرية والسمكية هاتف : ٧٣٩٥١٣ / ٧٣٩٥٢٧ - فاكس : ٧٣٩٥٢٢

مشروع تنمية وادارة الثروة السمكية في عمان
FDMP Oman Fisheries Development and Management Project

بسم الله الرحمن الرحيم

التاريخ : ٢٦ ابريل ١٩٩٤

الدكتور مايكل كريمر
ضابط مشروع تنمية وادارة الثروة السمكية
اللجنة العمانية الامريكية المشتركة
ص ب ٣٠٠١ رمز بريدى ١١٢ روى
سلطنة عمان

المرجع : *تقييم ضبط جودة الاطعمة البحرية العمانية واجراءات التفتيش*

تحية طيبة وبعد ،،،

ارجو ان تجدوا بالطى التقرير الذى اعده جوزيف سلافن بعنوان : *تقييم ضبط جودة الاطعمة البحرية العمانية واجراءات التفتيش* • واود ان افيدكم ان هذه هى الصيغة النهائية للوثيقة •

وتفضلوا بقبول فائق الاحترام ،

دكتور جون دور
رئيس الفريق

المرفقات :

Chemonics Industries Incorporated (Muscat Branch)
P.O. Box : 259 - 118, Al Harthy Complex, Sultanate of Oman
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كيمونيكس اندستريز انكوربوريتد (فرع مسقط)
ص.ب : ٢٥٩ - الرمز البريدي : ١١٨ - مجمع الحارثي - سلطنة عمان
س.ت : ١/٣٤١٥١/٠ - هاتف : ٦٠٠٣٧٦ / ٦٠٠٤٩١ / ٦٠٠٣٩٧ - فاكس : ٦٠٠٤٤٧
مكتب مدينة قابوس هاتف : ٦٠٣١٢٩ / ٦٠٣٠٧٨ - فاكس : ٦٠٢٩٨٩
مركز العلوم البحرية والسمكية هاتف : ٧٣٩٥١٣ / ٧٣٩٥٢٧ - فاكس ٧٣٩٥٢٢

جدو ل المحتويات

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تقييم ضبط جودة الاطعمة البحرية العمانية
واجراءات التفتيش

ملخص

جرى تقييم اجراءات ضبط الجودة فى عمان خلال الفترة من ١٣ نوفمبر الى ١٧ ديسمبر ١٩٩٣ • وكان الهدف من ذلك (١) تحديد مدى تطبيق اجراءات ضبط الجودة بواسطة الحكومة ومصايد الاسماك التجارية والمصايد التقليدية (٢) وضع والتوصية ببرامج مناسبة لضبط الجودة تقوم على المقاييس العالمية وتتضمن تقييما للجدوى الاقتصادية والاجتماعية •

عقدت اجتماعات مع ممثلى وزارات الزراعة والثروة السمكية والتجارة والصناعة والبلديات الاقليمية والبيئة والصحة وبلدية مسقط لتحديد دور الهيئات الحكومية• وجرى القيام بزيارات ميدانية لموانئ الصيد الرئيسية و١٦ مصنعا من مصانع الاسماك وستة من اسواق السمك لتقييم ممارسات ضبط الجودة • وعقدت ندوة لمدة يومين حضرها ممثلون من الجمهور والقطاع الخاص لمناقشة انظمة ضبط الجودة وللحصول على ملاحظات على نتائج المسح الاولى •

تهدر كميات كبيرة من الاسماك فى عمان بسبب ضعف اجراءات ضبط الجودة •ولا يوجد برنامج لضبط الجودة والتفتيش ولا توجد مقاييس لضمان انتاج او استهلاك او تصدير نوعية مضمونة من المنتجات السمكية تفى بالمقايس المعترف بها عالميا • وستلاقى معظم المصانع التى جرى مسحها صعوبة فى مقابلة المقاييس الامريكية والمقاييس العالمية الاخرى •

ومن الضرورى اعدا د برنامج لضبط الجودة والتفتيش يتضمن حوافز قصيرة المدى لضمان نمو الصناعة السمكية فى عمان وقبول المنتجات السمكية العمانية فى الاسواق الاجنبية • وقد يؤدى الاخفاق فى اتخاذ اجراءات فورية الى مشاكل اقتصادية للصناعة السمكية •

ونوصى بأن تتخذ المديرية العامة للثروة السمكية خطوا ت فورية لاعداد وتطبيق برنامج لضبط الجودة • وفيما يلى الخطوات التى يمكن القيام بها :

١ - **اعداد اطار تنظيمى وتنمية القدرات التفتيشية لتطبيق برنامج ضبط الجودة والتفتيش** • وعناصر هذا البرنامج كما يلى :

* قرار وزارى حول نوعية الاسماك العمانية
* قانون نوعية الصادرات السمكية العمانية
* المقاييس الصحية للاسماك
* مقاييس المنتجات السمكية
* مقاييس انتاج ونقل وتداول الاسماك
* مقاييس الاسواق
* تطوير مقدرات ضبط الجودة والتفتيش بوزارة الزراعة والثروة السمكية وتعيين كبير
* مفتشين ومساعد له بالمديرية العامة للثروة السمكية •
* الاستعانة بمنظمة معترف بها عالميا فى مجال تفتيش الاسماك للمساعدة فى التدقيق على المؤسسات السمكية
* زيادة العاملين بالمختبر المركزى بوزارة التجارة والصناعة لايلاء المزيد من الاهتمام لتحليل المنتجات السمكية والتفتيش على المصانع •
* اعداد برنامج تدريبى شامل لتغطية كل جوانب ضبط الجودة فى القطاعين العام والخاص
* انشاء وحدة قادرة على التدريب على ضبط الجودة والتفتيش بجامعة السلطان قابوس •

٢ – اعداد برنامج للحوافز لتشجيع تحسين تداول الاسماك ٠ ويشمل :

* حوافز مالية لزيادة كميات الثلج
* حوافز مالية للتشجيع على زيادة استخدام الثلج فى المصايد وعلى السفن / القوارب
* اجراء تجربة لاظهار فوائد استخدام الثلج للصيادين
* وضع برنامج وطنى لتحسين اسواق السمك ويشمل ذلك بناء وتشغيل سوق نموذجى
* مراجعة المديرية العامة للثروة السمكية لتصاميم وتشييد اسواق السمك

٣ – اعداد برنامج لتعليم الصيادين والعاملين فى تجارة ونقل الاسماك الطريقة الصحيحة لتثليج وتداول الاسماك

* تحضير مواد سمعية بصرية ومواد تعليمية عن ضبط الجودة
* تعليم العاملين فى صناعة الاسماك ممارسات ضبط الجودة على ان تكون لذلك الاسبقية فى انشطة الارشاد التى تقوم بها المديرية العامة للثروة السمكية ٠
* تقديم منح للهيئات الحكومية والخاصة لتعليم ضبط الجودة ٠

٤ – المراجعة الدقيقة لمؤسسات ومنتجات الشركات الجديدة والمصانع التى تنتج الصادرات لضمان عدم وجود مشاكل تتعلق بالصحة العامة وسلامة الاطعمة ٠

نوصى بأن تشكل المديرية العامة للثروة السمكية فريق عمل للاطلاع على توصيات هذا التقرير واتخاذ الاجراء المناسب وقد جرى اعداد مسودة قانون جودة الاسماك العمانية ٠

يحوى هذا التقرير على جدول وتكلفة برنامج ضبط الجودة ٠ويمكن تغطية تكلفة تفتيش المصانع والمنتجات كليا او جزئيا بواسطة القطاع الخاص ٠

