CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

Version 0.1 (1 August 2015)

[Selected documents] [DRAFT]

CONTENTS

About the CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

A key feature of the Caribbean Fisheries Regional SPS Framework is the establishment of mechanism to adopt regionally-agreed **Standards, Protocols and Guidelines**: see **Annex 2**. These documents vary in nature and legal effect:

Standard: means a guideline approved by a recognized body that provides for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory (Agreement establishing the CARICOM Regional Organization for Standards and Quality, Art. 1)

Protocol: means a set of rules, conditions or guidelines, which may incorporate in whole or in part any Standard, approved by a recognized body and with which compliance is intended to be mandatory in national legal systems (Model Export Control Act, draft section 1).

Guidelines: means any document or set of documents, other than a Standard or Protocol, which describes best practices characteristics for products or related processes and production methods, and which is included in the **catalogue of best practices** (see **Annex 2**).

The Regional SPS Framework provides a detailed, but efficient and cost-effective, mechanism for reviewing and recommending Standards, Protocols and Guidelines, without displacing the role of CROSQ as the primary body responsible for the development of Standards.

Moreover, by integrating the adoption of **Protocols** into the model legislation, the process enables regionally adopted **Protocols** (which may incorporate in whole or in part any Standard) to be incorporated on a fast-track basis into national regulatory systems. The precise mechanism at the national level to achieve this is determined in the discretion of each national government (and is not mandatory – without action at the national level, the Protocols do not create legal effects). However, by integrating these documents the facility exists to incorporate regionally adopted Protocols simply and quickly, thereby alleviating the need at the national level to monitor the movement in

Draft Protocols (Pre-requisite programme)

- Biosecurity Control
- Chemical Use Control
- Environmental Sanitation Control
- Equipment Use and Maintenance
- Facility Sanitation and Maintenance
- Fishery Facility Food Safety System
- Fishery Product Recall Response
- Fishery Product Storage
- Fishery Product Traceability
- Harvesting and Production
- Labelling
- Packaging
- Personnel Hygiene
- Pest Control
- Product Transport
- Raw Material – Ingredients
- Waste Disposal Control
- Water and Ice Quality Control
- Worker Welfare and Safety

Draft Guidelines

- Guidelines on Developing and Implementing HACCP Plans for Fish and Fishery Products

international standards and to revise national legislation. This addresses one of the key constraints for CARIFORUM countries, that is the challenge of keeping legislation up to date with international requirements.

19 draft Protocols have been prepared, along with Guidelines on Developing and Implementing HACCP Plans for Fish and Fishery Products. The draft Protocols are designed to provide a complete system for an EU-equivalent pre-requisite and control programme. These would need to be subjected to the review process in Annex 2, before formal adoption.

The Protocols

Chemical Use and Control Protocol

Last updated: 1 August 2015

Cariforum Protocols on Good Fisheries Hygiene and Production Standards

ABSTRACT

Guidelines on procedures for procuring, storing, handling and using chemicals in food processing facilities.

CHEMICAL USE AND CONTROL

Rationale

Food additives, agricultural and veterinary chemical residues, biological and physical (environmental) contaminants, radionuclide contamination and uncontrolled food handling practices and processing can result in the introduction of residues into food at any stage along the food chain. If chemicals are not used, handled or stored properly, food risks becoming contaminated.

International Standards Implemented

- Joint WHO/FAO: International Programme on Chemical Safety
- CODEX: International Code of Practice (General Principles of Food Hygiene)
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- UN: Environmental Programme on chemical Safety (IPCS)
- CODEX: Guidelines on Food Hygiene
- ISO: International Programme on Chemical Safety.
- EU : Council Directives # 96/23/EC Governing Chemical Residues in foods
- EU : Council Directive 94/356/EC Governing “Own Checks”.
- FAO: Application of Risk Analysis To Food Safety Control Programmes
- FDA: Regulations Governing Chemical Residues in Foods
- CODEX : Maximum Residue Levels in Foods Chemical Residues: Council Directive 86/469/EEC
- EU: Council Directive EEC#2377/9 (1990): Establishment of Maximum Residue Limits

Chemical Use and Control Procedures

Definitions

1. Approved chemicals means chemicals approved by a national authority for use under this Protocol.

2. Chemicals includes chemical compounds; “Chemical compound" means any chemical substance that is used in a licensed processing establishment or on a licensed vessel for any purpose other than as a product ingredient.

Chemical Use

3. No person shall use a chemical compound in a licensed processing establishment or on a licensed fishing vessel –

a. in an area in which prescribed products are harvested, handled or processed; or

b. in a manner that is likely to result in its direct or indirect contact with fishery products, which is not approved by the Competent Authority.

4. Only approved chemicals are to be used.

5. Use of all chemicals must be in compliance with manufacturer's instructions or with other guidance provided by the Competent Authority.

6. All chemicals must be appropriately labelled, handled and used with caution.

7. Where smaller quantities or diluted amounts are required and are placed in sub-containers or packages all such sub-containers or packages must be adequately labelled to reflect the original stock label.

8. All chemicals, including chemical residues or unused portions of chemicals that are not discarded, must be safely and securely stored in order to prevent employee injury or toxicity or serving as a risk factor for food contamination. A closet or secured space must be designated and used for storage of chemicals.

9. Chemical residues or unused portions for disposal must be disposed of following specific facility procedures for chemical disposal. Such procedures must be designed so as to prevent employee injury or toxicity or serving as a risk factor for food contamination.

10. Adequate first aid facilities, including a first aid station with emergency shower and eye washing facility, must be provided.

11. All personnel involved in handling chemicals or undertaking activities involving the use of chemicals must be provided with and must wear or use protective clothing and – where necessary to ensure their safety – protective equipment.

12. Any spills must be cleaned up promptly and thoroughly.

Management, Control and Reporting

13. A master list should be kept of all chemicals stored and used. The list must be updated regularly by a supervisor.

14. A daily log of all the chemicals used should be a part of the facility in-house checks for food safety and hygiene aimed at monitoring and controlling potential risks due to chemical residues.

Guidance

The uncontrolled application of agricultural chemicals , accidental or willful environmental contamination ,presence of microbiological hazards ,use of unauthorized additives and other abuses of food along the food chain can all contribute to the potential introduction of these hazards into the food supplies or leading to failure of reduction of hazards related to foods.

World-wide consumers have expressed concerns about safety of food additives , agricultural and veterinary chemical residues biological and physical (environmental) contaminants, radionuclide contamination and uncontrolled food handling practices and processing which can result in the introduction of residues into food at all stages along the food chain –from production/harvesting through to processing and distribution and to the consumer.

With increase awareness of the adverse impact of food hazards on human health the increasing importance and rapid growth of world food trade and demand by consumers for safe food supplies analysis of the risks associated with foods along with their prevention, control and elimination have become more urgent tasks for those responsible to trade those foods which are wholesome and fit for human consumption.

This “in house” or “owner check” protocol should be reflective of the overall National Residue Monitoring Programme.

To ensure efficacy of the Protocol, any chemicals used should be sourced from reputable firms. All effort to be made to prevent cross contamination of products by chemical residues through misuse or abuse. Similarly, all effort must be made to prevent personal injury to employees due to chemical exposure through careless use or accidental spillage.

