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Manual on Assuring Food Safety Conditions in Fish Landing and Processing



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Manual on Assuring Food Safety Conditions in Fish Landing and Processing

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Cover Photo: Conch processing provides an important source of income and employment in the Caribbean fishery sector.

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GLOSSARY OF TERMS

| | |
|----------------------------------|--|
| Batch | A quantity of fish or fishery products of the same species and collected from the same production area during the same fishing or harvesting operation. |
| Chilling | The process of cooling fishery products to a temperature approaching that of melting ice |
| Clean Fresh Water | Fresh water free from microbiological contamination and toxic or objectionable substances occurring naturally or as a result of discharge into the environment. |
| Clean Sea Water | Sea water or brackish water free from microbiological contamination and toxic or objectionable substances occurring naturally or as a result of discharge into the environment. |
| Competent Authority | The central authority of a Member State (within the EU), or central national authority in any country, with authority to carry out sanitary checks and certify compliance. |
| Disinfection | The application of hygienically satisfactory chemical or physical agents and processes to clean surfaces with the intention of eliminating micro-organisms. |
| Establishment | A land-based facility in which fishery products are handled, stored or processed |
| Evisceration | The removal of the internal organs of fish or fishery products, including removal of the gills of fishes and the removal of the head of crustaceans |
| Factory vessel | Any vessel on board which fishery products undergo one or more of the following operations followed by wrapping or packaging and, if necessary, chilling or freezing: filleting, slicing, skinning, shelling, shucking, mincing or processing. |
| Fish Landing Site | Onshore facility at which fishing or fish transport vessels discharge a fish to land |
| Fishery business operator | Any undertaking whether for profit or not and whether public or private, carrying out any operation of production, manufacture, processing, storage, transport or distribution of fishery products for human consumption |
| Fishing vessel | Any vessel used to harvest fishery and aquaculture products from the aquatic environment, including vessels used for the transport of fishery products, and refrigerated transport vessels |
| Freezer vessel | Any vessel on board which freezing of fishery products is carried out, where appropriate after preparatory work such as bleeding, heading, gutting and removal of fins and, where necessary, followed by wrapping or packaging. |
| Fresh Products | Any fishery product whether whole or prepared, including live fishery products and fishery products packaged under vacuum or in a modified atmosphere, which have not undergone any treatment to ensure preservation other than chilling. |

| | |
|---------------------------|---|
| Hazard | A biological, chemical or physical agent in, or condition of, food or feed with the potential to cause an adverse effect on human or animal health. |
| Marine biotoxin | Poisonous substance accumulated by fish and bivalve molluscs which feed on plankton containing toxin. |
| Monitoring | A planned observation, or measurement of a parameter, at a specified point or time, which is then compared to a target (i.e. a standard, an operational limit, a critical limit). |
| Official Control | Any form of control that the competent authority performs for the verification of compliance with regulatory requirements for food safety |
| Own Checks System | All those actions undertaken by a fishery business operator aimed at ensuring and demonstrating that a fishery product satisfies the requirements of product safety as laid down in this Manual. |
| Packaging | The procedure of protecting fishery products by a wrapper, a container or any other suitable material or device. |
| Potable Water | Water which complies with the specification set out in the CRFM Manual on Assuring Food Safety Conditions in Fish Landing and Processing Section 2.2.3. |
| Processed Products | Any chilled or frozen fishery products which have undergone a chemical or physical process of heating, smoking, salting, dehydration or marinating or a combination of processes, whether or not mixed with other foodstuffs. |
| Traceability | The ability to trace and follow a fishery product, or other substance intended, or expected to be incorporated into a fishery product, through all stages of production, processing and distribution. |

LIST OF ABBREVIATIONS

| | |
|------------------|--|
| CAC | Codex Alimentarius Commission |
| CARIFORUM | Grouping of 15 Caribbean Community states, along with the Dominican Republic |
| CRFM | Caribbean Regional Fisheries Mechanism |
| EDF | European Development Fund |
| EU | European Union |
| FAO | Food and Agriculture Organisation of the UN |
| FDA | Food and Drug Administration of the USA |
| HACCP | Hazard Analysis and Critical Control Point |
| US | United States |
| UV | Ultra Violet |
| WHO | World Health Organisation |

FOREWORD

The fishery sector is of great importance for CARIFORUM States, as it provides employment for an estimated 121,000 persons, and contributes significantly to food security and export earnings. The marine capture sector is mostly characterized by a small-scale multi-gear fishery, but several countries have also developed distant water fleets of industrial vessels. Aquaculture is also becoming more important, with some large-scale investments in shrimp and tilapia production as well as numerous experimental and small-scale operations. The fishery sector of CARICOM countries also engages in significant international trade with combined exports worth US\$390 million in 2015, with imports over US\$180 million (which supply not only domestic markets, but also help to sustain our tourism sector). All this business, and the resulting benefits to the people of our region, depend wholly on the fishery products we produce and market being safe for human consumption. However, ensuring such safety against the background of a diversified and globally integrated fishery sector presents significant challenges, requiring not only considerable resources, but also a high level of expertise and knowledge.

The Caribbean Regional Fisheries Mechanism was formed in 2002 with the objective to promote and facilitate the responsible utilization of the Region's fisheries and other aquatic resources for the economic and social benefits of the current and future population of the region. In line with this aim, we are therefore pleased to present this Manual, which is one of a series, which provides valuable, up-to-date, regionally relevant and practical advice on ensuring the food safety of Caribbean fishery products. The Manuals are intended for use by both fishery sector operators, as well as those involved in protecting our consumers, through the implementation and enforcement of sanitary regulations. We are sure that these documents will help to provide a solid technical basis for the ensuring the continued and sustainable growth of our seafood sector.

1 INTRODUCTION

1.1 Background

This manual was developed within the framework of the EU funded 10th EDF Sanitary and Phytosanitary (SPS) Project, under the terms of a contract “Capacity Building of regulatory and industry stakeholders in Aquaculture and Fisheries Health and Food Safety to meet the SPS requirements of international trade”, implemented by Megapesca Lda, Portugal.

The primary objective of the project is to:

Build capacities of CARIFORUM States in health and food safety requirements of fisheries and aquaculture (inland, marine) products and, as such, ensure safe food standards for fisheries products in the region, while meeting the requirements of the region's trading partners worldwide.

The expected result is that capacities will be built at the national and regional levels, for health and food safety requirements of fisheries and aquaculture (inland, marine) products, that will also ensure safe food standards for fisheries products in the region, while meeting the requirements of the region's trading partners worldwide.