تقييم ضبط جودة الاطعمة البحرية واجراءات التفتيش فى عمان

١ - خلفية

تقوم الحكومة العمانية بمساعدة اللجنة العمانية الامريكية المشتركة للتعاون الاقتصادى والفنى بتنفيذ برنامج لترقية الهيئات الحكومية المعنية بالمصايد السمكية وزيادة اسهام القطاع السمكى فى الاقتصاد الوطنى ٠ وتوجد بالسلطنة صناعة سمكية هامة تضم المصايد التجارية والتقليدية وانتجت فى عام ١٩٩٢ ١١٢٠٠٠ طنا قيمتها ٣٢٦ مليون ريال عمانى اسهمت المصايد التقليدية ب ٨٠٪ منها ٠

تشتمل الانواع الرئيسية للاسماك على الاسماك القاعية مثل الهامور والكوفر والاسماك السطحية الكبيرة مثل الكنعد والتونة والقرش والاسماك السطحية الصغيرة مثل العومة والقشريات مثل الشارخة والروبيان والصفيلح

بلغ عدد الصيادين فى عام ١٩٩٢ ٢٠٥٧٠ عمل ٨٦٤ منهم فى السفن التجارية والبقية وعددهم ١٩٧٠٦ صيادين حرفيين ٠ يستخدم الصيادون التقليديون قوارب صيد يتراوح طولها بين ٣ - ١٠ امتار وتعمل بمحركات خارجية وليست مصممة لحمل الثلج ٠وتستخدم اكثر من ١١٠٠٠ قارب فى صيد الاسماك اكثر من ٧٠٪ منها مصنوعة من الالياف الزجاجية ٠ وبلغ عدد السفن التجارية فى عام ١٩٩٢ ٣٧ سفينة تستعمل ٢٩ منها الخيوط الطويلة فيما تستخدم ٨ سفن الشباك المجرورة ٠ وبلغ انتاج اسطول المصايد التجارية ١٥٢٦٨ طنا انتجت الخيوط الطويلة ١٨٠٥ طنا منها والشبك المجرورة ١٣٤٦٢ طنا ٠

تعمل فى مجال الاسماك اكثر من ٢٠ شركة ذات مقدرات وانشطة مختلفة تمتلك بعضها سفن صيد واخرى منشآت تخزين وتصنيع ، وتتوزع هذه الشركات على طول الساحل وتوجد معظمها فى مسقط ومصيرة والوسطى ٠وتصدر معظم هذه الشركات السمك ٠

تصدر عمان منتجات الاسماك والقشريات الى كبار مستوردى الاسماك فى العالم مثل الولايات المتحدة واليابان وكوريا وايطاليا وفرنسا ودول اخرى كثيرة ٠ وبلغت كميات الاسماك التى جرى تصديرها عام ١٩٩٢ ٢٤٤٧١ طنا قيمتها ٢٢,٧ مليون ريال عمانى بانخفاض طفيف على السنة السابقة ٠وقد زادت الصادرات باكثر من الضعف خلال السنوات العشر الماضية ٠ تشتمل الصادرات ذات القيمة الاعلى على التونة والاسماك القاعية والشارخة والروبيان والصفيلح والحبار ٠

تطبق الدول الرئيسية المستوردة للاسماك لوائح واجراءات صارمة لضبط الجودة والتفتيش قد تؤدى الى حظر استيراد الاطعمة البحرية من عمان ٠وتضع ادارة الاغذية والادوية الامريكية برامج صارمة للاطعمة البحرية وتطبق نظاما يقوم على مفهوم التحكم فى الجودة (hazard analysis critical control point) وهو نظام لضبط الجودة ٠ يتطلب ان تكون لاجراءات الاطعمة البحرية خطة موضوعة لضمان ان تكون الاطعمة البحرية التى تصدر الى الولايات المتحدة قد انتجت بطريقة سليمة ٠ وتبنت المجموعة الاوروبية موجهات لضبط الجودة فى سفن الصيد ومؤسسات تصنيع الاطعمة البحرية حيث تطبق على البلدان التى تصدر الى اوروبا ٠ وقد ضمنت هذه الاجراءات الصارمة فى قوانين معظم الدول الاوروبية٠ وطبقت كندا مؤخرا برنامجا يسمى برنامج ادارة الجودة يشبه النظام الامريكى ويدعو الى التشدد فى ضبط جودة الصادرات من الاطعمة البحرية الى كندا ٠ ولليابان اجراءات صارمة فيما يتعلق بضبط الجودة ٠ وتقوم الكثير من البلدان بتشديد اجراءات ضبط الجودة والتفتيش على الاسماك ٠

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وقد تتأثر الصناعة السمكية العمانية بشدة اذا انتجت منتجات للتصدير لا تستوفى معايير الجودة لدى الدول المستوردة • او تلطخت سمعتها بتصدير منتجات ذات جودة متدنية • وعلى الحكومة العمانية والصناعة السمكية ان تعى التطورات الجديدة وتقوم بتطبيق اجراءات ضبط الجودة والتفتيش التى تضمن نمو المصايد السمكية وقبول منتجاتها من الاطعمة البحرية فى الاسواق العالمية •

٢ – الاهداف

تهدف هذه الاستشارة الى (١) تحديد مدى تطبيق اجراءات ضبط الجودة بواسطة الحكومة وقطاعى المصايد التجارية والتقليدية فى عمان (٢) وضع والتوصية بتطبيق نظام مناسب لضبط الجودة استنادا على المقاييس العالمية والممارسات المتبعة ويشمل ذلك تقييما للجدوى الاجتماعية والاقتصادية ٠

الاهداف المحددة للاستشارة هى :

* الالتقاء مع الهيئات الحكومية لتحديد مسئوليتها فى ضبط جودة الاطعمة البحرية واجراءات التفتيش ٠

* زيارة المصانع التى تعمل فى الصناعة السمكية لتقييم الاوضاع الصحية فيها ٠

* مسح طرق تداول الاسماك المستخدمة على السفن وفى مواقع التداول وفى التوزيع

* تقييم والتوصية بشأن تطبيق طرق ضبط الجودة المستخدمة فى الشركات الكبيرة والمتوسطة والصغيرة التى تصدر الاسماك

* اعداد خطة تضم عناصر برنامج ضبط الجودة بتوصيات محددة حول مايتوجب القيام به من جانب الحكومة والصناعة السمكية لتطبيق البرنامج ويتضمن معلومات عن التكلفة واحتياجات الموظفين والتدريب المطلوب للتطبيق ٠

* عقد اجتماعات لمناقشة المشروع مع العاملين فى الصناعة السمكية وتقديم ندوة لمدة يومين او ثلاثة ايام لمناقشة مفهوم التحكم فى الجودة وبرامج اخرى للتحكم فى ضبط الجودة مثل (ISO 9000) وهو نظام اوروبى لضبط الجودة يركز على المنتجات الجاهزة اكثر من خطوات الانتاج والبرنامج الكندى (ادارة الجودة) ٠ ومناقشة تأثير برامج ادارة الاغذية والادوية الامريكية على الصادرات العمانية ٠ وبرنامج المجموعة الاوروبية حول موجهات ضبط الجودة وبرامج اخرى ٠