Appendix No- Daily Monitoring , Recording and Management Log for Chemicals Used

Time	Type of Chemical	Amount Used	Purpose of Use	Area/Operation of Use	Signature of Worker	Comments/signature Supervisor	Date
Mon							
Tues							
We							

d							
Thu							
Fri							
Sat							
Sun							

Equipment Use and Maintenance Protocol

Last updated: 1 August 2015

CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

ABSTRACT

Equipment and utensils are often times been incriminated in food contamination and may be the cause of serious employee injuries. The building, equipment, utensil and other physical facilities of the plant should be kept clean, in good repair and should be maintained in an orderly and hygienic condition.

EQUIPMENT USE AND MAINTENANCE PROTOCOL

Rationale

Equipment and utensils are often times been incriminated in food contamination and may be the cause of serious employee injuries. The building, equipment, utensil and other physical facilities of the plant should be kept clean, in good repair and should be maintained in an orderly and hygienic condition.

International Standards Implemented

- CODEX: CAC/RPC-1 General Principles of Food Hygiene
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- FDA : Food Code : Public Health Regulations

Equipment Use and Maintenance Protocol

General principles

1. The building, equipment, utensil and other physical facilities of the plant should be kept clean, in good repair and should be maintained in an orderly and hygienic condition.

Equipment, containers and utensils

2. Equipment and containers used for the harvesting and production of prescribed products shall—

    a. be constructed and maintained so as not to constitute a hazard to health;

    b. if reusable, be of such material and construction as to permit easy and thorough cleaning; and

    c. be maintained in a clean condition and, where necessary, be sanitized.

3. Containers used for toxic materials shall not be used for holding prescribed products or ingredients and equipment used for handling or processing those products.

4. All work surface and all containers, trays, tanks and other equipment used for processing fish must be—

    a. made of smooth, non-absorbent, non-toxic material which is resistant to corrosion;

b. designed and constructed to prevent hygienic hazards;

c. capable of withstanding repeated cleaning and disinfection; and

d. permit thorough cleaning and disinfection and be accessible for inspection.

5. Equipment and fixtures must be installed as follows—

    a. where equipment or fixtures are placed adjacent to a wall or other equipment-

        i. the gap must be sealed to prevent the entry of moisture, dirt and pests; or

        ii. sufficient space must be left to permit cleaning and inspection;

    b. where equipment is placed directly on the floor, it must be-

        i. sealed to the floor to prevent entry of moisture;

        ii. placed on a raised plinth covered at the junction of the floor and plinth; or

        iii. fitted with legs with a minimum of 100 mm clearance between the underside of the equipment and the floor.

6. Containers for return or repeated use must be—

    a. made of suitable corrosion-resistant materials;

    b. constructed so that they can be easily cleaned;

    c. large enough to hold adequate quantities of ice as well as the correct weight of fish;

    d. strong enough to withstand handling;

    e. suitable for stacking when filled up without damage to fish in boxes below.

7. Non-returnable or single use boxes must be—

    a. durable enough for any normal handling operation

    b. of sufficient size to hold an adequate amount of ice as well as the required weight of fish.

8. Drainage must be arranged to avoid contamination of fish in stacked boxes.

9. Storage containers for inedible materials and waste shall be—

    a. clearly identified;

    b. leak-proof;

    c. constructed of suitable impervious material;

    d. easy to clean; and

    e. capable of being closed securely if stored externally.

10. Filleting boards and other surfaces on which fish are cut or skinned must be made of non-absorbent materials which meet the physical requirements for cutting surfaces.

11. Filleting boards and other surfaces on which fish are cut or skinned must be—

    a. frequently and thoroughly scrubbed and treated with disinfectant; and

    b. wherever practicable, continuously flushed during use with running potable or clean seawater during use containing 4 PPM of residual chlorine.

12. If barrels or other containers are used on the filleting line for the collection and disposal of offal, they must be located below the level at which the fish is processed and in such a way that there is no splash back on the processing line.

13. Chutes and other enclosed transport systems must be constructed with inspection and cleaning hatches and be easy to clean.

14. All overhead structures and fittings, including lighting, must be—

    a. installed in such a manner as to prevent contamination, whether directly or indirectly, of fishery products and raw materials by condensation or drip;

    b. insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and minimize condensation, the development of mould and flaking; and

    c. easy to clean.

15. The covering of light bulbs must be shatterproof.

16. Wood must not be used as a contact surface on which prescribed products may be handled for use in processing areas, ice rooms, freezers, cold stores or chillers.

17. Where wood is used in doors, door jambs, windows, brooms, brushes in licensed processing establishments or licensed vessels, it must be sealed by the application of a durable, non-toxic surface coating.

18. Adequate facilities for cleaning and disinfecting a licensed processing establishment, licensed vessel, working implements and equipment must be—

    a. constructed from corrosion resistant materials; and

    b. capable of being easily cleaned and disinfected.

19. Where necessary, adequate facilities for sterilizing working implements and equipment must be provided.

20. Where water is not used as the sterilizing medium of a sterilizing facility, the competent authority must approve the method of sterilization.

21. Sterilizing facilities must be—

    a. constructed from corrosion resistant materials;

    b. capable of being easily cleaned; and

    c. if the sterilizing medium is water, fitted with suitable means of supplying hot and cold water in sufficient quantities.

Freezing and refrigeration equipment

22. Every licensed processing establishment shall be equipped with freezing equipment that is sufficient—

    a. to achieve a rapid reduction in temperature in order that a fishery product may maintain the temperatures specified in regulations or approved Standards or Protocols for the product being kept;

    b. to maintain prescribed products in storage rooms at a temperature not exceeding those so specified whatever the ambient temperature may be,

    so, however, that in the case of whole fish frozen in brine and intended for canning, temperatures not exceeding -9°C may be maintained.

23. A temperature recording device shall be situated in every storage room in a place where it may easily be read.

24. The temperature sensor of the recording device shall be located in an area farthest away from the cold source.

25. Temperature charts shall be made available to an inspector for inspection.

26. Every refrigeration chamber shall—

    a. have floors, walls, ceilings, doors and hatches that are constructed and maintained in accordance with the relevant provisions of this Protocol;

    b. with respect to the interior, be constructed of smooth, impervious and corrosion resistant material;

    c. be equipped with a refrigeration plant capable of reducing, or maintaining the temperature of fishery products as specified in regulations or approved Standards or Protocols for the product being kept;

    d. be equipped with an accessible and easily readable automated temperature measuring device, accurate to within -0.5°C and calibrated in accordance with the requirements of the manufacturer; and

    e. be designed to allow for adequate drainage of defrosted water away from the refrigeration unit.

27. Every cold storage facility shall be capable of storing frozen prescribe products at a temperature of -18°C or colder.

28. A freezer located in a licensed processing establishment, used for the storage of prescribed products shall be—

    a. adequately refrigerated;

    b. made with materials and fitted with doors that ensure its efficient operation; and

    c. capable of reducing the temperature of prescribed products to -18°C or colder.

Other

29. All measuring instruments, gauges and devices used in connection with the preparation of fishery products shall be graduated in a manner which enables them to be read accurately and shall be calibrated by the appropriate regulatory body.

Management and Monitoring Control

A programme for an active sanitary monitoring, cleaning and repairs or maintenance of all equipment should be implemented, guided by manufacturer's instructions in addition to regulatory requirements and accepted Standards.