This operational manual is one of eight manuals aimed at providing a structured approach to training in field, laboratory, market, and trade (import and export) activities related to the safety of fish and fish products for human consumption. The strengthening of sanitary conditions throughout the region is expected to lead to improved health and well-being of national populations, and increased international trade in fishery products.

1.2 About this manual

A key element of the Project was to prepare SPS Standard Manuals, setting out important food safety and quality requirements for the production and processing of fishery products exported from the Caribbean.

This Manual is one of a series, and presents requirements for the control of food safety hazards in shore based fisheries establishments, specifically those engaged in fish landing and processing.

This operational manual is one of eight manuals aimed at providing structured guidelines to ensuring the safety of fish and fishery products for human consumption, in terms of best practices and official controls. It is primarily intended as a guide to the food safety conditions required for fishery business operators producing for export, but the principles applied are equally applicable to domestic trade. The Manual is based on current international best practices, and draws on the current requirements expressed within EC and US legislation, as well as Codex Alimentarius Standards, and the CARICOM Regional Code of hygiene practice for the handling of fish and fishery products.

However, additional specific requirements are set out, where these are considered to contribute significantly to improved food safety within the context of the Caribbean fishery sector.

1.3 How to use the document

The overall objective of this Manual is the protection of consumer health in relation to fishery products supplied for human consumption, taking into account the diversity in the supply, production, and distribution of fishery products in the Caribbean region.

The Manual describes good practices to be adopted by fisheries business operators in shore based operations, as well as providing a technical basis for inspections by the Competent Authority

responsible for official controls of food safety. The requirements are equally applicable to inland and marine fisheries, and for different kinds of processing operations.

It provides clear guidance regarding operating requirements for fish landing sites and fish processing establishments in the Caribbean, and will therefore contribute towards improved quality and compliance with export requirements. The Manual should be applied in conjunction with the CRFM Guide to Food Safety Hazards in Caribbean Fishery Products, which describes the different food safety hazards in Caribbean fishery products, their technical characteristics and methods of control.

The Manual describes the structural and equipment requirements, and the general hygiene and operating conditions, for fish landing sites, wholesale markets, and fish processing establishments. It sets out in detail the requirements for safe water supplies, addresses the hygiene of workers, and considers special conditions required for different processes (freezing, drying, canning etc.) Where food safety conditions are affected by the nature of the process, this is described in the text. It also sets out requirements for packaging, labelling, and traceability, and the requirement for HACCP (although the specific design of HACCP systems is addressed by the CRFM Guidelines on Developing and Implementing HACCP Plans for Fish and Fishery Products). A final section provides guidance for Competent Authorities in applying official controls to inspection of shore based fish processing and marketing facilities. A list of further reading is provided in Annex 1, and a model inspection form and checklist to guide operators and inspectors in the application of the Manual is provided in Annex 2.

2 STRUCTURAL REQUIREMENTS AND EQUIPMENT FOR FISH PROCESSING ESTABLISHMENTS

2.1 Design and layout of premises and equipment

The location, design and layout of fishery product establishments should be such as to preclude contamination of the products.

Each establishment should provide working areas of sufficient size for work to be carried out under adequate hygienic conditions.

The process flow should be laid out in such a way as to minimise the potential for contamination of finished or partially finished products, with material from unprocessed products.

If the establishment produces products that are ready to eat, such as cooked lobster tails, or hot smoked fish, these products should be handled, processed, and packed in an area separate from areas in which raw or uncooked products are handled.

In areas where products are handled, prepared, and processed there should be:

- a) water-proof non-slip flooring that is easy to clean and disinfect, and laid down in such a way as to facilitate the drainage of water;
- b) walls with smooth surfaces that are easy to clean, durable and impermeable;
- c) ceilings that are easy to clean, designed to avoid the accumulation of dust;
- d) adequate natural or artificial lighting;
- e) doors made of durable materials that are easy to clean;
- f) an adequate ventilation system with airflows that avoid air from a contaminated area entering a clean area;

- g) an adequate number of wash hand basins with taps that are not hand-operable, and an adequate supply of soap, single use towels or appliances for drying the hands;
- h) facilities for cleaning and disinfecting tools, equipment and fittings; and
- i) facilities for washing or disinfecting boots on entry

Appropriate measures should be taken for protection against the entry of domestic animals and pests such as insects, rodents and birds. Windows and doors should have insect screens. Walls, doors, windows, ventilators, and other points of entry, including drainage channels and pipes, should be properly constructed to prevent entry of insects, rodents and birds.

Instruments and equipment such as tables, boxes, fish processing machinery, cutting boards, work-tables, containers, conveyor belts, and knives should be made of smooth, corrosion-resistant materials that are easy to clean and disinfect. Wood is not permitted

Special water-tight, corrosion-resistant containers should be provided for waste material and fishery products not intended for human consumption. They should be easily distinguishable from containers used for fishery products for human consumption. Separate premises should be provided for the storage of such containers, if they are not emptied at the end of each working day.

There should be an adequate hygienic waste water disposal system. Where drainage channels are fully or partially open, they are to be so designed as to ensure that waste does not flow from a contaminated area towards or into a clean area where fishery products are handled.

There should be adequate facilities in a separate room for staff to change and store their outdoor clothes, and for staff rest areas. These should have smooth, waterproof, washable walls and floors.

The establishment should have an adequate number of flush toilets. Rooms in which they are located should be easily accessible but they should not open directly into areas where fishery products are prepared, processed or stored.

The minimum of facilities depends on the number of staff of each sex at the site, according to the following table:

| Number of employees | Minimum number of toilets |
|----------------------------|-----------------------------------|
| 01 – 09 | 1 |
| 10 – 24 | 2 |
| 25 – 49 | 3 |
| >50 | for every 30 persons add 1 toilet |

There should be an adequate number of wash basins (equal to the number of toilets), and an adequate supply of soap, single use towels, or appliances for drying the hands. The wash basin taps should not be hand operable

If the volume of products treated requires their regular or permanent presence, there should be provided an adequately equipped lockable room for the exclusive use of fish inspectors.

There should be adequate facilities for cleaning and disinfecting the means of transport delivering raw material to, or taking final products from, the establishment (including, in the case of a landing site, from fish vessels)

Establishments keeping live animals, such as crustaceans and fish, should be provided with a water supply of a quality such that no harmful organisms or substances are transferred to the animals.

2.2 Requirements for water and ice

2.2.1 Requirements for water supply

The establishment should be provided with an adequate supply of potable water, or alternatively of clean seawater or clean freshwater, under pressure, and in sufficient quantities for processing and cleaning operations.

Where a non-potable water supply is provided for the production of steam, fire-fighting, or the cooling of refrigeration equipment, the pipes installed for the purpose should preclude the use of such water for any other purpose, and present no risk of contamination of the products. Water pipes for non-potable water should be clearly distinguished from those used for potable water or clean seawater or clean fresh water.