يحتوى الملحق (أ) على الاشخاص الذين التقاهم المستشار والاماكن التى زارها ٠

٣ - التقييم

أ - تداول الاسماك

١ - *الخسائر الاقتصادية*

تحدث خسائر اقتصادية كبيرة نتيجة تدنى جودة الاسماك • وذلك عند تداول الاسماك على ظهر السفينة وفى السوق وفى معامل التصنيع وعند التوزيع ، وينتج عن انعدام الثلج والتداول الصحى خسائر اقتصادية كبيرة وقد يكون من المتعذر تقدير حجم الخسارة ولكنها كبيرة جدا• ويقدر بعض الصناع بأن ٢٠ - ٣٠ فى المئة من الاسماك التى ينوون شرائها ذات جودة متدنية • ويقدر بعض المسئولين بوزارة البلديات الاقليمية والبيئة بأن ٢ فى المئة على الاقل من الاسماك فى سوق السمك ينظر اليها باعتبارها ذات نوعية سيئة • وقد لاحظنا انه فى بعض الحالات يجرى انزال كميات كبيرة من الاسماك ذات القيمة العالية مثل التونة باستخدام كميات قليلة من الثلج او دون استخدامه بتاتا • مما ينتج عنه فساد كمية كبيرة من الانزال • وتستجيب السوق للصورة السيئة لجودة الاسماك العمانية• فقد ذكر المصدرون ان الصادرات العمانية لا تجد اسواقا مثل صادرات الدول الاخرى وتلقى عادة اسعارا متدنية • وتقدر المديرية العامة للثروة السمكية ان قيمة الشارخة العمانية هى نصف قيمة الكمية نفسها من الصادرات الاسترالية اى بخسارة تقدر ب ٧ ملايين ريال عمانى •

من الصعوبة بمكان تقدير حجم الخسائر الناتجة عن تدنى الجودة الا ان بعض ذوى المعرفة بالمديرية العامة للثروة السمكية يرون انها تتجاوز ٣٠ فى المئة من قيمة الانزال• واذا كان هذا الرقم صحيحا فأن جملة الخسائر الناتجة عن تدنى الجودة فى عام ١٩٩٢ قد تكون اكثر من ١٠ ملايين ريال عمانى • اى نصف قيمة الصادرات العمانية تقريبا •

٢ - *استخدام الصيادين للثلج*

يجرى انزال كميات كبيرة من الاسماك الفاسدة بسبب عدم استخدام الثلج فى القوارب الصغيرة التى يبلغ طولها مابين ٣ - ١٠ امتار فى المصايد التقليدية والتى تمكث فى البحر اكثر من ٤ - ٦ ساعات •ولا تستخدم معظم القوارب الصغيرة فى المصايد التقليدية الثلج • وقد لا تكون هناك حاجة للثلج بالنسبة للقوارب التى تمكث مابين ٤ - ٦ ساعات اذا ماتم تغطية السمك بعيدا عن الشمس حيث ان بعض الاسماك مثل العومة تكون حية عند انزالها بعد ٣ ساعات على ظهر القارب •

والمشكلة الرئيسية هى القوارب التى تمكث فى البحر اكثر من ٤ -٦ ساعات ولا تستخدم الثلج• وتوجد فى القوارب الصغيرة اماكن لحمل الثلج ولكن يبدو ان الصيادين يفتقرون الى الحافز مع نظام السوق الحالى لشراء طن الثلج بعشرين ريال اضافة الى ان الثلج ليس متوفرا دائما •

وتوجد بالقوارب الكبيرة صناديق لحمل الثلج ولكنها فى عدد من الحالات لا تحمل الثلج • و من الشائع ورود كميات كبيرة من السمك مثل التونة والقرش بدون ان توضع فى الثلج حيث يفسد الكثير منها •

الثلج ليس متوفر دائما فى متناول الصيادين ولا توجد لوائح تلزم باستخدامه •

٣ - امدادات الثلج

كميات الثلج المتوفرة غير كافية ٠ توجد اقل من ٣٠ معملا لانتاج الثلج على طول الساحل العمانى تنتج الثلج الذى يستخدم فى انتاج وتصنيع ونقل الاسماك٠ ومعظم معامل الثلج تديرها مصانع الاسماك لاستخداماتها الخاصة او لامداد الصيادين الذين يصيدون لهم ٠وهناك الكثير من المناطق على طول الساحل لا يتوفر فيها الثلج للصيادين او الذين يقومون بنقل الاسماك فى صناديق الثلج ٠فمثلا ينتج معمل الثلج الذى تمتلكه شركة الاركان للتجارة ١٥ طنا فى اليوم وهو المعمل الوحيد على طول الساحل من مطرح الى اسود باستثناء معمل صغير بالسيب ٠ ولا تتوفر من معمل اسود سوى ٥ اطنان للصيادين وناقلى الاسماك لان مصنع الاسماك يستخدم الباقى ٠كما ان طول المسافة يجعل من المتعذر استخدام الثلج الذى ينتجه هذا المعمل حتى اذا كان متوفرا ٠

٤ - نقل وتوزيع الاسماك

لا يوجد فى الوقت الراهن نظام يضمن نقل وتوزيع الاسماك مع الاحتفاظ بجودتها ٠ تذهب الاسماك التى يجرى انزالها مباشرة الى اقرب سوق بواسطة الشاحنات٠ او يقوم بشرائها المشترون الذين يقومون بنقل السمك الى المصانع خارج البلاد او الى اسواق داخل البلاد٠ ويبدو ان العناية بالاسماك المتجهة نحو التصدير افضل لانها يتم نقلها فى صناديق الثلج التى تحتوى على الثلج اذا كان متاحا ٠وقد اتضح ان برنامج صناديق الثلج الذى تديره المديرية العامة للثروة السمكية كان له تأثير ايجابى فى تحسين نقل الاسماك المخصصة للتصدير ٠

ويجرى نقل السمك المتجه نحو الاسواق الداخلية فى صناديق الثلج او حتى فى شاحنات مكشوفة دون اى ثلج٠ وتتنوع اشكال نقل السمك من السفينة الى المصانع ٠ ففى بعض الحالات يرسل المصنع شاحنة تحمل ثلجا لاخذ السمك٠ وفى حالات اخرى يجرى شحن السمك فى شاحنة متسخة ويترك فى الشمس الساخنة لعدة ساعات ومن ثم ينقل الى المصنع دون ان يوضع فى الثلج ٠

٥ - الاوضاع فى اسواق السمك

اسواق السمك مصممة تصميما سيئا ولا تفى بالمعايير الدولية٠ ولا يجرى تداول الاسماك وفقا للمبادئ الصحية *٠ وقد زار المستشار اسواق مطرح والسيب وصحار وصور وصلالة وكلها عبارة عن بناء مكشوف وفى حالات كثيرة تكون الجدران الفاصلة والارضية من البلاط ولكن لا توجد ابواب يمكن اغلاقها كما تستدعى مقاييس السوق الاوروبية ٠ ومع وجود مكان لتنظيف السمك فى سوق مطرح الا انه غير معد بشكل جيد ٠ وهو مكان مكشوف ولا يمكن تنظيف جدرانه بسهولة ويجرى تقطيع الاسماك على الارضية٠وتستخدم فى كل الاسواق الواح خشبية قذرة تساعد على نمو البكتريا٠ ويجرى بيع السمك من على الارضية او من على دكة مرتفعة عن الارضية ٠ونادرا مايستخدم الثلج٠ (شاهدت الثلج مرة واحدة وكان يستخدم للروبيان) وفى كثير من الاسواق لا يحمل الباعة رخصا ويوجه القليل من الاهتمام لعملية تداول الاسماك٠ وتشترط بلدية صلالة الآن الحصول على رخصة وشهادة صحية ٠ ولدى الشخص المسئول هناك مقترحات بناءة لبناء سوق جديد مقفل تماما ويحمل الباعة فيه رخصا ويجرى تشجيعهم لامتلاك صناديق للسمك٠ ولا توجد سياسة موحدة لتشغيل اسواق السمك او مواصفات تطبق على نطاق البلاد ٠ ولا تتوفر امدادات الثلج لاسواق صور والسيب وبركاء٠وتوجد بالقرب من سوق صلالة شاحنة لامداد الثلج اما سوقى مطرح وصحار فتتوفر بهما كميات محدودة من الثلج لان معمل الثلج يوجد بمصنع السمك الذى يعطى الاسبقية فى استخدام الثلج ٠