Documentation and Recording

An appropriate cleaning and maintenance programme log to be established for each piece of equipment used in the facility.

Guidance

Contamination of fish during processing can be caused by contact with unsatisfactory surfaces. All food contact surfaces should be smooth, free from pits, crevices and loose scale, substances harmful to man, unaffected by salt, fish juices or other ingredients used, and capable of withstanding repeated cleaning and disinfection. Wood could be used for cutting surfaces only when no other suitable material is available. Machines and equipment should be so designed that they can be easily dismantled to facilitate thorough cleaning and disinfection.

All surfaces which come in contact with fish should be hosed down with potable water or clean sea water as frequently as necessary to ensure cleanliness. It is important that the cleaning method used will remove all residues and the disinfecting method will reduce the microbial population of the surface being cleaned.

The use of potable water or clean seawater alone is generally not sufficient to accomplish the required result. It is desirable, if not essential, that aids such as suitable cleaning and disinfecting agents together with manual or mechanical scrubbing, whenever appropriate, be used to assist in achieving the desired objective. After the application of cleaning and disinfecting agents the surfaces which come in contact with fish should be rinsed thoroughly with potable or clean seawater before use.

All machines used for cutting, washing, filleting, skinning, steaking or similar operations should be thoroughly clean, disinfected and rinsed during rest or meal breaks and before resumption of production following other work stoppages.

All machinery and equipment should be inspected before processing begins to ensure that it has been properly cleaned, disinfected, rinsed and reassembled.

The use of properly designed washing machines is recommended wherever practicable. Good washing by hand can be achieve by scrubbing with stiff brushes and by using high-pressure water jets, with detergents added to water.

A preliminary rinse in potable cold water or clean seawater, followed by a wash with hot water at a minimum temperature of 43^0 C ($110\ ^0$ F) has been recommended for efficient cleaning. An ample supply of potable water or clean sea water at adequate pressure is the first requirement and cleaning will be much easier if slime and blood are not allowed to dry on to the container surfaces.

Containers used for holding fish should preferably be constructed of plastic or corrosion-resistant metal, and if of wood, they should be treated to prevent the entry of moisture and coated with a durable, non-toxic paint or other surface coating that is smooth and readily washable. Wicker baskets should not be used.

Only new and clean boxes, cartons and wrapping materials should be used for the transport and distribution of fillets and similar products. The practice of using returnable boxes for the transport and distribution of products should be discouraged, unless the box is constructed of light inner non-returnable container protected by a stronger returnable outer case. Where returnable boxes are used they should be of corrosion –resistant material and thoroughly cleaned and disinfected after each use.

As the fish should always be well iced, it is necessary that the adequate quantities of ice for the standard amount of fish being sold. It should be possible to stack containers close together to reduce the amount of air absorbed from the surrounding atmosphere. Good drainage arrangements prevent fish lying in melt-water containing microorganisms and the digestive intestine of the fish.

A properly designed filleting line means saving the cost of processing and will result in a better quality of the final product. The filleting line should be designed as a continuous processing unit with all operations arranged sequentially in such a way that the finish could move uniformly fast through the line without any stoppages or slow–downs. When the fish or fillets are moved through the line by a conveyor, the conveyor should be provided with scrapers and spray-washers at least at its two terminal pulleys. If the fish is flamed, no recalculation of the fluming water should be allowed unless it is restored to a level of potable quality. Offal chutes should be located as close as possible to the filleter's stations but in such a way that there is no possibility for a splash–back. Each filleter's stations should have a line of potable water or clean seawater with a tap to regulate the flow of water over the surface of the filleting board.

The use of machines for cutting, washing, filleting, skinning, steaking and similar operations, which are properly designed, is to be encouraged.

Packaging Protocol

Last updated: 1 August 2015

CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

ABSTRACT

Appropriate packaging is a key component in the delivery of safe and wholesome products. A large proportion of losses incurred at the ports of entries are due to inaccurate packaging and labelling leading to product contamination or rejection. Adequate packaging serves to protect product from physical damage in addition to minimizing the process of product cross- contamination.

PACKAGING PROTOCOL

Rationale

Appropriate packaging is a key component in the delivery of safe and wholesome products. A large proportion of losses incurred at the ports of entries are due to inaccurate packaging and labelling leading to product contamination or rejection. Adequate packaging serves to protect product from physical damage in addition to minimizing the process of product cross- contamination.

International Standards Implemented

- CODEX : CAC/285/CXP (General Principles of Food Hygiene-Labelling and Packaging
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- FDA: FSMA Food and Beverage Regulations

Packaging Procedures

1. Fishery products must be packaged or wrapped under satisfactory hygienic conditions so as to prevent their contamination.

2. The materials used for packaging or wrapping prescribed products shall be suitable for such use and must—

    a. not cause any physical, biochemical or micro-biological deterioration of the fishery products;

    b. not contaminate the fishery products;

    c. not contain or transmit to the fishery products a substance that could cause a health hazard;

    d. not cause exposure of the fishery products during storage or transportation;

    e. be sufficiently strong to withstand the handling ordinarily incurred by packaging, during transit to the final destination.

3. The time that elapses between processing and packing of fishery products must be such as to prevent physical, biochemical or microbiological deterioration of the fishery product.

4. Descriptive markings must be applied to packaging of fishery products by means of indelible ink.

5. Only food colourings which are approved by the competent authority can be used in plastic packaging for fishery products.

6. Inks and pigments or colourants in inks used on packaging for fishery products shall be non-toxic and shall not contain—

    a. lakes or pigments;

    b. chromium;

    c. any toxic substance.

7. Labels and tags or any adhesive matter used on packaging for fishery products must be so used as to prevent contamination of the products.

8. A container of fishery products must not contain any foreign matter or substance.

9. Material or wrappers used for the packaging of fresh fishery products on ice must provide adequate drainage for water from melted ice.

10. Unused packaging material must be stored in a hygienic manner away from product handling areas.

11. Live bivalve molluscs, echinoderms, tunicates and marine gastropods must be wrapped under the most ideal hygienic conditions.

12. The wrapping material or container used in the packaging of live bivalve molluscs must—

    a. not impair their organoleptic characteristics;

    b. not be capable of transmitting substances harmful to human health; and

    c. provide adequate protection.

13. Oysters shall be wrapped with the concave shell downwards.

14. Packaging and wrapping material must not be reused unless in containers which are—

    a. made of impervious, smooth and corrosion resistant material;

    b. easy to clean and disinfect; and

    c. are reused only after cleaning and disinfecting.

15. Packaging material must be securely stored in an environment free from dust, moisture, chemical residues, pests and other contaminants.

Management and Control

16. Packaging material must be inspected prior to being used.

17. Only packaging material for immediate use should be in the designated packaging area.

18. Systematic rotation of the use of packaging material should be done with outdated material being rejected.

Documentation/Recording

A list of all packaging material should be established inclusive of size, types and quantities.

Guidance

Appropriate packaging is a key component in the delivery of safe and wholesome products. In addition, type of packaging does impact the perceived aesthetic presentation of fish products placed on the market.

Experience has shown that a large proportion of losses incurred at the ports of entries are due to inaccurate packaging and labeling leading to product contamination or rejection.

Adequate packaging serves to protect product from physical damage in addition to minimizing the process of product cross- contamination while facilitating effective labelling.