Water tanks and cisterns for the storage of water used in establishments, should be located and designed to prevent the entry of pests and contamination by surface waters. They should be provided with access hatches for inspection and cleaning, and periodically emptied and cleaned.

2.2.2 Permitted types of water

Establishments may use potable water, clean seawater or clean freshwater (as defined in the glossary) for the following purposes:

- a) manufacture of ice for use in contact with whole fish or eviscerated fish; or
- b) washing of whole fish; or
- c) washing of eviscerated fish and de-headed fish; or
- d) washing and sanitising of facilities and equipment, flushing of WCs.

Only potable water should be used for:

- a) washing of fish that has undergone filleting, slicing, skinning, shelling, shucking, mincing, or processing, including the shucking of gastropod molluscs; or
- b) hand washing; or
- c) adding to the product (in the form of ingredients, including glaze).

Harbour water should not be used for any of the above purposes.

2.2.3 Conditions for potable water

Potable water should meet the quality standards set out in Tables 1 and 2. These are based on a selection of the requirements for supply of fishery products to the European Union, as set out in Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption. The Directive should be consulted for the full range of parameters.

TABLE 1: MICROBIOLOGICAL PARAMETERS FOR POTABLE WATER

| Parameter | Parametric value (Number/100ml) |
|--|------------------------------------|
| <i>Escherichia coli</i> (<i>E.Coli</i>) | 0 |
| Enterococci | 0 |
| <i>Clostridium perfringens</i> (including spores) ¹ | 0 |

Note:

¹only in the case that the water includes surface and well or borehole waters.

TABLE 2: CHEMICAL PARAMETERS FOR POTABLE WATER

| Parameter | Parametric value | Unit | Note |
|---------------------------------------|-------------------------|-------------|--|
| Acrylamide | 0.1 | µg/l | 1 |
| Antimony | 5.0 | µg/l | |
| Arsenic | 10 | µg/l | |
| Benzene | 1.0 | µg/l | |
| Benzylopyrene | 0.01 | µg/l | |
| Boron | 1.0 | mg/l | |
| Bromate | 10 | µg/l | 2 |
| Cadmium | 5 | µg/l | |
| Chromium | 50 | µg/l | |
| Copper | 2 | mg/l | 3 |
| Cyanide | 50 | µg/l | |
| 1,2 dichloroethane | 3.0 | µg/l | |
| Epichlorhydrine | 0.1 | µg/l | 1 |
| Fluoride | 1.5 | mg/l | |
| Lead | 10 | µg/l | 3,4 |
| Mercury | 1 | µg/l | |
| Nickel | 20 | µg/l | 3 |
| Nitrate | 50 | mg/l | |
| Nitrite | 0.5 | mg/l | |
| Pesticides | 0.1 | µg/l | 4,5 |
| Pesticides total | 0.5 | µg/l | 4,6 |
| Polycyclic aromatic hydrocarbons | 0.1 | µg/l | Sum of concentration of specified compounds (Note 7) |
| Selenium | 10 | µg/l | |
| Tetrachloroethene and trichloroethene | 10 | µg/l | Sum of concentration of specified compounds |
| Trihalomethanes | 100 | µg/l | Sum of concentration of specified compounds (Note 8) |
| Vinyl chloride | 0.5 | µg/l | 1 |

Note 1: The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water.

Note 2: Where possible, without compromising disinfection, a lower value should be aimed for.

Note 3: The value applies to a sample of water intended for human consumption obtained by an adequate sampling method at the tap. Where appropriate the sampling and monitoring methods must be applied to take account of the occurrence of peak levels that may cause adverse effects on human health.

Note 4: 'Pesticides' means:

- organic insecticides,
- organic herbicides,
- organic fungicides,
- organic nematocides,
- organic acaricides,
- organic algicides,
- organic rodenticides
- organic slimicides,
- related products (inter alia, growth regulators)

and their relevant metabolites, degradation and reaction products.

Only those pesticides which are likely to be present in a given supply need be monitored.

Note 5: The parametric value applies to each individual pesticide. In the case of aldrin, dieldrin, heptachlor and heptachlor epoxide the parametric value is 0,030 µg/l.

Note 6: 'Pesticides — Total' means the sum of all individual pesticides detected and quantified in the monitoring procedure.

Note 7: The specified compounds are:

- benzo(b)fluoranthene,
- benzo(k)fluoranthene,
- benzo(ghi)perylene,
- indeno(1,2,3-cd)pyrene.

Note 8: Where possible, without compromising disinfection, a lower level should be aimed for. The specified compounds are: chloroform, bromoform, dibromochloromethane, bromodichloromethane.

Sometimes water supply is not taken from a public network, but may be:

- taken from a tanker; or
- obtained from a rainwater supply system; or
- may be subsequently exposed to contamination; or
- where it cannot be confirmed that it meets the microbiological requirements.

In such circumstances the establishment operator should ensure that adequate water treatment is applied to guarantee microbiological safety before it is used as potable water. This can be achieved, for example, through chlorination (with a suitable contact period), or with UV light.

2.2.4 Distribution plan and checks on water quality

Operators of fish processing establishments should possess a plan showing the distribution of potable water and other water within the establishment. This should show all sources, pipework, tanks and cisterns and outlets of water within the establishments. Outlets should be numbered and identifiable on the plan.

Where water is treated with a process of chlorination, and the fishery enterprise operator relies on that treatment to comply with the microbiological standards set out in Table I, then the level of residual chlorination should be monitored at least daily.

At least once every month, samples from each water source should be submitted for a microbiological analysis, to ensure that it complies with the requirements set out in Table I. If numbers of microbes exceed the specifications, action must be taken to identify the source and stop the contamination.

At least once every year, a sample should be submitted for analysis of other parameters.

Samples of water taken to test for compliance with standards defined should be taken in rotation from various outlets within the establishment, in such a way that all of the outlets are covered at least once per year. Ice should also be subject to regular testing. The results of the examinations must bear the identification of the outlet from which the sample is taken.

3 SAFETY OF FISHERY PRODUCTS

3.1 General conditions for raw material entering the establishment

Fish and fishery products entering landing sites, auctions, and processing establishments should undergo a check on reception, to ensure that they meet the requirements of this section of the manual.

Fish and fishery products intended for sale for human consumption should have organoleptic and chemical characteristics consistent with fitness for human consumption. Spoiled fish, or fish which is contaminated, should not be permitted to enter the establishment.

Fish and fishery products should be free from visible parasites, and also visible manifestations of parasitic infections. This includes exo-parasites as well as parasitic infections of the muscle. Products which do not meet this requirement should not be permitted to enter the establishment.