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* توجد فى الملحق (ب) قائمة بالمتطلبات العامة لاسواق السمك

ب - *معايير الحكومة العمانية*

١ - *اللوائح المنظمة لانتاج السمك*

لا توجد معايير حكومية محددة او لوائح تضمن سلامة انتاج وتصنيع ونقل الاسماك والمنتجات السمكية في عمان او تدعو الى ضمان ان تكون الصادرات ذات جودة عالية • وتتولى وزارة الصحة مسئولية سلامة الاطعمة الا انها تعمل فقط كسلطة استشارية وليس لديها معايير معينة للاسماك وتقوم بفحص جودة امدادات المياه وتجرى تحليلات على المنتجات السمكية وتصدر الشهادات الصحية التى تطلبها الحكومات الاجنبية •

تقوم دائرة الثروة الحيوانية بوزارة الزراعة بفحص المنتجات واصدار شهادات عن كل شحنة سمك وفق ما يطلب منها لكن لا توجد معايير للمنتجات والمؤسسات • وتشترط المديرية العامة للثروة السمكية حصول الافراد والمؤسسات العاملة فى مجال نقل الاسماك على رخصة كما تشترط استخدام صناديق السمك التى تحتوى على الثلج وينطبق هذا على الصادرات فقط ولا يجرى تطبيقه بشكل واسع •تقوم البلديات وبلدية مسقط بتفتيش المؤسسات العاملة فى مجال الاسماك والاسواق والمنتجات السمكية بالاسواق وتقوم بفحص الشهادات الصحية للعاملين بمصانع الاسماك وفحص التلوث ولكنهم لا يفحصون الحالة الصحية بمصانع الاسماك او يأخذون عينات لفحصها • قامت وزارة التجارة والصناعة بالتعاون مع هيئات حكومية اخرى باعداد ٨٠ معيارا للمنتجات الغذائية ولكن لا توجد معايير عمانية للمنتجات السمكية • وقد تبنت الوزارة المعايير الخليجية ١٩٩٤/٢١ (اللوائح الصحية لمصانع المواد الغذائية والعاملين فيها)* ولا تنطبق هذه المعايير على مؤسسات تصنيع الاسماك• ولا تقوم الوزارة بتحليل المنتجات بناء على طلب المؤسسات والحكومات الاجنبية •

٢ - *الخبرات المتعلقة بضبط الجودة*

المقدرات المهنية المتعلقة بضبط جودة المنتجات السمكية محدودة فى القطاعين الحكومى والخاص • ويمتلك مدير دائرة الثروة السمكية معرفة عامة بضبط الجودة ويدير قسما لضبط الجودة • ويتلقى ثلاثة من موظفى قسم ضبط الجودة دراسات متقدمة فى ضبط الجودة فى مصر •اما بقية الموظفين فلم يتلقوا تدريبا مهنيا فى ضبط الجودة ولكنهم على اطلاع بالمبادئ العامة لتداول ونوعية الاسماك • وبقية الموظفين فى قسم معلومات السوق والارشاد لديهم معرفة عامة بنوعية الاطعمة البحرية •وتقوم الدائرة بادارة برنامج اصدار تراخيص صناديق السمك والاشخاص العاملين فيها •وتنعدم الخبرة الدقيقة فى ادارة وتشغيل برامج التفتيش واعداد المعايير وتقنيات حفظ الاسماك والحالة الصحية للمصانع وتحليل المنتجات •

ولدى القطاع الخاص بعض ذوى الخبرة فى مجال ضبط الجودة من الهند وباكستان ودول اخرى ويمكنهم القيام ببعض المهام مثل فحص جودة الاسماك والحفاظ على الوضع الصحى فى المصانع • ويبدو ان معظمهم لم يتلق تدريبا كثيرا وليست لديهم معرفة بضبط الجودة بالشكل الذى يمارس فى الولايات المتحدة واوروبا • ولا يوجد بعدد من الشركات وبعضها شركات كبيرة جدا شخص مكلف بضبط الجودة •

يوجد بكلية الزراعة بجامعة السلطان قابوس قسم للعلوم البحرية والتقنيات السمكية ولكن لا يوجد برنامج محدد لضبط جودة الاطعمة او المنتجات السمكية • ويقدم قسم العلوم الحيوانية دورة عن تصنيع الاسماك•وتخطط الكلية لانشاء قسم لعلوم الاغذية سيعطى بعض الاهتمام لضبط جودة الاطعمة •

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* انظر الملحق (ج)

ج - الوفاء بالمعايير الدولية

١ - *المشكلات الصحية الرئيسية*

تستوفى القليل من المؤسسات العاملة فى تصنيع الاسماك المعايير الصحية الامريكية او الدولية • ويحتاج الكثير منها لاحداث تغييرات كبيرة للوفاء بهذه المعايير • وقد قمنا بزيارة ومسح ١٦ مؤسسة تعمل فى تصنيع الاسماك حول الحالة الصحية فى المصنع وبصفة خاصة جودة المنتجات • وقد استخدمنا قائمة فحص تستخدمها وزارة التجارة الامريكية فى البرنامج الطوعى للتفتيش على الاطعمة البحرية وذلك لتحديد مقدرة المصنع على مقابلة المتطلبات الامريكية او المعايير الدولية •

وكانت المشاكل الصحية الرئيسية كما يلى :

١ - المنشأة مصممة بشكل سيئ يسمح بدخول الغبار وتكوين الطين وبالتالى تلويث المشأة •

٢ - استخدام معدا ت صدئة او مصنوعة من مواد لا يمكن نظافتها مثل الخشب •

٣ - مصادر الضوء فوق المعدات غير مغطاة مما قد يؤدى الى سقوط الزجاج فوق المنتجات اذا ما انكسر المصباح •

٤ - الاشخاص العاملون فى مراحل التصنيع المختلفة لايهتمون كثيرا بالنظافة الشخصية • ولا تستخدم المرايل والقبعات او اغطية الشعر الا نادرا • وفى عدد من الحالات وجدنا ان الاماكن المخصصة لغسل وتنظيف الايدى غير موجودة او موجودة فى اماكن غير مناسبة

٥ - تداول الثلج واستخدامه لا يتم بطريقة صحية • فى كل الاماكن ماعدا مكانين كان العمال يمشون فوق الثلج بأحذيتهم المتسخة ملوثين الثلج • ويمكن حل المشكلة بتشييد مخزن الثلج فى مكان يقع فوق مكان المشى او بتوفير كلوراين يغمس فيه العمال ارجلهم فى مدخل مخزن الثلج •

٦ - مكافحة الحشرات غير كافية • ففى عدد من المصانع لا توجد شاشات لمنع الذباب فى منطقة استقبال او تصنيع السمك •

٧ - لا توجد فى كل المصانع معدات منع تسرب المياه الملوثة الى امدادات المياه وهى من المسائل التى تشترطها الولايات المتحدة •