Key steps in implementing this Protocols include:

- All packaging material to be obtained from reputable sources
- Packaging material selected should be appropriate for the type of products intended and for expected storage conditions
- Package material should not be capable of transmitting to product any harmful or objectionable substances or odours and or tastes.
- Packaging material to be stored in dust and pest free, as well as, non humid environment and at the manufacturer's recommended temperature.
- Products to be packed in special facility designed packages
- All products packaged must meet the designated standards of quality and wholesomeness
- All products packaged must meet the correct specifications of import such as exact weight in kg.
- All processes in the packaging operation if possible must be performed without unnecessary delay.
- Packaging should be done in a way so as to prevent the possibility of product leakage , contamination and deterioration or the growth of pathogenic or spoilage micro-organisms.
- All products to be packed should be given a last visual inspection as to quality and wholesomeness .
- Pack the exact or prescribed weight to ensure the integrity of operation and to avoid the issue of fraud in the country of import and possible rejection.

- Product packaging to be done so as not to cause damage or undue exposure to products
- Sealing of all packages to be done using tamper –free, non- absorbent type seals or tapes .
- Packed products should be placed on palletized trolleys after appropriate labeling and be immediately stored at designated refrigerated temperature) 0 -4 OC for fresh products and for blast- frozen products at minimum-!8 oC .
- For live fish packaging should follow specific protocols laid down for such products.
- All shipment must be accompanied by the required Health Attestation (export Certificate) to be issued by the competent authority.
- Separate storage facilities should be available for the proper dry storage of packaging materials in order to protect them against moisture, dust or other contamination.

Personnel Hygiene Protocol

Last updated: 1 August 2015

CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

ABSTRACT

Cross contamination resulting from product mishandling along the food chain is a major cause of product contamination. Contamination due to employees whether directly or indirectly be either eliminated or be significantly minimized throughout the production, processing, transportation and distribution operations.

PERSONNEL HYGIENE PROTOCOL

Rationale

Cross contamination resulting from product mishandling along the food chain is a major cause of product contamination. Contamination due to employees whether directly or indirectly be either eliminated or be significantly minimized throughout the production, processing, transportation and distribution operations.

International Standards Implemented

- CODEX : Code CAC /RCP1-1969 C(General Principles of Food Hygiene)
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- FDA : Code of Federal Regulation (FDA,2001)Work Place Hygiene
- EU : Council Directive 89/654/ EEC (Work Place Requirements for Safety and Health.)
- EU: Council Directive : 852/2004/EEC (Hygiene of Food Stuffs).

Personnel Hygiene Procedures

Scope

1. Unless otherwise specified, these procedures apply to any person, including any official or unofficial visitor, who engages in the handling of fishery products or enters into any area of a licensed processing establishment or licensed vessel where fishery products are or might be handled (in this Protocol a “product handling area”).

Compliance with regulatory requirements

2. All employees, including managers, having access to facility food handling operations must comply with any national regulations or requirements concerning food handling, for example a requirement to be in possession of an official food handler’s certificate, and with any other public health regulations or requirements under national law.

Personal hygiene

3. Every person before entering a product handling area must—

    a. remove all items of personal jewellery;

    b. ensure any body-enhancing items such as artificial eye lashes, finger nail extensions and long hair braids are removed;

c. ensure any open wounds, boils, lesions, abrasions, or other similar injury is appropriately bandaged with water-proof or non absorbent tape and free from the risk of spreading infection;

d. ensure, if they are engaged in handling fishery products, that their fingernails are cut short and free from any fingernail polish or varnish.

4. Every person in a fishery product handling area must at all times—

    a. wear suitable protective clothing and footwear;

    b. wear a covering for the head that encloses the scalp and hair;

    c. if the person has a beard or moustache, wear a face covering to cover the beard or moustache; and

    d. if gloves are worn, ensure that the gloves are in a sound, clean and sanitary condition.

5. Disposable gloves or other disposable protective clothing worn in a fishery product handling area must be discarded after each use and must not be reused.

6. Every person in a product handling area shall keep protective clothing clean so as to prevent contamination of the prescribed products.

7. Footwear, overalls, aprons, headwear, gloves and other protective outer clothing used in the product handling area must not be worn outside the establishment.

8. Where a laboratory is situated on the premises of a licensed processing establishment any person, including any visitor, working therein shall change his uniform before entering the product handling area.

Handwashing

9. Every person who engages in the handling of fishery products or enters into any area of a licensed processing establishment or licensed vessel where fishery products are or might be handled, must wash his hands—

    a. on entering that area;

    b. each time work is resumed;

    c. immediately after using the toilet;

    d. after touching his nose or mouth;

    e. after handling contaminated material or any material capable of transmitting disease; and

f. whenever else necessary to avoid contaminating the prescribed products in the area.

Foot cleansing

10. All persons must walk through any disinfecting foot motes provided in the facility.

Workers' movement flow

11. In order to assist with ensuring compliance with hygiene protocols, facility managers should devise a workers' flow chart and ensure that all persons are familiar with the movement flow for the facility.

12. All persons must observe the workers movement flow procedures.

Signs

13. The owner or operator of a licensed processing establishment or licensed vessel must display in conspicuous locations, signs advising that smoking, eating, spitting and drinking in product handling or storage areas are prohibited.

Management and control

14. An operator of a licensed processing establishment or licensed vessel must designate competent supervisory personnel and allocate to them responsibility for ensuring compliance with personal hygiene procedures.

15. The designated supervisors must monitor each worker to ensure compliance with personal hygiene procedures.

Documentation / Recording

16. Performance records of each employee in terms of their commitment to facility food safety programme as well as breaches committed are to be kept for disciplinary and training purposes.

17. Records of training courses completed by each employee should be maintained and kept for reference.

18. An absence and illness record for each employee should be maintained.

Guidance

Cross contamination resulting from product mishandling along the food chain is a major cause of product contamination. Contamination due to employees whether directly or indirectly be either eliminated or be significantly minimized throughout the production, processing, transportation and distribution operations.

This can best be done through the maintenance of appropriate/optimum levels of personal hygiene to be enhanced by appropriate awareness training and a robust on-going facility “in house” hygienic programme.

In order to assist with ensuring compliance with hygiene protocols, facility managers should devise a workers’ flow chart and familiarise their staff with it. A model flow chart is produced below. Clear and prominent signs must also be provided throughout the facility in appropriate places – model signs and provided below.

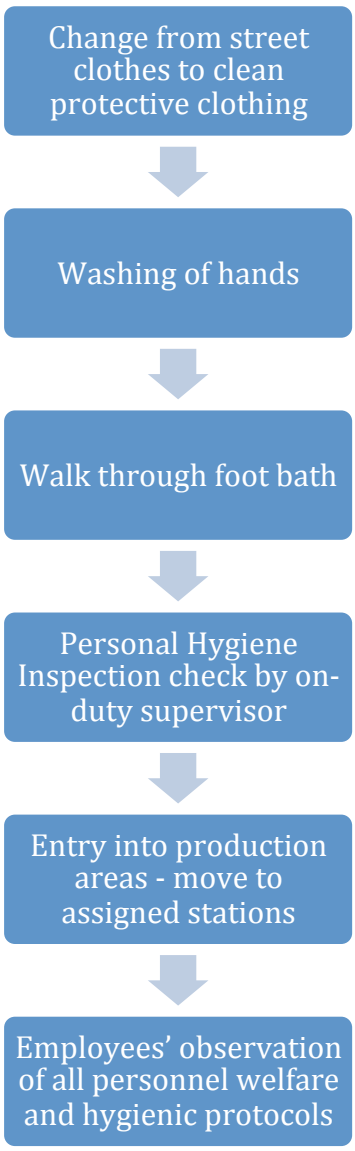
All employees must exchange their “street” clothes for facility sanitized protective clothing and footwear, and remove any personal jewellery, including watches and earrings. The reverse activities will be true at the end of the working day. These are essential parts of the daily routine. Note that protective clothing cannot be worn outside of the facility.