3.2 Poisonous fish

Operators of fish processing establishments should be aware of the different innate food safety hazards present in different species of fish.

Certain marine fish in the region are naturally toxic and, if caught, they should not be delivered to shore. These include fish from the families Tetraodontidae (puffer fish), Molidae (molas or ocean sunfishes), Diodontidae (porcupine fish), and Canthigasteridae (sharpnose puffers).

Fishery products belonging to the family Gempylidae, in particular the oilfish or escolar (*Ruvettus pretiosus* and *Lepidocybium flavobrunneum*), may produce adverse gastro-intestinal effects under certain circumstances, and should not be marketed without advice.

Some marine species in certain areas are subject to the Ciguatera hazard, typically predatory fish caught over coral reefs. Barracuda, some groupers, and snappers, are often implicated. Local knowledge is required to ensure these species are safe, and fishery business operators should always approach susceptible species with caution.

3.3 Special conditions relating to histamine

Many marine Caribbean species may be implicated in histamine development, and require special handling to ensure that they are safe. Establishments in which these species are handled should

always have facilities for chilling or icing. Histamine producing species caught in the region include:

- tuna (*Thunnus* spp. and *Euthynnus* spp)
- skipjack (*Katsuwonus pelamis*)
- mackerel (*Scomber* spp)
- Spanish and King mackerel (*Scomberomorus* spp)
- wahoo (*Acanthocybium solandri*)
- jacks and trevallies (*Caranx* spp)
- mahi-mahi or dolphin fish (*Coryphaena* spp)
- horse mackerel/scads (*Decapterus* spp)

Some other species in the Caribbean which could be implicated include:

- marlin (*Makaira* spp)
- anchovies (*Engraulis* spp)
- flying fish (*Hirundichthys affinis*)

Fish species that are susceptible to the development of histamine should generally not be accepted into the establishment, unless they are either already frozen or subjected to chilling with ice or chilled or refrigerated seawater. The only exception is when fresh, un-chilled fishery products are delivered from vessels known to have undertaken only short fishing trips.

The recommended conditions¹ are that fish implicated in histamine development should not be allowed for sale for human consumption if it is landed without ice, and:

- the ambient temperature is > 28°C (as it often is in the Caribbean region) and the trip was longer than 6 hours; or,
- the ambient temperature is < 28°C and the trip was longer than 9 hours.

Furthermore, large tuna (i.e., above 10kg) should be chilled to an internal temperature of 10°C or less within 6 hours of death.

The establishment operator should confirm, through temperature monitoring, that the handling of the product has met these recommendations. If they do not, there is a risk of histamine development, and the product should be rejected.

The fishery business operator should also periodically take samples of raw material entering the establishment, to confirm that the temperature controls are effective in controlling the histamine hazard. This requires sampling and testing, either in the operator's own laboratory, or in an external laboratory.

The HACCP plan for the establishment should describe the system for the control of the histamine hazard, and the associated monitoring and verification procedures. More detailed information on this hazard, control measures, sampling, testing methods, and regulatory limits is provided in the CRFM Guide to Food Safety Hazards in Caribbean Fishery Products.

¹ Fish and Fisheries Products Hazards and Controls Guide, U.S. Food & Drug Administration, Center for Food Safety & Applied Nutrition, Third Edition June 2001

4 OPERATIONAL HYGIENE REQUIREMENTS FOR SAFE SEAFOOD

4.1 General hygiene conditions

Floors, walls and partitions, ceilings and roof linings, door and window frames, equipment, and instruments used in fishery product establishments, should be kept in a satisfactory state of cleanliness and repair, in order not to constitute a source of contamination for the products.

Equipment used in the areas where fish is handled should be used only with fishery products.

Where the establishment produces ready to eat products, equipment which comes into contact with such products should not be used for raw or uncooked fishery products. This applies to knives, cutting boards, tables etc. Consideration should be given to the colour coding of items to prevent there being used inappropriately.

4.2 Staff hygiene

A high standard of cleanliness is required of staff working in the area of the establishment. In particular:

- a) Staff should wear suitable light coloured, clean working clothes, headgear which completely covers the hair, and impermeable boots;
- b) Staff assigned to the handling and preparation of fishery products should wash their hands during their work, and at least each time work is resumed;
- c) Staff assigned to the handling of fishery products should refrain from wearing jewellery, nail polish and other personal items which may contaminate the product
- d) Wounds to the hands should be covered by a water proof dressing
- e) Smoking, spitting, eating, and drinking in areas where fish is handled should be prohibited;

No person suffering from, or being a carrier of, a disease likely to be transmitted through food, or afflicted, for example, with infected wounds, skin infections, acute sore throat, sores, diarrhoea and/or vomiting, or infected with a bacteria or parasite which can cause gastro-enteritis should be permitted to handle fishery products, or enter any area where fishery products are handled.

Operators of fish processing establishments should ensure that persons handling fishery products undergo a medical examination on recruitment, and periodically thereafter, to certify that they are not suffering from any of the above conditions. One year is a commonly accepted period.

Persons suffering such conditions, who are likely to come into contact with fishery products, should report immediately to the fishery enterprise operator. Fishery business operators should not create disincentives to report such conditions (for example by suspending infected staff without pay).

Fishery business operators should ensure that persons suffering such conditions are not allowed to handle fishery products until there is evidence that they can do so without risk.

The fishery business operator should provide a first aid box, with sufficient quantity of waterproof dressings and antiseptic for dressing small wounds.

Staff should be trained to understand and apply these rules. A copy of these above rules should be clearly displayed.

4.3 Waste management

Any containers used for offal and waste material should be clearly identified, and used exclusively for this purpose. They should be suitably constructed with a close fitting lid, and made of impervious material.

The containers, receptacles and/or premises used for storage of waste should be thoroughly cleaned and disinfected after use.

The accumulation of offal and waste material in areas where fishery products are handled should be minimized. Such materials should be removed regularly from areas where fishery products are handled.

Separate and adequate facilities should be provided for temporary storage of waste prior to its removal from the establishment. These should have a supply of water and adequate drainage, and should be kept clean and in good condition.

4.4 Cleaning and sanitation

Areas where fish is handled, and equipment such as tables, fish boxes, knives, and other items with which fish comes into contact, should be cleaned and sanitised as frequently as necessary during use, and at least at the beginning and end of any work period.

To ensure that this is properly implemented, the establishment should apply a systematic hygiene and sanitation plan. A copy of the plan, and evidence of its implementation, should be available to inspectors during inspections.

Detergents, sanitising agents, disinfectants and similar substances, should be approved by the Competent Authority, and be used in such a way that they do not have an adverse effect on the machinery, equipment and fishery products.