٨ - لا يبدو ان لدى معظم العاملين معرفة باساسيات صحة المصنع وضبط الجودة •ولا توجد فى معظم المصانع قائمة بفحص الوضع الصحى او سجل بذلك •

يتطلب الوضع فى كل المصانع اجراء بعض التغييرات للوفاء بالمعايير الامريكية• لن تحتاج تسعة منها الى تغييرات اساسية ولكن السبعة الباقية فتحتاج الى اجراء تغييرات كبيرة •

٢ - *التحكم فى الجودة*

ليس لدى ادارات المصانع او المسئولين عن ضبط الجودة علم بمتطلبات التحكم فى الجودة • وكما ذكرنا فى مقدمة التقرير فان ادارة الاغذية والادوية الامريكية تخطط لارساء برنامج الزامى للتحكم فى الجودة للمنتجين المحليين والمصدرين الى الاسواق الامريكية • ووضعت المجموعة الاوروبية فى المادة ٦ من موجهات المجلس الوزارى ٤٩٣ /٩١ حول الوضع الصحى للانتاج وبيع المنتجات السمكية شرطا الزاميا لنظام يشبه التحكم فىالجودة ينطبق على الدول التى تصدر الى السوق الاوروبية • وقد ارجئ تطبيق هذا النظام حتى تتمكن الدول من اعداد برنامج شبيه بالتحكم فى الجودة •

و هنا فان القليل من الاشخاص القائمين على ادارة المصانع او المكلفين بضبط الجودة عندما سألناهم خلال بحثنا هذا كان لديهم علم بالتحكم فى الجودة ٠وكل المصانع لديها سجلات استلام وسجلات نقل او شحن ولكن ليس لديها سجلات لضبط الجودة ٠ لدى بعض المصانع سجلات عن التبريد والتجميد٠ تضع المصانع فى معظم الاحوال تاريخا على المنتج النهائى يوضح تاريخ الانتاج والتجميد والتعبئة ٠ ويمكن للسجل الحالى بأضفاء بعض التعديلات عليه ان يحتوى المعلومات التى يتطلبها نظام التحكم فى الجودة وذلك باستخدام السجلات التالية :

أ – تعديل سجل الاستلام ليشمل مساحة عن تقييم الجودة وكمية الرواجع ٠

ب – وضع سجل للطبخ ليسجل فيه وقت بداية الطبخ ووقت انتهاء الطبخ ودرجة الحرارة

ج – وضع سجل لوقت التجميد ودرجة الحرارة ودرجة حرارة المخازن المبردة ٠

د – وضع سجل لدرجة الحرارة لتسجيل درجة حرارة المنتج بصورة دورية خلال التداول داخل المصنع ٠

ه – اجراء تحاليل مختبرية دورية٠ فحص نظافة المصنع ، التحلل الباكتيرى للمنتج ، القذارة اضافة الى الهيستمين والمعادن الثقيلة للاسماك السطحية ٠

٤ – التوصيات

أ – البرنامج الوطنى لضبط الجودة

اعداد اطار عمل تنظيمى ومقدرات تفتيشية لتطبيق برنامج لضبط الجودة ،يجب ايلاء الاسبقية القصوى لهذه التوصيات، واذا لم تتخذ الاجراءات الفورية فقد تواجه عمان اثارا اقتصادية سلبية نتيجة انتاج وتصدير منتجات قد تسبب مشاكل صحية ، والاجراءات هى :

١ – **ان تصدر وزارة الزراعة والثروة السمكية والوزارات الاخرى المعنية قرارا وزاريا** على ان يركز القرار على اهمية تحقيق اقصى مايمكن من ضبط الجودة للاسماك العمانية لمصلحة المستهلك ومن اجل العائد الاقتصادى للبلاد ، وحث الهيئات الحكومية والقطاع الخاص على العمل سويا لاعداد برنامج شامل مدته خمس سنوات لتحسين جودة الاسماك والمنتجات السمكية الى الحد الاقصى الممكن ،على ان تعهد المسئولية فى ذلك لوزارة الزراعة والثروة السمكية ،

٢ – **اصدار قانون جودة الاسماك العمانية المعدة للتصدير والمعايير التى توضح بشكل محدد اجراءات ضمان انتاج وتصنيع وتصدير اسماك وقشريات ذات نوعية جيدة** ،ويجب ان يشمل القانون والمعايير مايلى :

أ – سلطة واجراءات التفتيش والتسجيل واصدار شهادات المؤسسات السمكية وتفتيش واصدار شهادات المنتجات ،

ب – اصدار المعايير الصحية للمؤسسات السمكية ،

ج – معايير السمك المبرد والسمك المجمد والشارخة والاسماك الاخرى

د – معايير انتاج ونقل وتداول الاسماك

ه – معايير اسواق السمك

٣ – **تنمية القدرة على ضبط الجودة والتفتيش بوزارة الزراعة والثروة السمكية** ، تكوين فريق من ستة اشخاص مؤهلين ومتخصصين فى ضبط الجودة وتفتيش الاسماك لاعداد وتنفيذ برنامج ضبط الجودة على ان تقوم بالتنسيق مع الهيئات الاخرى والصناعة السمكية على الاشراف على التفتيش على المنتجات والمؤسسات السمكية ووسائل النقل لضمان الوفاء بالمعايير العمانية ،

اضافة الى ذلك تقوم المديرية العامة للثروة السمكية بتعيين رئيس مفتشين ومساعد له تكون له خبرة فى ادارة وتطبيق برامج ضبط جودة وتفتيش الاسماك على ان يعمل لمدة ثلاث الى خمس سنوات بهدف اعداد وتطبيق برنامج التفتيش، وبدون ذلك لن يمكن تطبيق برنامج فعال ،

٤ – **الاستعانة بمنظمة تفتيش معترف بها دوليا تقوم بالتدقيق فى وتفتيش الانتاج وتقدم تقارير مستقلة للحكومة** • الاستعانة بخدمات بمنظمة معترف بها دوليا مثل (سوسيتى جنرال دى سيرفيليانس) لمساعدة المديرية العامة للثروة السمكية فى تطبيق برنامج التفتيش على الاطعمة البحرية •

٥ – **اضافة شخصين متخصصين الى موظفى المختبر المركزى بوزارة التجارة والصناعة للقيام بالتحاليل المختبرية للمنتجات السمكية •**

٦ – **اعداد وتطبيق برنامج شامل فى ضبط الجودة والتفتيش:**

أ – يقدم البرنامج تدريبا فى معايير المنتجات السمكية ووسائل الصحة والسلامة ، اخذ عينات المنتجات السمكية ، التفتيش واجراءات اصدار الشهادات ، انظمة التفتيش المتقدمة مثل نظام التحكم فى الجودة وISO 9000 ، التحاليل المختبرية وادارة وتشغيل انظمة تفتيش الاسماك •

ب – يشمل البرنامج خليطا من التدريب داخل البلاد من خلال ورش العمل واستشارات التفتيش العملية والتدريب المؤقت اثناء العمل فى الولايات المتحدة والبلدان الاخرى التى تمتلك انظمة تفتيش متقدمة •

٧ – **انشاء وحدة تدريب على ضبط الجودة والتفتيش بجامعة السلطان قابوس يمكن استخدامها كمركز اساسى لتدريب الموظفين الحكوميين والعاملين فى الصناعة السمكية** • ويشمل ذلك:

أ – استشارة قصيرة المدى لمساعدة الجامعة على اعداد برنامج التدريب •

ب – تقديم دورات خاصة للطلاب والمظفيين الحكوميين والعاملين فى الصناعة السمكية فى ضبط الجودة والتفتيش تقوم بها الجامعة •