All employees must pay close attention to their own general body hygiene. Employees must make use of hand washing facilities provided, and wash their hands properly, making use of detergent and disposable sanitary hand wiping towels.

Individuals feeling ill should not report to work or if fallen ill at the work place should immediately make a report such illnesses to the attending supervisor for appropriate medical attention. Employees exhibiting oral, nasal or ocular discharges are prohibited from the operational areas and must retire to the first aid room to seek medical attention.

Constant training and updates on food safety issues are an important component of any food safety programme. In addition there should be disciplinary penalties for breaches by staff.

MODEL WORKERS' FLOW CHART



MODEL HAND WASHING INSTRUCTION SIGN

WASHING OF HANDS (HOW)

Firstly, the way the hands are washed is just as important as when they are washed. Hand washing is a serious activity in any food processing facility. The aim should always be that of the proper and thorough washing of the hands at all times. This is necessary to prevent the spread of disease - causing pathogens such as Salmonella, E. coli, Listeria, Shigella, or Hepatitis A micro-organisms.

A recommended routine (technique) is shown below:

Pest Control Protocol

Last updated: 1 August 2015

Cariforum Protocols on Good Fisheries Hygiene and Production Standards.

ABSTRACT

Pests pose a major threat to the safety and suitability of food. Pest infestations can occur where there are breeding sites and a supply of food. Good hygiene practices should be employed to avoid creating an environment conducive to pests. Good sanitation, inspection of incoming materials and good monitoring can minimize the likelihood of infestation and thereby limit the need for pesticides.

PEST CONTROLS FOR FISHERY PRODUCTION

Rationale

Pests pose a major threat to the safety and suitability of food. Pest infestations can occur where there are breeding sites and a supply of food. Good hygiene practices should be employed to avoid creating an environment conducive to pests. Good sanitation, inspection of incoming materials and good monitoring can minimize the likelihood of infestation and thereby limit the need for pesticides.

International Standards Implemented

- Codex – Food Hygiene CoP
- Codex – Fish and Fishery Products CoP
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles

Pest Control Procedures

Definitions

1. "Pest" includes any insect, rodent, bird or other vermin.

General Principles

2. Pest control measures instituted in a licensed processing establishment shall not constitute a risk to human health and all rodenticides, insecticides, disinfectants and any potentially toxic substances used therein shall be stored in a separate room designed and marked specifically for the purpose.

Preventing Access

3. Areas immediately surrounding buildings, roads, pathways and other areas serving a **licensed processing establishment** must be suitably paved, graded, grassed, landscaped or otherwise treated and kept clean and tidy to avoid the risk of pests or other contaminants entering handling, processing and storage areas.

4. Buildings and facilities must be designed and maintained to prevent the entry and harbouring of pests and the entry of contaminants.

5. Internal walls must be sealed in all joints so that there can be no ingress of water, pests or contaminants.

6. If a room, including a refrigeration facility, is built within a product handling area, any inaccessible cavity formed between the walls or ceilings of the inner and outer rooms must be made pest-proof and dust-proof.

7. Hatches, doors and other passage ways shall be constructed in such a manner as to prevent the entry of pests and one or more of the following must be installed—

    a. strip curtains

    b. air curtains;

    c. a self or manual closing device.

8. If conveyors or chutes pass through external walls—

    a. the conveyors or chutes shall be designed, constructed and sealed so as to prevent entry of pests or other contaminants into product handling areas; and

    b. the gaps through which they pass shall be sealed against the entry of pests or other contaminants.

Harbourage / Infestation

9. Harbourage and infestation should be eliminated, including by the following actions –

    a. the use of traps or bait in the case of rodents and by chemical spraying or special baits for insects;

    b. wild birds and domestic animals must be physically removed from the precincts of the facility.

10. Only approved chemicals for sprays and baits should be used and activities must be undertaken in such a way to present no potential risks to employees or serve as a source of product or equipment contamination.

Monitoring and Detection

11. Daily checks of bait or trap stations must be undertaken.

Reporting

12. An operator must keep accurate and legible records of the location and frequency of servicing of bait stations at the establishment and of any sightings or other evidence of the presence of pests.

Guidance

Avoid creating an environment conducive to pests through the implementation of good hygiene practices.

Prevention of access (mesh screening or other pest -proof techniques of securing doors, windows, vents, etc.). (Automatic return closing doors are to be preferred).

Prevention of harbourage/infestation (setting of baits, traps etc. at designated stations around the perimeter of premises/building)

Harbourage and infestation should be eliminated. This can be accomplished by way of the use of traps or baits in the case of rodents and by chemical spraying or special baits for insects. If necessary a professional firm should be hired to apply the necessary ,physical ,chemical or biological applications.

Pest control measures to be implemented and managed in such a way that it does not imperil the health of workers or lead to cross- contamination of fish or other food products or material.

Monitoring and detection via observation for deaths or their absence or presence through bait or trap interference.

APPENDIX 1
MODEL PEST CONTROL PLAN

PROTOCOL: CARIFORUM Pest Control Protocol

Preventing Access	
Harbouring and Infestation	
Monitoring and Detection	
Eradiction / Management	
Reporting	

DIAGRAM

[insert plan of premises, indicating location of traps/bait, etc.]

APPENDIX 2
MODEL MANAGEMENT RECORD

Area/station inspected	Date Inspected	Observ. deaths No.	Observ. Signs of pest/ Faeces etc Etc.		Corrective Action Taken if any	Chemical Used if any	Signature	Signature /Comments (Supervisor)
			yes	*no*				

Fishery Product Transport Protocol

Last updated: 1 August 2015

CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

ABSTRACT

This Protocol covers the condition of the food (fishery product) transportation unit, loading, transport, in-transit storage and unloading of bulk, semi-packed fish and fishery products. This Protocol covers food transportation unit and product from the points of shipment to the points of receipt.

FISHERY PRODUCT TRANSPORT PROTOCOL

Rationale

Fishery products may become contaminated or reach their destination in an unsuitable condition for consumption unless control measures are taken during transport. Such condition may occur even where adequate hygiene measures have been taken earlier in the food chain. Adequate transportation systems should be in place which will ensure that fishery products remain safe and suitable for consumption upon delivery and assist countries to assure continued trade.

International Standards Implemented

- CODEX: CAC /RCP 47-2001 : Code of Hygienic Practice for the Transport of Food in Bulk and Semi-Packed Food
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- EU: Council Directive 854/2004 (Hygiene of Food Stuff)
- EU: Council Directive 2006/88/EEC (Transport of Aquaculture products)
- EU: Council Directive No.853/2004 (Landing, Handling and Transporting of Fishery Product Consignments)
- EU: Council Directive No. 2074/2005 (Transport of Fishery Products or Live Bivalve molluscs)
- EU: Council Directive No. 1251/2008 (Transport of Live Aquatic, fish eggs, un-eviscerated fish intended for human consumption.)