Cleaning should be undertaken with appropriate equipment, using a suitable detergent, to remove gross contamination, blood, grease, slime etc. This should be followed by sanitising, using a suitable chemical designed to reduce the microbiological load.

Periodically, the fishery business operator should undertake own checks to ensure that the cleaning and sanitising steps are effective.

Cleaning products, disinfectants, and any other potentially toxic substances, such as rodenticides and insecticides, should be stored in lockable premises or cupboards, in order not to present any risk of contamination of the product.

4.5 Pest control

Pests include rodents, flying and crawling insects, birds, and other vermin. A pest control program should be designed and implemented within the establishment. This should comprise periodic monitoring surveys, detection measures, elimination of places where pests could reside, and measures to destroy pests or prevent them from becoming established.

The pest control programme should be set out in writing, and records should be kept of monitoring, results, and intervention activities.

The implementation of the pest control program should be undertaken by appropriately qualified personnel. They should ensure that the application of control measures does not present any risk of contamination of fishery products, or materials that could come into contact with them, such as packaging.

Larger establishments should consider contracting pest control functions to specialised operators.

5 SPECIAL CONDITIONS FOR HANDLING FISHERY PRODUCTS ON SHORE

5.1 Conditions for fresh products

When chilled and packaged products are not dispatched, prepared or processed immediately after reaching a processing establishment, they should be stored or preserved with adequate quantities of ice to ensure that temperature does not rise above the temperature of melting ice. Packaged fresh fishery products may be chilled by mechanical refrigeration.

Re-icing should be carried out as often as necessary. Water used for making ice should meet the conditions set out in Section 2.2. Ice should be stored in refrigerated or insulated facilities, in a manner which does not expose it to contamination. Used ice should be discarded.

Operations such as filleting and slicing should be carried out so as to avoid the contamination or spoilage of fillets and slices, and in a space, other than that used for heading and gutting operations. Fillets and slices should not remain on work tables any longer than is necessary for their preparation. Fillets and slices to be sold fresh should be chilled as quickly as possible after preparation.

5.2 Conditions for frozen products

Except as provided below in relation whole fish frozen in brine, all establishments producing frozen fishery products should have:

- a) refrigeration equipment sufficiently powerful to achieve a rapid reduction in the temperature to -18°C or below
- b) refrigeration equipment sufficiently powerful to keep products in the storage rooms at -18°C or below irrespective of the ambient temperature.

Whole fish frozen in brine should be frozen at temperatures not higher than -9°C .

Storage rooms for frozen fish should have a temperature recording device in a place where it can easily be read. The temperature sensor should be located in the area where the temperature in the storage room is the highest.

Temperature charts should be available for inspection by the Competent Authority.

Where establishments carry out thawing operations they should ensure that:

- a) Fishery products should be thawed under hygienic conditions; their contamination should be avoided, and there should be adequate drainage for any melt water produced.
- b) During thawing, the temperature of the product should not exceed 5°C .

5.3 General conditions for processed products

The person responsible for a fish processing establishment should keep a register of the processing operations carried out, and the associated processing conditions. Depending on the type of process employed, heating time and temperature, salt content, pH, water content etc. should be monitored and controlled. Records should be kept for at least two years, and be available to the competent authority.

For products preserved for a limited period by a treatment such as salting, smoking, drying, or marinating, the appropriate conditions for storage should be clearly marked on the packaging.

5.4 Conditions for smoked, salted and dried products

Smoking, salting, and drying should be carried out in separate premises or an area used specifically for this purpose.

If necessary, establishments should be equipped with a ventilation system to prevent smoke and heat affecting other premises, or places where fishery products are prepared, processed or stored.

Fish should not be dried on the ground.

Materials used to produce smoke for the smoking of fish should be stored away from the place of smoking, and should be used in such a way that they do not contaminate the product. Wood used for smoking should not have been painted, varnished, or glued or have undergone any chemical preservation treatment.

Salt used in treatment of fishery products should be clean, and stored in such a way as to preclude contamination. Salt should not be re-used.

After smoking and drying, products should be cooled rapidly to the temperature required for their preservation. Cooling should take place in area with adequate protection against contamination with insects, their larvae, and eggs.

Smoked and dried fish should be packed in adequate containers or packaging, that provide a suitable degree of protection from contamination with insects, their larvae, and eggs.

Smoking equipment and processes should be designed to ensure that the final product does not contain levels of polycyclic aromatic hydrocarbons (PAHs) in excess of limits set by regulations.

5.5 Conditions for cooked crustacean and molluscan shellfish products

Only potable water or clean sea water should be used for the cooking of crustaceans and molluscan shellfish.

Cooked products should not be handled in the same area as raw or uncooked products.

Cooking should be followed by rapid cooling. If no other method of preservation is used, cooling should continue until the temperature approaching that of melting ice is reached.

Shelling or shucking of cooked products should be carried out under hygienic conditions, avoiding contamination of the product. Where such operations are done by hand, workers should pay particular attention to the washing of their hands, and all working surfaces and utensils should be cleaned thoroughly. If machines are used, they should be cleaned and disinfected at frequent intervals, and after each working day.

After shelling or shucking, cooked products should immediately be frozen or kept chilled at a temperature which precludes the growth of pathogens, and they should be stored in appropriate conditions.

5.6 Permitted Additives

The additives listed in Table 3 are permitted insofar as they may be added to fishery products listed, and within the maximum limits specified. Salts of citric and ascorbic acids are permitted as cryoprotectants. Additional additives may be permitted in certain fishery products, such as antioxidants in fish oils. A full list in relation to the EU is provided in Council Regulation (EC) No 1333/2008 16 December 2008 on food additives or the Codex General Standard for Food Additives.

Most legislation does not permit food colours to be used in fishery products. Some administrations such as the USA, will permit treatment of tuna and other fish with carbon monoxide, to modify the appearance of the myoglobin in muscle tissue. Such treatments are prohibited in the EU.

TABLE 3: PERMITTED ADDITIVES IN FISHERY PRODUCTS

| Permitted additives | Products | Maximum concentration |
|---|---|--|
| Sulphur dioxide Sodium sulphite Sodium hydrogen sulphite Sodium metabisulphite Potassium metabisulphite Calcium sulphite Calcium hydrogen sulphite Potassium hydrogen sulphite | Fresh, frozen crustacean and cephalopods Cooked crustacean | 150 mg/kg (as SO ₂) 50 mg/kg (a SO ₂) |
| Triphosphates of sodium and potassium Polyphosphates of sodium, potassium and calcium | Frozen fishery products | 5 g/kg |

Source: EU Directive 2006/52/EC of 5 July 2006 amending Directive 95/2/EC on food additives other than colours and sweeteners

5.7 Packaging requirements for fishery products

Packaging materials and products liable to enter into contact with fishery products should:

- not impair the organoleptic characteristics of the fishery products;
- not be capable of transmitting to the fishery products substances harmful to human health;
- be strong enough to protect the fishery products adequately.