ج – تقديم منح مالية لجامعة السلطان قابوس والطلاب لتشجيعهم على اجراء بحوث عن التقنيات السمكية والتفتيش على الاسماك وضبط الجودة ولاعداد دورات خاصة للجمهور والقطاع الخاص فى ضبط الجودة والتفتيش •

ب – برنامج تشجيع تحسين ضبط جودة المنتجات

بالتزامن مع الانشطة الواردة فى القسم أ اعلاه ينبغى القيام باجراءات قصيرة المدى لتشجيع تحسين تداول الاسماك والجودة فى كل مراحل الانتاج • ويشمل ذلك :

١ – ***تطوير برنامج لزيادة امدادات الثلج بتقديم قروض دون فوائد ودعما ا ذا ماتطلب الامر للقطاع الخاص لبناء مصانع الثلج فى الاماكن التى يوجد بها نقص فى امدادات الثلج •***

٢ – *تشجيع زيادة استخدام الثلج فى قوارب الصيد والسفن بتقديم دعم اكبر لشراء القوارب المجهزة لحمل الثلج ،ويمكن تخفيض الدعم الذى يقدم للسفن بواقع ٤٠ – ٥٠ ٪ وتقديم دعم بواقع ٦٥ ٪ فقط للقوارب المجهزة لحمل بالثلج والتى تحمل الثلج فعلا ،ويمكن الغاء الدعم اذا لم يستخدم الصيادون الثلج ،*

٣ – *وضع وتطبيق برنامج تجريبى مع الصيادين المتعاونين لاظهار فوائد استخدام الثلج فى القوارب التى تعمل على الشاطئ ،*

٤ – *اعداد برنامج وطنى لتحسين اسواق السمك ،*

أ – اعداد وتطبيق برنامج تجريبى عن تصميم وتشييد وتشغيل سوق نموذجى للسمك يفى بالمعايير الصحية ، يمكن الاستعانة بجهة استشارية خبيرة فى تصميم اسواق السمك فى اوروبا او اى مكان آخر ،

ب – بحث امكانية تشييد اسواق السمك بواسطة القطاع العام ، ففى الولايات المتحدة ودول اخرى تدار الكثير من اسواق السمك بواسطة القطاع العام الذى يقوم بتأجير المحلات للباعة بشروط توافق عليها الحكومة ،

ج – الاشتراط بان تقوم المديرية العامة للثروة السمكية بمراجعة تصميم الاسواق حتى تضمن انها ستوفر العناية الكافية بالاسماك ،

ج – التوعية

يجب اعداد برنامج تعليمى شامل لتوعية الصيادين والعاملين فى مجال الاسماك الطريقة السليمة لتثليج وتداول الاسماك، ومع ان توعية المستهلك ضرورية لتسهيل التداول الافضل ولمساعدة الصناعة السمكية فى الوفاء الالتزام باللوائح ولكنها – دون وجود اطار تنظيمى – لن تكون مفيدة ولن تؤدى الى تحسين الجودة ،

١ – *اعداد برامج سمعية بصرية ومواد تعليمية عن ضبط الجودة يمكن استخدامها على نطاق واسع بواسطة الحكومة والقطاع الخاص لتوعية الناس بالطرق السليمة لتداول الاسماك على ان تقوم هذه البرامج على المبادئ التى وضعتها منظمة الاغذية والزراعة العالمية بما يمكن تطبيقها على المصايد العمانية ،*

٢ – *جعل التوعية بالطرق السليمة لتداول الاسماك جزءا هاما من انشطة الارشاد بالمديرية العامة للثروة السمكية ،فالكثير من موظفى الارشاد لديهم المعرفة بالطرق السليمة لتداول الاسماك ، ولكن لا يوجد برنامج رسمى لضبط الجودة ،*

٣ – *تقديم منح للقطاع الخاص او الهيئات الاخرى لتعليم الصيادين بالطرق السليمة لتداول الاسماك ،*

د – تفتيش الشركات الجديدة

حتى يتم اعداد اللوائح المناسبة لضبط الجودة يجب ان تخضع الشركات الجديدة التى تبدأ انتاج وتصدير المنتجات السمكية الى مراجعة مكثفة وشاملة عن الممارسات الصحية وتداول المنتجات اضافة الى تفتيش المنتجات لضمان ان تكون المنتجات التى يجرى تصديرها ذات جودة مرضية ٠ على الرغم من عدم وجود معايير سمكية فقد اوصت الشركات والهيئات الحكومية التى حضرت الندوة التى نوقشت فيها التوصيات الاولية لهذه الاستشارة بأتخاذ اجراءات فورية لمنع المنتجين غير المؤهلين من دخول سوق التصدير ٠

٥ – تنفيذ التوصيات

أ – الدعم الحكومى ومن القطاع الخاص

عقد المستشار ندوة تحت رعاية المديرية العامة للثروة السمكية لمناقشة المواضيع الاساسية المتعلقة بضبط الجودة وما توصل اليه التقرير والتوصيات ٠(توجد اجندة الندوة فى الملحق ز) ٠

حضر السمنار مندوبون عن (١) وزارات الزراعة والثروة السمكية والصحة والتجارة والصناعة والبلديات الاقليمية والبيئة وبلدية مسقط ٠ (٢) المصايد التجارية والصناعة السمكية ٠ (٣) جامعة السلطان قابوس٠ اكثر من ٣٥ شخصا ٠

اجمع الحاضرون على ضرورة اتخاذ الاجراءات اللازمة لضمان جودة المنتجات السمكية العمانية حتى لا يتأثر الموقف الاقتصادى للصناعة السمكية العمانية سلبيا ٠ ورأت المجموعة ان توعية المستهلكين مع اهميتها غير كافية ولا بد من وضع واعداد وتطبيق المواصفات القياسية لضبط الجودة ٠

وقد توصلت من خلال العمل فى هذه الاستشارة ومن خلال الزيارات الميدانية والمناقشات مع ممثلى القطاعين العام والخاص الى الحاجة الى وجود مواصفات قياسية واجراءات عملية لتحسين جودة الاسماك العمانية ٠

ب – استراتيجية العمل

تكتسب مهمة اعداد وتطبيق برنامج لضبط الجودة معترف به دوليا اهمية كبرى ٠ وقد تستغرق من ثلاثة الى خمسة اعوام حتى فى افضل الظروف ٠ وتتطلع الهيئات الحكومية والصناعة السمكية الى المديرية العامة للثروة السمكية ليكون لها الدور الريادى فى هذا الصدد ٠ ولكن المديرية تفتقر فى الوقت الراهن الى الموظفين المؤهلين للقيام بهذه المهمة ٠ ويبدو التدريب مهما الا انه يستغرق وقتا ٠

لا يمكن تأجيل البرنامج لعدة سنوات حتى يجرى تدريب الموظفين٠ وقد تؤدى الاوضاع التى وقفنا عليها الى مشاكل صحية كبيرة قد تلحق الضرر بالاقتصاد السمكى العمانى ٠

للتعجيل بأعداد وتطبيق برنامج معترف به دوليا لضبط الجودة والتفتيش ينبغى القيام بما يلى :

١ – ***تولى المديرية العامة للثروة السمكية الاسبقية القصوى للبرنامج ٠***

٢ – ***تشكل المديرية العامة للثرة السمكية فريق عمل يتولى قيادة اعداد وتطبيق البرنامج*** ٠يضم فريق العمل ممثلين عن :