Transport Procedures

General Principles

1. Fishery products must be transported under such conditions that –
    a. prevent their contamination;
    b. protect the prescribed products from deterioration; and
    c. prevent damage to the container.
2. Vehicles used for the transportation of fishery products must be clean and must meet the following requirements –
    a. all internal surfaces of the cargo area must be constructed from smooth and impervious materials and must be free of cracks and crevices;

b. all internal surface joints must be smooth and sealed to prevent the entry of moisture;

c. the cargo area must be effectively proofed against pests and dust;

d. ramps, where provided, must not be stowed within the cargo area;

e. the cargo area must be constructed in such a manner that it is capable of being effectively drained;

f. if lighting is supplied in the cargo area, the light source shall be covered by shatterproof shields; and

g. animals must not be carried in the cargo area.

3. Adequate facilities for the cleaning and disinfecting of all means of transport shall be provided unless the means of transport may be cleaned and disinfected at external facilities authorized by the Competent Authority.

4. Units to be constructed such that walls, floors ceilings and other food contact areas are made of non-corrosion –type food gradable material with smooth, non absorbent surfaces and with a proper drainage system. All such units must be duly inspected and registered by the local Competent Authority.

Chris Hedley 8/8/15 10:37
Comment [1]: Is this part of the transport protocol?

5. Vehicles used for the transportation of chilled or frozen fishery products must be effectively insulated, constructed and equipped to maintain fishery products in a chilled or frozen condition, as the case may be, and must be capable of achieving and maintaining minimum temperature levels of –

a. 0 ^{o}C for chilled products; or

b. -18 ^{o}C for frozen products.

Live fish

6. Vehicles used for the transportation of live fish must –

a. be clean; and

b. be constructed to maintain the fish in a healthy condition during transportation.

7. Consignments of live bivalve molluscs and marine gastropods intended for human consumption must be transported in sealed parcels.

8. Vehicles used for the transportation of live bivalve molluscs and gastropods must conform to the following specifications –

a. the interior or any parts which may come into contact with the transported products must be made of corrosion resistant material and be smooth and easy to clean;

b. suitable equipment must be provided to ensure efficient protection against extreme conditions, contamination and damage to the shell caused from vibration or abrasion;

c. closed vehicles or containers must maintain the transported products at a temperature which will not adversely affect their quality or viability.

9. Fishery products must not be stored with or transported with other products which may contaminate them or affect their hygienic conditions.

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

Frozen fish

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

12. The transport unit must provide an appropriate environment which minimizes the growth of potential food pathogens or physical damage to products.

13. Products must be transported in sanitized food–gradable bins or bags when placed in the transport unit.

14. Loading must be carried our in a manner aimed at minimizing physical damage to products and to prevent cross-contamination.

Management and control

15. All employees handling food products must be certified to be a food handler by the relevant public health authority.

16. The transportation of all fishery products from landing sites must be accompanied by a transport certificate duly issued by the competent authority.

Documentation and Reporting

The transporter should maintain records, readily available at the food transportation unit or as prescribed by the official agency having jurisdiction, of the three most recent prior cargoes and cleaning and disinfection, where necessary, method

employed of the food transportation unit including volumes transported and make this information, on request, available to the food shipper, official control authorities and/or receiver/food manufacturers, for evaluation of potential hazards.

A complete record of previous cargoes should be kept over a period of six months by the transporter.

Guidance

The transport of food products especially fish requires the utmost care as transportation is one of the critical links in the delivery of safe and quality foods to the consumer. With respect to fish and fish products it is important that the established " cold chain" be maintained during the transport of products from the landing (docking) sites to the processing or cold storage facility or during the period of shipment finished fish products from facility throughout the distribution process.

Transportation operation is a major point of product contamination if due process of sanitation and hygiene is not applied.

Food must therefore be adequately protected from potential public health risks during the transport operation

All transport unit used for the transport of fish must meet specific hygienic, sanitary and environmental standards laid down by the Competent Authority. Transport units should be of the containerized-type being retrofitted to maintain required temperature levels thereby enhancing product integrity. All such units must be duly inspected and registered by the Competent Authority and be used for the sole purpose of conveying food products for human consumption.

The transportation of all fishery products from landing sites must be accompanied by a transport certificate issued by the competent authority aimed at maintain product traceability and integrity among others. All transport units should be in a continuous state of good repair.

All transportation operations must comply with the relevant international standards laid down.

All transport unit used for the transport of fish must meet specific hygienic, sanitary and environmental standards laid down by the Competent Authority.

Where appropriate, particularly bulk transport, transport units should be designated and marked for food use only and be used only for that purpose.

Water and Ice Quality Control Protocol

Last updated: 1 August 2015

CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

ABSTRACT

Water quality along with product mishandling are arguably the most prevalent sources responsible for food product contamination. Potable water supply should therefore be made available for all processing facility and vessel production operations excepting where as an alternative clean and uncontaminated sea water may be used on board of some vessels for the washing of fishery products and water used in the form of steam for certain cleaning (sanitary) operations.

WATER AND ICE QUALITY CONTROL PROTOCOL

Rationale

Water quality along with product mishandling are arguably the most prevalent sources responsible for food product contamination. Potable water supply should therefore be made available for all processing facility and vessel production operations excepting where as an alternative clean and uncontaminated sea water may be used on board of some vessels for the washing of fishery products and water used in the form of steam for certain cleaning (sanitary) operations.

International Standards Implemented

- CODEX: CAC/RPC-1-1969: (General Principles of Food Hygiene)
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- EU : Council Directive (Water Quality for fisheries operations)
- US-FDA : Regulation on Water Quality
- EU: Council Directive 82/778/EEC (Drinking Water)

Water and Ice Quality Control Protocol

General water supply

An ample supply of potable or clean sea water (or both) under adequate pressure must be available at numerous points throughout the premises at all times during working hours.

Water used for washing or conveying raw materials should not be recirculated unless it is restored to a level of potable quality.

Potable water

1. Potable water shall be used in every licensed processing establishment—

    a. with adequate pressure and in sufficient quantity;

    b. at a suitable temperature and suitably distributed;

    c. if used in a product handling area and on prescribed products, conform to the parameters and parametric values set out in the Appendix.

2. The parameters and parametric values set out in the Appendix shall be complied with—

a. in the case of water supplied from a public or private supply system, at the point at which it emerges from the taps;

b. in the case of water supplied from a tanker, at the point at which it emerges from the tanker; and

c. in the case of water used in a licensed processing establishment, at the point where the water is used in the undertaking.

3. Where water is chlorinated in a licensed processing establishment—

    a. the chlorine shall be added by the dosing or injection method for at least 30 minutes; and

    b. records of the residual chlorine level shall be maintained.

4. Prescribed products shall not be washed, dipped, glazed or treated with water the chlorine content of which exceeds the levels prescribed for potable water.

5. Ice used in the handling or preservation of prescribed products shall be made from potable water and shall be manufactured, handled and stored in a manner that will protect it from contamination.