With the exception of containers made of impervious, smooth and corrosion – resistant durable material, that may be re-used after cleaning and disinfecting, packaging materials should not be re-used.

Packaging materials used for fresh products held under ice should provide adequate drainage for melt water.

Packaging materials should be stored in areas separate to the area in which fishery products are processed or handled, and should be protected from dust and contamination.

5.8 Requirements for storage and transport

During storage and transport, fishery products should be kept at the prescribed temperature, and in particular:

- a) Fresh or thawed fishery products, and cooked and chilled crustacean and molluscan shellfish products should be kept at the temperature of melting ice;
- b) Frozen fishery products, with the exception of frozen fish in brine intended for the manufacture of canned foods, should be kept at an even temperature of – 18°C or less in all parts of the product; and

- c) Processed products should be kept at the temperature specified by the manufacturer.

Means of transport used to transport fishery products should never be used for the transport of products other than food fit for human consumption. Fishery products may not be stored or transported together with other goods which may contaminate them, unless they are packaged in such a way as to provide adequate protection.

Vehicles and vessels and other means of transport used for fishery products should be constructed and equipped in such a way to permit the prescribed temperatures to be maintained through the period of transport. Fish should never be transported in open vehicles. A temperature gauge should be fitted and temperature monitored during the transport and storage.

If ice is used to chill the products, adequate drainage should be provided in order to ensure that water from melted ice does not stay in contact with the products.

The inside surfaces of the means of transport should be smooth and easy to clean and disinfect, and should be kept in clean condition so as to avoid contaminating the product during transport.

6 IDENTIFICATION MARKS FOR FISHERY PRODUCTS

Fishery products which are packed and consigned to market by an establishment should bear the following information on the packaging:

- a) name of the country of origin of the products; and
- b) name and official registration number of the establishment in which the products were processed or packed; and
- c) description of the product, including the common name and the Latin name of the species and its state (fresh, frozen), weight grade; and
- d) packaging method (chilled/frozen/canned etc.); and
- e) date on which it was packed by the establishment and/or the batch identification number; and
- f) any special storage instructions required to maintain the safety and quality of the fishery product, including storage temperature; and
- g) production method (capture fisheries or aquaculture); and
- h) if capture fisheries, the catch area (according to FAO Areas); and
- i) name of any food additives administered to the product and code number if appropriate.

7 FOOD SAFETY CONTROL SYSTEM

7.1 Own checks system and HACCP

Operators of fish landing site and fish processing establishments should implement a system of own checks, comprising a series of scheduled monitoring actions, to ensure that the following have been implemented correctly:

- a) cleaning and disinfecting programmes

- b) personal hygiene and health standards;
- c) pest control programme;
- d) measures to ensure the safety of water and ice
- e) landings are only accepted from vessels which are subjected to hygiene checks by the Competent Authority

In addition, to ensure that food safety risks are effectively managed, operators of fish processing establishments should implement a system of own checks, based on the principles of Hazard Analysis and Critical Control Point System. This should include the following features;

- a) identification of fish and fishery product safety hazards associated with species used, the products and processes, and identification of critical points in the establishment, on the basis of the manufacturing processes used;
- b) establishing and implementing methods for monitoring and checking such critical points, and for taking corrective actions to prevent or minimize the risk of hazards arising;
- c) taking samples for analysis to check effectiveness of cleaning, and disinfection methods, and to check compliance with the fish and fishery product safety requirements set out in legislation
- d) keeping a written record, or a record registered in an indelible fashion, of the preceding points, with a view to making them available to the relevant competent authority. The results of the different checks and tests will be kept for a period of at least two years.

The detailed requirements for the implementation of the system are defined in CRFM Guidelines on Developing and Implementing HACCP Plans for Fish and Fishery Products. The common hazards to be addressed in the CARIFORUM Region are set out in the CRFM Guide to Food Safety Hazards in Caribbean Fishery Products

Operators of fish processing establishments are to ensure that those responsible for the development and maintenance of the procedures referred to in this Manual have received adequate training in the application of the HACCP principles.

7.2 Traceability

As part of their general approach to risk management, operators of fish landing sites and fish processing establishment should establish and maintain a system of traceability, to ensure that the buyer and seller of any batch of fishery products can be identified.

Batch separation should be practised, avoiding mixing of old and new catches. This will ensure that batches can be differentiated at any stage during processing, storage or despatch.

For each batch of fish received, operators of landing sites and processing establishments should have in place a system to identify the fishing vessel supplying the product. Operators of fish landing sites and processing establishments should also require the fishing vessel operator to keep a record of the date, fishing location, gear used, and time of capture. This is especially important in the Caribbean region, where risks of ciguatera in fish, and other marine biotoxins (for example in conch), are highly location specific. Outbreaks of poisoning need to be traced to specific catch locations, so that follow-up investigations can be undertaken, and appropriate measures, such as closure of the fishery, applied.

To ensure traceability, a written or computer record should be kept of all transactions, so that the catch location of the fish they relate to can be identified. More information, and a model form for keeping records of transactions and during processing, is provided in the CRFM Manual on Traceability Systems for Fish and Fishery Products.

7.3 Official Controls by the Competent Authority

The recommended food safety conditions in fish landing sites and processing establishments described in this manual should be subject to periodic official controls by inspectors from the Competent Authority. The content and frequency of these should be risk based, so that operators handling fish species associated with specific hazards should be subject to more frequent inspections than those which do not. Operators with a record of higher numbers of non-compliances should also be subject to more frequent inspections than compliant ones.

A suitable model inspection form and checklists to guide inspections is shown in Annex 2. This may also be used by operators as part of their internal compliance checks.

The Competent Authority should maintain inspection records for each establishment. Non-compliances should be recorded, and followed up. Persistent non-compliance in relation to factors which could give rise to a significant hazard being present in the product, should be addressed through the appropriate procedure including, if necessary, withdrawal of the operating permit or approval.

For more information regarding the EU's specific arrangements for the official control of fish processing establishments, see Regulation (EC) No 854/2004, laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption.