- وزارة الزراعة والثروة السمكية
  المديرية العامة لثروة السمكية (رئيسا)
  دائرة الثروة الحيوانية
- وزارة الصحة
  دائرة صحة البيئة واستئصال الملاريا

١٦٥

* وزارة البلديات الاقليمية والبيئة
المديرية العامة لمراقبة الصحة
* محافظتى مسقط وظفار
* وزارة التجارة والصناعة
دائرة المختبرات
دائرة المواصفات وضبط الجودة
* عدد من كبار رجالات الصناعة السمكية
* عدد من الصيادين البارزين

٣ - بدء العمل فى تعيين كبير مفتشين ومساعد له ليتولى قيادة برامج ضبط الجودة والتفتيش كما وردت على الصفحتين ٩ و١٠ من هذا التقرير ٠

وبما انه من المتعذر العثور على عمانيين مؤهلين للقيام بهذه المهام ٠ ينبغى الحصول على الموافقة لتوظيف اجانب لمدة ثلاث الى خمس سنوات ليقوموا بأعداد وتنفيذ البرنامج ٠

ج - دور القطاعين العام والخاص

نقترح ان يقوم القطاعان العام والخاص بالانشطة التالية لتسهيل تنفيذ برنامج ضبط الجودة والتفتيش٠ سيحدد فريق العمل المذكور اعلاه الادوار المناسبة للقطاعين العام والخاص وفقا للبرنامج الذى تضعه الحكومة ٠ توجد معلومات اضافية فى الجدول (جدول تنفيذ وتكلفة البرنامج على الصفحة ١٧ من هذا التقرير) ٠

١ - القطاع العام

ينبغى ان يكون برنامج ضبط الجودة والتفتيش جهدا تعاونيا بين وزارت الزراعة والثروة السمكية والبلديات الاقليمية والبيئة والتجارة والصناعة والصحة ٠ حيث ستقوم بالدور التالى :

* **وزارة الزراعة والثروة السمكية :** بما ان هذه الوزارة تمتلك المعرفة بالصناعة السمكية والمنتجات فعليها تكوين خلية صغيرة تضم ستة اشخاص مؤهلين فى ضبط الجودة والتفتيش٠ وستقوم المجموعة بما يلى :

أ - تولى قيادة اعداد المواصفات القياسية ٠ وستعمل مع المستشار فى اعداد المعايير المناسبة ومع دائرة المواصفات القياسية وضبط الجودة لنشر المعايير ٠

ب - ادارة برنامج التفتيش على المؤسسات السمكية واصدار تراخيص الالتزام بالمتطلبات ٠ وسيشرك موظفو الثروة السمكية الموظفين ذوى الاختصاص من وزارة التجارة والصناعة فى التفتيش حتى يتم التفتيش والترخيص على اساس التعاون ٠

ج - الترخيص لمفتشى البلديات فى المناطق الرئيسية بالقيام بتفتيش صناديق الثلج وتقديم التقارير للمديرية العامة للثروة السمكية ٠

د - التشاور مع الصناعة السمكية بشأن تحسين الجودة ٠

* **وزارة البلديات الاقليمية والبيئة وبلدية مسقط** : هذه الجهات مسئولة عن اسواق السمك وتفتيش كل المؤسسات الغذائية فيما يتعلق بالتلوث والاوضاع العامة ٠ وستقومان بالمهام التالية :

أ – مساعدة وزارة الزراعة والثروة السمكية فى القيام بالتفتيش على صناديق السمك وتفتيش المنشآت السمكية ٠

ب – استشارة وزارة الزراعة والثروة السمكية حول تصميم اسواق السمك والعمل اللصيق معها فى برنامج تحسين الاحوال الصحية بأسواق السمك ٠

ج – بدء برنامج لاصدار تراخيص لكل باعة السمك بالتعاون مع وزارة الزراعة والثروة السمكية والطلب منهم استخدام الثلج متى ماكان ذلك ممكنا واستخدام صناديق الثلج عند بيع السمك ٠

د – تولى مسئولية تطبيق المعايير على المنتجات السمكية على القوارب وفىالاسواق وعند التوزيع وللاستخدام المحلى وذلك بالتعاون مع وزارة الزراعة والثروة السمكية ٠

ه – تدريب مفتشى البلدية على جودة المنتجات السمكية ٠

* **وزارة التجارة والصناعة** : ستقوم هذه الوازة بالمهام التالية :

أ – تفتيش واصدار الشهادات للمنتجات بطلب من المؤسسات السمكية او الاطراف الاخرى وذلك مقابل رسم معين ٠

ب – التوسع فى المختبرات لتوفير موظف او موظفين مدربين على التحليل المختبرى لضبط الجودة لمساعدة وزارة الزراعة والثروة السمكية فى القيام بمهام تفتيش المصانع والمنتجات

ج – اعداد برنامج للاستفادة من خدمات المؤسسات الخاصة لمساعدة المختبرات القائمة متى ما دعت الحاجة ٠

* **وزارة الصحة** : تقوم هذه الوزارة فىالوقت الراهن بأصدار الشهادات الصحية عندما يطلب منها ذلك بواسطة الحكومات الاجنبية ٠ ولديها مختبرات تقوم بالتحاليل الماكروبيولوجية والكيماوية ٠ وستقوم هذه الوزارة بالمهام التالية :

أ – مواصلة القيام بهذه التحاليل للمنتجات واحالتها لوزارة التجارة والصناعة ٠

ب – تفتيش المنتجات المخصصة للتصدير وفقا للمعايير الوطنية ٠

ج – لان المسئولية النهائية عن سلامة الاسماك والمنتجات السمكية تقع على عاتق هذه الوزارة فيمكنها ان تقوم بالتدقيق على التفتيش وضبط الجودة مرة كل سنتين او ثلاث سنوات ٠

٢ - القطاع الخاص

* **المؤسسات السمكية** : يطلب من المصانع والشركات التى تعمل فى منتجات التصدير الوفاء بمعايير المصانع والمنتجات واجراء التحليل المختبرى المناسب للمنتجات واجراء التفتيش عن الاوضاع الصحية بالمصنع سواء بواسطة الحكومة او مؤسسة خاصة مؤهلة ٠وسيجرى تسجيل المصانع واصدار الشهادات لها بواسطة وزارة الزراعة والثروة السمكية ٠ تقوم الصناعة السمكية بالتدريب والحصول على موظفين مؤهلين فى ضبط الجودة للمساعدة فى تحليل المنتجات والتفتيش وسيقتصر دور الحكومة على التفتيش واصدار شهادات المصنع والمنتجات والتدقيق على الصناعة لضمان الالتزام بالمعايير ٠

* **باعة السمك** : سيطلب من باعة السمك استخدام الثلج متى ما كان ذلك ممكنا٠ واستخدام الطرق الصحية مثل الصناديق والحواجز ٠كما ينبغى عليهم الحصول شهادة صحية مثل تلك المطلوبة من ناقلى السمك اضافة على الحصول على رخصة يمكن سحبها عند اخفاقهم فى الوفاء بالمعايير ٠

* **اصحاب صناديق** : سيجرى اصدار تراخيص لاصحاب صناديق الثلج كما يتم
السمك والصيادين: الان بواسطة وزارة الزراعة والثروة السمكية ، وسيكون هناك تفتيش اكثر تواترا بسبب مشاركة البلديات٠

وسيطلب من الصيادين الذين يمكثون اكثر من ٨ ساعات حمل صناديق الثلج ما كان ذلك ممكنا او توفير وسيلة لتبريد السمك٠ وسيتلقون المزيد من المساعدات المالية لشراء قوارب مصممة لحمل الثلج او شراء حاويات الثلج للقوارب التى بحوزتهم