Non-potable water

6. Non-potable water—

    a. may be used in a licensed processing establishment for steam production, refrigeration and the cooling of refrigeration equipment, fire control and other similar purposes not connected with the processing of prescribed products; and

    b. must be carried in separate and identifiable lines.

7. The operator of a licensed processing establishment shall ensure that—

    a. non-potable water is conveyed without causing cross-connection with, or back-siphonage into, any system carrying potable water; and

    b. the use of non-potable water does not present a risk of contamination to prescribed products.

8. There shall be no cross connection between potable and non-potable water reticulation systems.

9. All outlets and distribution lines for non-potable water In processing areas shall be clearly identified.

10. All storage tanks, cooling towers and pipelines used in handling water in a licensed processing establishment shall be constructed in such manner as to facilitate their easy inspection and cleaning.

11. All water storage tanks in a licensed processing establishment shall be effectively covered to prevent the entry of pests and potential contaminants.

Ice

12. Ice must be made from potable water or clean sea water and must be manufactured, handled and stored so as to protect it from contamination.

13. A special room or other suitable storage facilities must be provided to protect the ice from contamination and excessive melting.

Steam

14. Steam used in direct contact with prescribed products or a contact surface in a licensed processing establishment shall not contain any substance which may—

    a. be hazardous to health; or

    b. contaminate the products.

Management Control

15. Daily in-house water quality tests in terms of chlorine and mercury levels must be carried out utilizing a procedure of sampling water from a designated tap just prior to water entry into the facility and just as entry is gained into the facility from the designated inner tap at the point of water entry just prior to use for processing operations.

16. Periodic quality reports from national water supply should be monitored and used to determine water quality entering the facility.

Documentation / Recording

17. All water quality data must be recorded and be used to assess water quality of the facility on an on-going basis along with the correction of deviations from standards set.

Appendix | Parameters and Parametric Values

PART A
Microbiological parameters

Parameter	***Parametric value (number/ 100ml)***
E. coli	0
Enterococci	0

PART B
Chemical parameters

Parameter	***Parametric Value***	***Unit***	***Notes***
Acrylamide	0.01	ug/1	Note 1
Antimony	5.0	ug/1	
Arsenic	10	ug/1	
Benzene	1.0	ug/1	
Benzo (a) pyrene	0.010	ug/1	
Boron	1.0	mg/1	
Bromate	10	ug/1	Note 2
Cadmium	5.0	ug/1	
Chromium	50	ug/1	
Copper	2.0	mg/1	Note 3
Cyanide	50	ug/1	
I, 2-dichloroethane	3.0	ug/1	
Epichlorohydrin	0.10	ug/1	Note 1
Parameter	Parametric Value	Unit	Notes
Fluoride	1.5	mg/1	
Lead	10	ug/1	Note 3
Mercury	1.0	ug/1	
Nickel	20	ug/1	Note 3
Nitrate	50	mg/1	
Nitrite	0.50	mg/1	
Pesticides	0.10	ug/1	Note 4 and 5
Pesticides-Total	0.50	ug/1	Note 4 and 6
Polycyclic aromatic hydrocarbons	0.01	ug/1	Sum of concentrations of specified compounds; Note 7
Selenium	10	ug/1	

Tetrachloroethene and Trichloroelhene	10	ug/1	Sum of concentrations of specified perimeters
Trihalomethanes-total	100	ug/1	Sum of concentrations of specified compounds; Note 8
Vinyl chloride	0.50	ug/1	Note 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, operators should strive for a lower value.

Note 3: The value applies to a sample of water intended for use in the processing of prescribed products obtained by an adequate sampling method (I) at the tap and taken so as 10 be representative of a weekly average value ingested by consumers.
Where appropriate the sampling and monitoring methods must be applied in a harmonized fashion to be drawn up in accordance with these Regulations.
Operators shall take account of the occurrence of peak levels that may cause adverse effects on the wholesomeness of product.

Note 4: 'Pesticides' means:
organic insecticides;
organic herbicides;
organic fungicides;
organic nematocides;
organic acaricides;
organic algicides;
organic rodcnticides;
organic slimicides;related products (inrer 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 to be monitored.

Note 5: Parametric value applies to each individual pesticide. In the case of aldrin, dieldrin, heptachlor and heptachlor epoxide the parametric value is 0.030 ug/1.

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; and
indeno (I, 2, 3-cd) pyrene.

Note 8: Where possible, without compromising disinfection, operators shall strive for a lower value.

The specified compounds are: chloroform, bromoform, dibromochloromethane, bromodichloromethane

PART C
Indicator parameters

Parameter	***Parametric Value***	***Unit***	***Notes***
Aluminium	200	ug/1	
Ammonium	0.050	mg/1	
Chloride	250	mg/1	Note 1
Clostridium perfringers (including spores)	0	Number/ 100ml	Note 2
Color	Acceptable to consumers and no abnormal change		
Conductivity	2500	uS cm-' at 20.oC	Note 1
Hydrogen ion concentration	>6.5 and <9.5	pH units	Note 1
Iron	200	ug/1	
Manganese	50	ug/1	
Odor	Acceptable to consumers and no abnormal change		
Oxidisability	5.0	mg/1 O.,	Note 3
Sulphate	250	mg/1	Note 1
Sodium	200	mg/1	
Taste	Acceptable to consumers and no abnormal change		
Colony count 22".C	No abnormal change		
Coliform bacteria	0	number/looml	
Total organic carbon (TOC)	No abnormal change		Note 4
Turbidity	Acceptable to consumers and no abnormal change		Note 5

Note 1: The water shall not be aggressive.

Note 2: This parameter need not be measured unless the water originates from or is influenced by surface water. In event of non-compliance with the parametric value, the competent authority concerned shall investigate the supply to ensure that there is no potential risk to wholesomeness of product arising from the presence of pathogenic microorganisms for example Cryptosporidium.

The competent authority shall include the results of all such investigations in the reports they submit under regulations 50A and 76.

Note 3: This parameter need not be measured if the parameter is analyzed.

Note 4: This parameter need not be measured for supplies of less than 10000 m3 a day

Note 5: 5: In the case of surface water treatment, the competent authority should strive for a parametric value not exceeding 1.0 NTU (nephelometric turbidity units) in the water ex treatment works.

Definitions

"E.coli" means faecal coliforms which form indole from tryptophan at 44oC plus or minus 0.2oC within 24 hours.

"faecal coliform" means facultative, aerobic gram-negative, non-spore forming, cytochrome oxidase negative, rod-shaped bacteria that are able to ferment lactose with gas production in the presence of bile salts, or other surface active agents with similar growth-inhibiting properties, at 44^{o}C plus or minus 0.2^{o}C within 24 hours.

Guidance

- Ample supplies of both cold and hot potable or clean sea water supplies must be made available at all times in the undertaking of fish production and processing activities.

- All water available for use in those parts of establishments where fish is received, held, processed, packaged and stored should be potable water or clean sea water and should be supplied at pressure of no less than 1.4 kg/cm² (201b/in²). If sea water is used, it must be clean sea water.

- Non-potable water may be used for such purposes as producing steam, cooling heat exchangers and fire protection. It is very important that the systems of storage and distribution of potable and non-potable water are entirely separate and there is no possibility for cross-connection or for inadvertent usage of non-potable water in the fish processing areas. Only quality water should be used for the supply of hot water. The same requirement for the separation of systems would apply to clean sea water when it is used in processing of fish.