ANNEX 1: FURTHER READING

Manual/Handbook for the Execution of Sanitary Inspection of Fish as Raw Material and Fish-Products as Food for Human Consumption, Strengthening Fishery Products Health Conditions in ACP/OCT countries, Secretariat of the ACP Group of States, SFP-ACP/OCT Management Unit, REG/70021/000

<http://www.megapesca.com/files/manual.rar>

Code of practice for fish and fishery products, Second edition, World Health Organization Food and Agriculture Organization of the UN, Rome, 2012

ftp://ftp.fao.org/codex/Publications/Booklets/Practice_code_fish/CCFFP_2012_EN.pdf

Regulation (EC) No 854/2004 of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption

<http://eur-lex.europa.eu/homepage.html>

Regulation (EC) No 853/2004 of 29 April 2004 laying down specific hygiene rules for food of animal origin

<http://eur-lex.europa.eu/homepage.html>

CARICOM Regional Code of Practice hygiene practice for the handling of fish and fishery products (CRCP 4: 2010), CARICOM Regional Organisation for Standards and Quality (CROSQ).

<https://www.crosq.org>

Check on Water – Fishery Establishments, Council Directive 80/778/EEC, Unofficial European Commission Guidelines setting out the requirements for the hygiene controls of water safety in fishery product establishments

<http://www.megapesca.com/acrobat/checkofwater.pdf>

ANNEX 2: MODEL INSPECTION FORM FOR FISH PROCESSING ESTABLISHMENTS

The following checklists are presented to guide inspection processes under different circumstances. The forms are generally self-explanatory. The severity of any non-compliance may be assessed according to the following scale, according to their gravity:

- ◆ **Critical deficiency (Cr)**: Any condition or malpractice observed in the establishment which can lead to the fish becoming unsafe or unwholesome.
- ◆ **Serious deficiency (Se)**: Any condition or malpractice observed in the establishment that can preclude proper implementation of hygienic practices, or obtaining appropriate level of hygiene, and thus lead to the production of a contaminated or spoiled fish product, but with no safety implications.
- ◆ **Major deficiency (Ma)**: Any condition or malpractice observed in the establishment, which precludes general hygiene and leads to the spoilage of the product.
- ◆ **Minor deficiency (Mi)**: Any observed condition or malpractice, which does not conform to the sanitary requirements, but is not major nor serious nor critical.

When inspecting an establishment using a checklist, the inspector/team will put a mark in the box when detecting a deficiency. No marks will be placed if the evaluated element conforms to the requirements. If required, the results may then be classified according to the number of defaults in each category. The team/inspector can sum up the deficiencies by category (Mi, Ma, Se or Cr) for each element, and an overall rating of the plant awarded. An example is shown in Table I below. The Competent Authority should have a policy setting out the response to different levels of rating e.g. closure of plants in category D.

Annex 2: Table I: Rating of fish handling and processing establishments

| Rating of the Establishment | Number of minor deficiencies | Number of major deficiencies | Number of serious deficiencies | Number of critical deficiencies |
|-----------------------------|------------------------------|------------------------------|--------------------------------|---------------------------------|
| A | 0 to 6 | 0 to 5 | 0 | 0 |
| B | 7 or more | 6 to 10 | 1 to 2 | 0 |
| C | NA* | 11 or more | 3 to 4 | 0 |
| D | NA | NA | 5 or more | 1 or more |

*NA: Not applicable in this case.

Checklist for structural condition of establishment

| Sanitary requirements regarding the construction, lay-out and equipment | | | | | |
|---|------------------------|----|----|----|----------|
| Elements to Evaluate | Seriousness of defects | | | | |
| | Mi | Ma | Se | Cr | Comments |
| 1 - Layout | | | | | |
| 1.1 Is the area sufficient to carry out the work under sanitary and hygienic conditions? | | | | | |
| 1.2 Does the lay-out preclude contamination? | | | | | |
| 1.3 Are the clean area and dirty area separated? | | | | | |
| 2 - Receiving Area | | | | | |
| 2.1 Is the receiving area clean? And in a good state of repair? | | | | | |
| 2.2 Are the floor, walls, ceiling made of materials easy to clean and sanitise? | | | | | |
| 2.3 Is there sufficient potable water supply and adapted washing? | | | | | |
| 2.4 Is the drainage system proper and clean? | | | | | |
| 2.5 The isolation from outside is sufficient? | | | | | |
| 3 - Processing Area | | | | | |
| 3.1 Floors | | | | | |
| 3.1.1 Is the floor made of materials easy to clean and disinfect? | | | | | |
| 3.1.2 Is the floor laid down in a way to allow easy drainage of water or is it provided with equipment to remove water? | | | | | |
| 3.2 Walls | | | | | |
| 3.2.1 Are the surfaces of walls smooth and easy to clean and disinfect? | | | | | |
| 3.2.2 Are the surfaces of walls durable and impermeable? | | | | | |
| 3.3 Ceiling | | | | | |
| 3.3.1 Is the ceiling of a smooth washable surface that will ensure cleanliness? | | | | | |
| 3.4 Doors | | | | | |
| 3.4.1 Are the doors made of durable material? | | | | | |
| 3.4.2 Are they easy to clean? | | | | | |
| 3.4.3 Well closing? | | | | | |
| 3.5 Ventilation | | | | | |
| 3.5.1 Is the ventilation adequate/sufficient? | | | | | |
| 3.5.2 Does it allow a good extraction of moisture? | | | | | |
| 3.6 Lighting | | | | | |
| 3.6.1 Is the lighting adequate and protected? | | | | | |
| 3.7 Hand Cleaning and Disinfecting Facilities | | | | | |
| 3.7.1 Are the facilities in sufficient number? | | | | | |
| 3.7.2 Are the taps knee operated? | | | | | |
| 3.7.3 Are detergent and disinfecting agents available, listed and approved? | | | | | |