* **الصناعات** سيجرى تشجيع الصناعات لبناء معامل الثلج وفقا لخطة تعدها الحكومة ٠

د - جدول التنفيذ والتكلفة

يحتوى الجدول التالى علىالجدول المقترح لتطبيق برنامج ضبط الجودة والتفتيش ٠ ويحتوى ايضا علىتقديرات التكلفة ٠

يمكن لبرنامج التفتيش ان يعتمد على نفسه الان او فى المستقبل بفرض رسوم على الصناعات عند اجراء التفتيش المطلوب على المنشآت والمنتجات٠ ويمكن وضع فئات الرسوم على اساس الساعة لمقابلة نفقات السفر ونفقات التحليل فى المختبر ٠وسيختلف عدد مرات التفتيش السنوية وفقا لمقدرة كل مصنع على الوفاء بالمتطلبات الصحية ومعايير المنتجات ٠ وسيخضع الذين يواجهون صعوبات فى الوفاء بالمتطلبات لتفتيش اكثر ٠ وسيجرى التفتيش وفقا لجدول تعده المديرية العامة للثروة السمكية ٠ وسيتم اجراء تحليل مالى لتحديد رسم الساعة استنادا الى نوع التفتيش المطلوب ٠

جدول التنفيذ والتكلفة

التوصية	الجهة	العمل المحدد	جدول التنفيذ ١٩٩٤	١٩٩٥	١٩٩٦	تقدير التكلفة (ريال عمانى)
١ - انشاء اطار تنظيمى	البلديات ووزارات الزراعة والثروة السمكية والتجارة والصناعة والصحة	فريق عمل بقيادة م ع ث س				٣٠٠٠٠ - ٦٤٠٠٠ يمكن الجلوء بالخبرات المحلية والاستشارات القصيرة المدى
٢ - اصياغة واصدار قرار وزارى	وزارة الزراعة و م ع ث س					
٣ - قانون جودة الاسماك والصادرات (انظر ص ٩)	م مع ث س وزارة التجارة والصناعة	مراجعة مسودة قانون الاسماك والصادرات (انظر الملحق د) اصدار مسودة المعايير اصدار المعايير تطبيق المعايير				
٤ - تطوير مقررات ضبطا لجودة	م ع ث س	ضبط الجودة وتنظيم التفتيش بحث التمويل تأمين التمويل				
٥ - تعيين كبير مفتشين ومساعد له	م ع ث س	اعداد مهام الوظيفة ١ - الاعلان عنها دوليا ٢ - اشراف الموظفين				٦٠ الف ريال فى السنة
٦ - ادخال خدمة منظمة تفتيش علمية	م ع ث س	طلب مقترحات من المتقدمين النظر فى المقترحات تأمين التمويل المبدئى ومقترحات العمل ادخال الخدمات				٤٠ الف ريال فى السنة الاولى يعتمد البرنامج على نفسه فى بقية السنين بفرض رسوم على الصناعة السمكية
٧ - زيادة الموظفين بالمختبر المركزى بوزارة التجارة والصناعة	وزارة التجارة والصناعة	توظيف متخصصين للقيام بالتحاليل المخبرية وتفتيش المصانع والمنتجات				٦ - ٨ الاف ريال فى السنة
٨ - برنامج تدريبى شامل	م ع ث س	تدريب فى الولايات المتحدة تدريب داخل البلاد				٤٠ - ٦٠ الف ريال للبرنامج
٩ - انشاء وحدة تدريب بالجامعة	جامعة السلطان قابوس	استشارة لاعداد البرنامج تطبيق البرنامج فى الجامعة				
١٠ - اعداد برنامج الحوافز	م ع ث س وزارة التجارة والصناعة	تشكيل مجموعة عمل لاعداد برنامج محدد الاطلاع على توصيات هذا التقرير اعداد الخطة				
١١ - تقديم حوافز مالية لانتاج الثلج	م ع ث س وزارة التجارة والصناعة					تقديم قروض تجارية دون فوائد ابلاء الاسبقية للبرنامج
١٢ - تقديم حوافز مالية لاستخدام الثلج	م ع ث س	اعادة النظر فى برنامج دعم السفن وتقديم مساعدات اكبر للقوارب التى تحمل الثلج				لا توجد تكلفة جديدة توجيه الدعم الموجود
١٣ - برنامج تجريبى- استخدام الثلج	م ع ث س	اعداد اطار العمل استخدام مستشار للتطبيق				٤٠ الف ريال
١٤ - برنامج وطنى لتحسين اسواق السمك	بلدية مسقط ووزارة البلديات الاقليمية والبيئة					الحصول على المقدورات من البلديات
١٥ - مشروع تجريبى		استشارة واعداد الخطة تصميم وتشييد اسواق سمك نموذجية تجربة تشغيل السوق				
١٦ - دراسة تشغيل السوق بواسطة القطاع العام	البلديات	الاستعانة بمستشار لدراسة المداخل المختلفة				٩٠ الف ريال
١٧ - اصدار تراخيص الباعة بسوق السمك	البلديات	اعداد الاجراءات التنظيمية تطبيق الاجراءات				لا تكلفة اضافية ، يمكن القيام به ضمن البرنامج العام
١٨ - اشراف م ع ث س على تشييد الاسواق	م ع ث س	مذكرة تفاهم تكليف الموظفين				
١٩ - برنامج تعليمى شامل لضبط الجودة	م ع ث س	يقوم المستشار باعداد البرنامج				٣٠ الف فى البداية ثم ٢٠ - ٣٠ الف كل سنة
٢٠ - مواد سمعية بصرية ومواد اخرى	م مع ث س	الاستعانة بشركة لاعداد المواد				٤٠ الف فى البداية ثم ٢٠ الف كل سنة
٢١ - دمج التوعية بضبط الجودة فى برنامج الارشاد	م ع ث س	اعداد الخطة تنفيذ البرنامج				لا تكلفة اضافية يمكن القيام به ضمن البرنامج العام
٢٢ - تقديم منح للتوعية بضبط الجودة	م ع ث س وزارة التجارة والصناعة	اعداد البرنامج والاسبقيات تنفيذ البرنامج				٤٠ الف فى السنة
٢٣ - تشجيع الشركات الجديدة التى تدخل سوق التصدير لمراجعة مكثفة	وزارة الزراعة والثروة السمكية وزارة التجارة والصناعة البلديات	تفتيش المصنع والمنتجات وفقا لمسودة ضبط جودة المواد الصنعة للتصدير او ما يشابهها				يتكفل القطاع الخاص بالنفقات

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٦ - خلاصة

تطلب المجموعة الاوروبية والولايات المتحدة ودول اخرى من الدول التى تمدها بالمنتجات ان تكون لديها انظمة لضبط الجودة لضمان انتاج وتصدير منتجات سمكية جيدة وسليمة • ولا يوجد فى عمان برنامج لضبط جودة المنتجات السمكية والتفتيش وقد يؤدى عدم وجود مثل هذا البرنامج الى آثار اقتصادية سلبية خاصة فيما يتعلق بالوفاء بمتطلبات الاسواق الاجنبية •

ويدعو هذا التقرير الى اعداد وتنفيذ برنامج لضبط الجودة والتفتيش وتقديم التدريب والحوافز المالية للتسريع من وتيرة تطبيق البرنامج • ويشير مسح اجرى على الصناعة السمكية واقوال المسئولين الحكوميين ان هذا البرنامج سيكون مجديا من الناحية الاقتصادية وسيلقى تأييدا واسعا •