- Water to be used in facilities must be properly stored and be constantly monitored with periodical testing for potential contaminants and chemical residues through appropriate sampling and treatment methods as provided by the water quality assurance programme.

- Stored water supplies must be secured and be well protected from potential microbiological and physical contaminants, as well as chemical residues as required under the national water quality assurance and monitoring programme .

Worker Welfare and Safety Protocol

Last updated: 1 August 2015

CARIFORUM Protocols on Good Fish and Fishery Product Hygiene Practices

ABSTRACT

All workers must be protected from mishaps or accidents or otherwise at the work place. Major emphasis must be placed on employees 'safety and welfare and aimed at minimizing product contamination and uplifting personal health and well being at the work place.

WORKER WELFARE AND SAFETY PROTOCOL

Rationale

All workers must be protected from mishaps or accidents or otherwise at the work place. Major emphasis must be placed on employees 'safety and welfare and aimed at minimizing product contamination and uplifting personal health and well being at the work place.

International Standards Implemented

- CODEX: CAC/RCL1. General Principles of Food Hygiene
- CROSQ: CRCP 5: 2010. Code of Practice for Food Hygiene - General Principles
- EU: Directive 89/654/EEC (Minimum safety and health requirements for the workplace)
- EU: Regulation 852/2004/EC (Hygiene of foodstuffs, Chapter VIII)

Worker Welfare and Safety Procedures

Changing Facilities, Toilets, Living Areas and Hand-washing Facilities

1. Adequate, suitable and conveniently located changing facilities, toilets and hand washing facilities must be provided in all establishments.

2. Changing rooms must be sufficiently large and have facilities to enable each worker to lock away his clothes and other personal effects during working hours.

3. Provision must be made for separate changing rooms or separate use of changing rooms for men and women.

4. Changing facilities and toilets must be completely separated from product handling areas and shall not open directly onto these areas.

5. Toilets and toilet areas must—

    a. be designed to ensure hygienic removal of waste matter;

    b. be well lit and ventilated; and

    c. be kept clean and tidy.

6. Hand-washing facilities must be provided near toilets in adequate numbers for use by all workers and must—

    a. be located adjacent to personnel entrances to product handling areas;

b. be in such a position that employees pass them when entering product handling areas;

c. provide an adequate supply of warm, or hot and cold water, over a sink;

d. provide for suitable hand-cleaning preparation;

e. be equipped with non-hand operated taps and suitable and sufficient hygienic means of drying hands;

f. be fitted with properly tapped waste pipes leading to drains; and

g. where paper towels are used, be equipped with a sufficient number of dispensers or receptacles at each facility.

7. Non-hand operated taps must be provided in work areas and laboratories.

8. Facilities for the washing, disinfecting and drying of hands must be provided in areas where prescribed products are prepared.

9. Notices must be posted prominently in toilets directing personnel to wash their hands on entering product handling areas.

Protective clothing

10. All persons who enter a product handling area must be provided with appropriate protective clothing and gear.

11. Protective clothing worn in a product handling area must not have an outer breast pocket and must be—

    a. light in colour; and

    b. either washable or disposable.

Lighting

12. Workplaces must as far as possible receive sufficient natural light and be equipped with artificial lighting adequate for the protection of workers' safety and health.

13. Lighting intensity must not be less than—

    a. 540 lux at every inspection point;

    b. 220 lux in work rooms; and

    c. 110 lux in other areas.

14. Lights and light fixtures which are suspended over fishery products in any stage of processing or exposed packaging material, shall be of a safety type with a shatter proof covering and protected to prevent contamination of products in case of breakage.

Room temperature and ventilation

15. During working hours—

    a. the temperature in rooms containing workstations must be adequate for human beings; and

    b. sufficient fresh air and ventilation must be established in enclosed workplaces.

Emergency routes, exits

16. Emergency routes and exits must—

    a. be designated and indicated by means of permanent signs;

    b. remain clear and free from obstruction; and

    c. lead as directly as possible to the open air or to a safe area.

17. Emergency doors must open outwards.

18. Appropriate safety equipment, including as a minimum fire extinguishers, must be provided and be well placed and easily accessed by workers in case of need.

First aid rooms

19. One or more first aid rooms must be provided, fitted with essential first aid installations and equipment.

20. In addition, first aid equipment must be available in all places where working conditions require it. This equipment must be suitably marked and easily accessible.

Management And Monitoring

These systems must be duly and effectively managed and be maintained by management.

Management and Control

A senior management staff member should be assigned the responsibility for workers welfare on an on-going basis. A Committee consisting of both management and workers representatives should collaborate to deal with issues affecting workers' affairs.

Documentation / Records

Appropriate records of workers' issues should be kept including those of breaches and disciplinary measures taken over time.

Guidance

This Protocol does not displace, and must be read alongside, any national legislation concerning health and safety legislation in the workplace.

All workers must be protected from mishaps or accidents or otherwise at the work place. There must be appropriate and proper clearly visible safety instructions and guides for workers.

Pregnant women and nursing mothers must be able to lie down to rest in appropriate conditions.

Workplaces must be organized to take account of handicapped workers, if necessary. This provision applies in particular to the doors, passageways, staircases, showers, washbasins, lavatories and workstations used or occupied directly by handicapped persons.

Facilities

As an internationally accepted guide there should be approximately eight individuals to one toilet. All workers must be provided with individual personal lockers to safe keep their personal property, and an adequate dining / recreational or lounging facility must be made available for workers use. Rooms must be large enough and equipped with an adequate number of tables and seats with backs for the number of workers.

Lighting

Workplaces must as far as possible receive sufficient natural light. Lighting installations in rooms containing workstation and in passageways must be placed in such a way that there is no risk of accident to workers as a result of the type of lighting fitted. Workplaces in which workers are especially exposed to risks in the event of failure of artificial light must be provided with emergency lighting of adequate intensity.

Windows, skylights and glass partitions should allow excessive effects of sunlight in workplaces to be avoided, having regard to the nature of the work and of the workplace.

Ventilation

If a forced ventilation system is used, it shall be maintained in working order. Any breakdown must be indicated by a control system where this is necessary for workers' health. If air-conditioning or mechanical ventilation installations are used, they must operate in such a way that workers are not exposed to draughts which

cause discomfort. Any deposit or dirt likely to create an immediate danger to the health of workers by polluting the atmosphere must be removed without delay.

Emergency exits

Emergency doors must not be locked. The emergency routes and exits, and the traffic routes and doors giving access to them, must be free from obstruction so that they can be used at any time without hindrance. Emergency routes and exits requiring illumination must be provided with emergency lighting of adequate intensity in case the lighting fails.

In the event of danger, it must be possible for workers to evacuate all workstations quickly and as safely as possible. The number, distribution and dimensions of the emergency routes and exits depend on the use, equipment and dimensions of the workplaces and the maximum number of persons that may be present.

A disaster safety gathering point on the premises which is well known to all workers should be designated. There must be a facility disaster preparedness plan along with regular disaster preparedness drills or simulation -exercise to which all employees are privy and participants. To avoid or minimize potential disaster of such events as fires and earth quakes the safest escape route out of building should be clearly mapped, be visible and permanently marked and well known to all workers .