| | | | | | |
|-------|---|--|--|--|--|
| 3.7.4 | Are the facilities provided with disposable hand towels and trash bins? | | | | |
| 3.8 | Facilities and Equipment for Cleaning and Disinfecting Plant Facilities, Utensils and Equipment | | | | |
| 3.8.1 | Are they available? | | | | |
| 3.8.2 | Is the equipment coded to suit with respective working area/section? | | | | |
| 4 - | Chill Rooms, Ice Rooms and Cold Stores | | | | |
| 4.1 | Floors | | | | |
| 4.1.1 | Is the floor water proof? | | | | |
| 4.1.2 | Is the floor made of materials easy to clean and disinfect? | | | | |
| 4.1.3 | Is the floor laid down in a way to allow for easy drainage of water or is it provided with equipment to remove water? | | | | |
| 4.2 | Walls | | | | |
| 4.2.1 | Are the surfaces smooth and easy to clean and disinfect? | | | | |
| 4.2.2 | Are the surfaces durable and impermeable? | | | | |
| 4.3 | Ceiling | | | | |
| 4.3.1 | Are the ceiling of a smooth washable surface that will ensure cleanliness? | | | | |
| 4.4 | Doors | | | | |
| 4.4.1 | Are the doors made of durable material? | | | | |
| 4.4.2 | Are they easy to clean? | | | | |
| 4.4.3 | Close properly? | | | | |
| 4.5 | Lighting | | | | |
| 4.5.1 | Are the lighting adequate and protected? | | | | |
| 4.6 | Refrigeration Capacity | | | | |
| 4.6.1 | Is the refrigeration capacity adequate to ensure proper product temperature? | | | | |
| 5 - | Protection against Vermin and Undesirable Animals | | | | |
| 5.1 | Are there adequate vermin proofing and appropriate protection facilities? | | | | |
| 6 - | Instruments and Working Equipment | | | | |
| 6.1 | Are they made of corrosion resistant materials? | | | | |
| 6.2 | Are they easy to clean and disinfect? | | | | |
| 7 - | Elimination of By-products Non-destined for Human Consumption | | | | |
| 7.1 | Are the by-products bins equipped with adequate lids and non-corrosive? | | | | |
| 7.2 | Is there adequate room for storage of by-products if they are not evacuated at the end of the working day? | | | | |
| 8 - | Water Supply | | | | |
| 8.1 | Is potable water available? | | | | |
| 8.2 | Is it available in sufficient pressure and volume? | | | | |
| 8.3 | Is there a clear distinction between potable and non-potable water pipes? | | | | |
| 9 - | Water Waste | | | | |
| 9.1 | Is there an adequate and hygienic waste water disposal system? | | | | |
| 10 - | Changing Rooms and Toilet Facilities | | | | |

| | | | | | |
|------|---|--|--|--|--|
| 10.1 | Are there an adequate number of changing rooms? | | | | |
| 10.2 | Are the walls and floors in the changing rooms smooth, waterproof and easy to clean and sanitise? | | | | |
| 10.3 | Are there an adequate number of washbasins? | | | | |
| 10.4 | Are there an adequate number of toilets? | | | | |
| 10.5 | Are the toilets adequately separated from the fish handling and processing area? | | | | |
| 10.6 | Are toilets equipped with working water-flushing systems? | | | | |
| 10.7 | Are adequate hand washing and disinfecting systems available? | | | | |
| 10.8 | Are disposable hand towels available? | | | | |
| 10.9 | Are the washbasin taps knee operated? | | | | |
| 11 - | Cleaning and Disinfections of Transportation Vehicles | | | | |
| 11.1 | Is appropriate equipment for cleaning and disinfecting vehicles available? | | | | |
| 11.2 | Is cleaning and disinfecting carried out according to an approved schedule? | | | | |
| 12 - | Freezing and Cold Storage Facilities | | | | |
| 12.1 | Is the freezing capacity sufficient? | | | | |
| 12.2 | Is the cold stores refrigeration capacity sufficient to keep fish temperature at or below -18°C? | | | | |
| 12.3 | Are the cold stores equipped with a temperature recording device that is easy to consult? | | | | |
| 12.4 | Is the thermal sensitive part of the thermometer placed in the warmest area of the cold store? | | | | |
| 13 - | Facilities for Live Fish | | | | |
| 13.1 | Providing for good surviving rates? | | | | |
| 13.2 | Water of appropriate quality available in proper quantity? | | | | |
| 14 - | In Plant Medical Checks | | | | |
| 14.1 | Medical or first aid available or first aid cabinet available? | | | | |
| 14.2 | Medical personnel available when factory is working? | | | | |
| 15 - | Laundry | | | | |
| 15.1 | Is a laundry service provided for washing of uniforms? | | | | |
| 16 - | In-Plant Laboratory | | | | |
| 16.1 | Are the necessary facilities and equipment for carrying out analyses available? | | | | |
| 17 - | External Environment | | | | |
| 17.1 | Is the factory well fenced to physically demarcate it from the neighbouring areas? | | | | |
| 17.2 | Is the plant exterior kept clean and free from extraneous material and equipment? | | | | |

Checklist for the hygiene and GMP

| Elements to Evaluate | Mi | Ma | Se | Cr | Comments |
|---|----|----|----|----|----------|
| 1 - Facilities and Equipment Hygiene | | | | | |
| - Are they kept in a satisfactory state of cleanliness? | | | | | |
| - Is vermin systematically exterminated? | | | | | |
| - Are rodenticides, insecticides, disinfectants and any other toxic substance stored in premises or cupboards, which can be locked? | | | | | |
| - Can these toxic products contaminate the fish products? | | | | | |
| - Are the working premises used only for fish products? | | | | | |
| - If not, was the company authorized? | | | | | |
| - Is potable water used for the designated purposes? | | | | | |
| - Are the detergents and the disinfecting agents approved? | | | | | |
| - Are the facilities and equipment cleaned and disinfected at least once per day? | | | | | |
| 2 - Personal Hygiene | | | | | |
| - Has every worker undergone a medical examination? | | | | | |
| - Is medical examinations periodically carried out on workers handling fish? | | | | | |
| - Is any person that can contaminate the products excluded from handling them? | | | | | |
| - Do all the workers wear suitable and clean working clothes? | | | | | |
| - Do they wear a headgear, which covers completely the hair? | | | | | |
| - Do they wash and disinfect their hands each time before commencing work? | | | | | |
| - Are the wounds covered with waterproof bandages? | | | | | |
| - Does the staff respect the instructions of not smoking, spitting, eating and drinking in the working and storage premises? | | | | | |
| 3 - Containers for Fresh Fish | | | | | |
| - Do they protect fish from contamination? | | | | | |
| - Do they preserve fish in a hygienic manner? | | | | | |
| - Do they allow for easy drainage of water? | | | | | |
| 4 - Evacuation of Waste | | | | | |
| - Is waste evacuated at least once a day? | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| - Are the waste containers and the waste storage premises cleaned and disinfected after each use? | | | | | |
| - Can the stored waste be a source of contamination for the establishment? | | | | | |
| 5 - Storage of Frozen Fishery Products | | | | | |
| - Is temperature recorded on the recorder? | | | | | |
| - Is the recording kept for a duration equivalent to the shelf life of the product? | | | | | |
| 6 - Cooked Crustaceans | | | | | |
| - Cooking followed by efficient cooling down to melting ice temperature? | | | | | |
| - Only potable or clean sea cooling water used for cooling? | | | | | |
| - Cooked products to be frozen, quickly frozen (or chilled)? | | | | | |
| - Cooked products properly treated in clean controlled areas? | | | | | |
| - Microbiological verification tests done regularly? | | | | | |
| 7 - Conditions Concerning Parasites | | | | | |
| - Are products checked visually for parasites? | | | | | |
| - Are the fish or fish parts that are heavily infested removed from distribution? | | | | | |